OECD-FAO Agricultural Outlook 2006-2015

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Foreword

This is the second occasion that the Agricultural Outlook *report has been prepared jointly by the Organisation for Economic Co-operation and Development (OECD) and the Food and Agriculture Organization (FAO) of the United Nations. The report draws on the commodity, policy and country expertise of both Organisations in providing a medium term assessment of future prospects in the major world agricultural commodity markets. The report is published annually, as part of a continuing effort to promote informed discussion of emerging market and policy issues. This edition of the Agricultural Outlook offers an assessment of agricultural markets covering cereals, oilseeds, sugar, meats, milk and dairy products over the period 2006 to 2015. The assessment is based on a set of projections, that are conditional on specific economic and policy assumptions and which present a plausible scenario for the evolution of these markets over the next decade. As such, they provide a yardstick or benchmark for the analysis of agricultural market outcomes that would result from alternative assumptions.*

This year's projections are set against a macroeconomic background of sustained optimism. The global economy has been expanding at a pace greater than 4% per year over the past four years, with economic growth expected to become more broadly-based over the medium term, along with slower global population growth and continuing low inflation. With their increasing affluence and faster population growth, despite some decline relative to the last decade, the countries in the non-OECD region are expected to continue to experience a more rapid increase in consumption of agricultural products than countries in the OECD area. In spite of rising production, faster consumption growth is expected to lead to increased imports of agricultural products by the non-OECD area as a whole. The Outlook foresees an intensification of competition for these growing markets between traditional OECD exporting countries and those exporters in the developing world. For the Least Developed Countries with more limited prospects for income growth, the projections imply increased reliance on international markets to feed their populations and thus growing exposure to the vagaries of commodity price changes and fluctuations in import bills. The projected market outcomes are highly conditional on the geopolitical and global economic situation, as well as on unchanged domestic agricultural policies and trade policy settings, in the various countries. For instance, further trade policy reform following from a successful conclusion to the Doha Development Agenda round of multilateral trade negotiations, revisions to US agricultural policies in the context of the next Farm Bill due in 2007, or the completion of significant bilateral or regional trade agreements that are under consideration, would all have impacts on the prospects for agricultural markets as set out in this assessment.

The projections and assessments provided in this report are the result of close co-operation between the OECD and FAO Secretariats and national experts in member countries, and thus reflect the combined knowledge and expertise of this wide group of participants. As a result of FAO participation in the Outlook, the country coverage of the projections has been considerably extended to a larger number of developing countries and developing country regions. A jointly developed modelling system, based on the OECD's Aglink and FAO's Cosimo models, facilitated the assurance

of consistency in the projections. A major challenge in the generation of the joint outlook projections was the combination of different sources for market data and minimization of any residual global commodity balances. The fully documented outlook database, including historical data and projections, is available through the OECD and FAO internet sites. Within the OECD, this publication is prepared by the Directorate for Food, Agriculture and Fisheries, while within FAO, the staff of the Commodities and Trade Division were responsible for the report.

Acknowledgements. *This* Agricultural Outlook *was prepared by the following staff members of the OECD and FAO Secretariats:*

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Acronyms and Abbreviations

Acronyms and abbreviations

ABARE	Australian Bureau of Agricultural and Resource Economics
ACP	African, Caribbean and Pacific countries
AMAD	Agricultural Market Access Database
AMF	Anhydrous milkfat
AI	Avian Influenza
AWB	AWB Ltd. formerly Australian Wheat Board
BSE	Bovine Spongiform Encephalopathy
BST	Bovine Somatotropin
CAFTA	Central American Free Trade Agreement
CAP	Common Agricultural Policy (EU)
CIS	Commonwealth of Independent States
CPI	Consumer Price Index
CMO	Common Market Organisation for sugar (EU)
CSF	Classical swine fever
Cts/lb	Cents per pound
Cwe	Carcass weight equivalent
CWB	Canadian Wheat Board
DDA	Doha Development Agenda
DR-CAFTA	Dominican Republic-Central America Free Trade
Dw	Dressed weight
EBA	Everything-But-Arms Initiative (EU)
ERS	Economic Research Service of the US Department for Agriculture
Est	Estimate
EU	European Union
EU-15	Fifteen member states of the European Union
EU-10	Ten new member states of the European Union from May 2004
EU-25	Twenty five member states of the European Union from May 2004
EUROSTAT	Statistical Office of the European Communities
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	On-line statistical database of the FAO
FDI	Foreign Direct Investment
FMD	Foot and Mouth Disease
FOB	Free on board (export price)
FSRI ACT	Farm Security and Rural Investment Act (US) of 2002
FTAA	Free Trade Area of the Americas
GDP	Gross Domestic Product
GM	Genetically modified
GMO	Genetically engineered or modified plant, animal, micro-organism or virus
HFCS	High Fructose Corn Syrup
HS	Harmonised Commodity Description and Coding System

H5N1	Type5 of the protein hemagglutinin and Type 1 of the protein neuraminidase
IMF	International Monetary Fund
JFY	Japanese fiscal year beginning 1 April
Kt	Thousand tonnes
LDC's	Least developed countries
LICONSA	Leche Industralizada
Lw	Live weight
MAF	Ministry of Agriculture and Forestry (New Zealand)
MAFF	Ministry of Agriculture, Forestry and Fisheries (Japan)
MERCOSUR	Common Market of the South
Mha	Million hectares
MFN	Most Favoured Nation
Mn	Million
Mt	Million tonnes
NAFTA	North American Free Trade Agreement
NZDB	New Zealand Dairy Board
OECD	Organisation for Economic Co-operation and Development
OIE	World Organisation for Animal Health
OIS	Other Independent States of the former Soviet Union
OMB	Office of Management and Budget (United States)
PCE	Private Consumption Expenditure
PROCAMPO	Mexican Farmers Direct Support Programme
PSE	Producer Support Estimate
PSD	Production supply and distribution
Pw	Product weight
Rse	Raw sugar equivalent
Rtc	Ready to cook
RFS	Renewable Fuels Standard in the US, which as part of the Energy Policy Act of 2005 adjusts fuel standards in favour of ethanol and other biofuels and sets increased mandated biofuel consumption quantities
Rwt	Retail weight
SFP	Single Farm Payment
SMP	Skim milk powder
SP	Sugar Protocol
SPS	Special Preference Sugar
STE	State Trading Enterprises
T	Tonnes
T/ha	Tonnes/hectare
TRQ	Tariff rate quota
UK	United Kingdom
UN	The United Nations
URAA	Uruguay Round Agreement on Agriculture
US	United States
USDA	United States Department of Agriculture
VAT	Value added tax
v-CJD	New Creutzfeld-Jakob-Disease
WMP	Whole milk powder
WTO	World Trade Organisation
ZAR	South African rand

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Symbols

AUD	Dollars (Australia)
ARS	Pesos (Argentina)
Bn	Billion
BRL	Real (Brazil)
CAD	Dollars (Canada)
CNY	Yuan (China)
EUR	Euro (Europe)
ha	Hectare
hl	Hectolitre
INR	Indian rupees
JPY	Japanese yen
kg	Kilogram
KRW	Korean won
L	Litre
lb	pound
MXN	Peso (Mexico)
NZD	Dollars (New Zealand)
RUR	Ruble (Russia)
THB	Thai baht
USD	Dollars (United States)

Outlook in Brief

- World agricultural production is projected to expand steadily over the next decade, but at a slower rate than during the previous ten years. Per capita food consumption is increasing with rising incomes and growing trade. Increasing local production and lower costs from more efficient transport and product distribution systems as well as consumption shifts due to urbanisation and dietary changes are factors that add to this evolution in developing countries. In these countries, there is an increased emphasis on livestock products and animal feedstuffs compared to food grains. In the more developed markets, concerns with the availability of food have been replaced by those for food attributes and quality.
- The location of world agricultural market expansion is shifting increasingly towards developing countries. This tendency is expected to accelerate over the outlook period, as investment in production capacity and infrastructure are shifting the location of production, particularly for bulk agricultural products, towards the developing world and away from the developed countries. Policy reforms in the latter are slowly changing the nature of support to agricultural production, with impacts on the level and location of production.
- While the overall rate of expansion in production in the developing and former transition countries outpaces that of the developed countries, for the Least Developed Countries, the projection is marked by growing net imports of basic food commodities. In these countries, productivity growth is lagging behind the expansion of population, leading to greater reliance on world markets for their food security and greater exposure to international market price fluctuations.
- Strong competition from several developing and former transition country exporters reflects their comparative advantage in many agricultural commodities. At the same time, new technologies in tandem with continuing globalisation and integration of the agri-business supply chain will continue to alter trade flows towards more processed products. However, projected growth in agricultural commodity trade is expected to lag behind its potential, due to the persistence of high trade barriers as well as regulatory controls related to food safety and environmental concerns.
- Global trade for wheat and coarse grain is expected to grow moderately while world rice trade is to maintain a faster pace of expansion over the Outlook. Trade in coarse grains remains closely tied to expansion in domestic livestock production, particularly in countries unable to meet their own needs for feedstuffs. Strong demand for vegetable oil for food consumption and protein meals used in livestock feeding is expected to sustain the shares of global trade in world production of oilseeds and oilseed products at level well above those of wheat and coarse grains.
- Energy prices over the Outlook are expected to remain strong, favouring agricultural production of less energy-intensive commodities and capital investment in bio-fuel production facilities. Consequently, expanding maize-based ethanol production in the United States will moderate the export growth of maize. Despite strong growth in Brazil's sugarcane-based ethanol sector it is not expected to prevent it from increasing its world sugar market share.
- Prospects for world meat trade, driven by rising per capita incomes in a broad range of importing countries risk being dampened by a recurrence of animal disease outbreaks and their likely after-effects. World dairy prices are expected to stay firm over the outlook period, as rising demand in developing countries, particularly in East Asia, North Africa and the Middle East, is combined with limited anticipated growth of exports from traditional suppliers from Oceania and Europe.
- Weather-related production shocks, energy price trends, investment in bio-fuel capacity, economic growth prospects and future agricultural policy developments are among the main uncertainties affecting the prospects for world agricultural markets. A major uncertainty for the Outlook is the outcome of the Doha Development Agenda of multilateral trade negotiations. The prospects for world agricultural markets are highly dependent on economic developments in Brazil, China and India, three of the world's agricultural giants.

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Chapter 1

Overview

Introduction

The *Agricultural Outlook* this year has again been prepared jointly by the OECD and the *Food and Agriculture Organization* (FAO) *of the United Nations* in Rome. As such, the report draws on the commodity, policy and country expertise of both Organisations, to produce this medium term assessment of global commodity markets. The trends in production, consumption, stocks, trade and prices described and analysed in this report cover the years 2006 to 2015. The projections which are presented in the statistical annex reflect specific assumptions concerning key macroeconomic variables as well as agricultural and trade policies. These are discussed below. The projections do not take account of weather shocks and related impacts on crop yields and livestock production. Likewise, no additional outbreaks of animal diseases over the medium term are included in this analysis. There is a clear possibility that such events will occur in reality, and these constitute some of the important uncertainties in the Outlook.

The main underlying assumptions

Growth remains strong within the OECD and in key emerging economies

The macroeconomic climate prevailing for this year's Outlook is one of sustained optimism. Output growth is generally robust in the OECD area and near-term growth prospects are strong, in particular in North America and Asia. Growth is vigorous in the United States and expected to remain solid for the duration of the outlook, playing a large role in determining economic conditions around the world. In Japan, expansion has become more broad-based, but current rates of growth are not expected to be sustained over the medium term. Activity in Europe is recovering in an environment of low interest rates and a depreciating euro. The latter contributes to buoyant export markets, which are expected to lead the recovery into stable long-term growth. In the meantime, expansion in the OECD is broadening to more countries and spreading from specific leading sectors. This is happening for example in Korea, Turkey and Mexico which are expected to have among the highest growth rates in the OECD.

The growth potential of large developing economies has made them key drivers of global economic growth. They play an expanding role in world trade of agricultural commodities and make up an increasing share of global food demand. Activity remains dynamic in much of Asia, with domestic demand and trade expansion in China and India driving growth not only in the near term, but throughout the outlook horizon. Expansion of agricultural exports is a key underlying factor for growth in both Argentina and Brazil, which is expected to exceed that of most OECD countries. Economic growth in Russia, as in other CIS countries, has dampened but will remain robust, driven by high oil revenues.

This global economic outlook also has persistent downside risks that may have important impacts on agricultural markets. There are uncertainties about the long-term sustainability of unprecedented current account deficits in the US and over the prospects of monetary tightening in both Japan and the euro area. Although long-term interest rates

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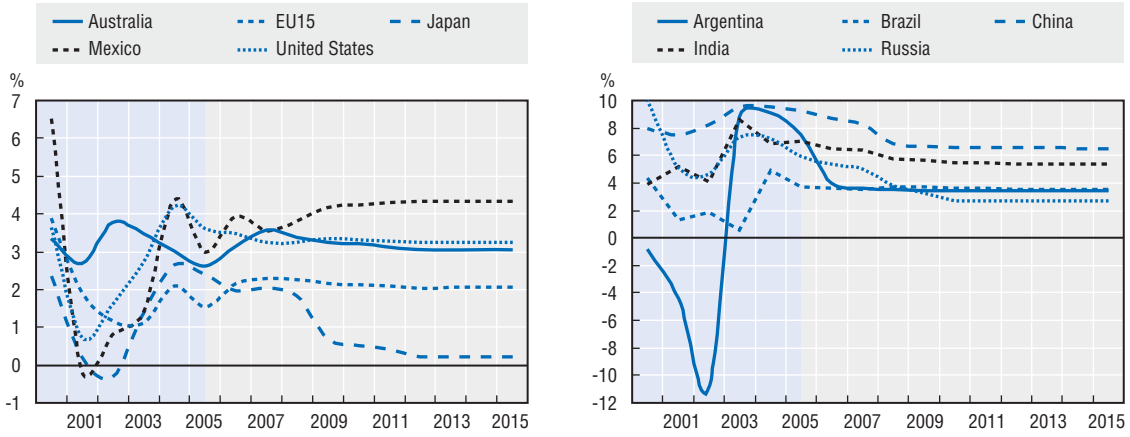
Figure 1.1. **Trends in output growth in selected countries**

Annual growth in real GDP, percentage change from previous period



Source: *OECD Economic Outlook No. 78* (December 2005), World Bank Global Economic Prospects 2006 (November 2005).

Statlink: *http://dx.doi.org/10.1787/046358016307*

continue to be low relative to historical levels, upward pressure raises concerns about future rural investment and consumer demand in agri-food markets. In developing countries, questions surround the state of structural reforms and how government intervention may affect agricultural trade flows.

Along with income growth, population prospects are an important determinant of the future global economic environment, affecting both the supply and demand for agricultural commodities. Population growth over the next decade will decline relative to the last 10 years, with world population growing on average 1.1% annually to reach approximately 7.2 billion in 2015. The highest population growth is in Africa (annual average above 2%), whereas in Europe, population is expected to decline over the coming decade, particularly in Central and Eastern European countries.

In many developing countries, arable land constraints may provide incentives for rural population to increase the production capacity of labour-intensive agriculture commodities like fruits and vegetables. In so far that this means they better exploit their comparative advantage, such shifts in production may contribute to economic growth in

Table 1.1. **Where population and income is projected to grow**

Average annual growth rate over 10 year period and rural and income share in 2005, percentage

	Population			Income		
	1996-2005	2006-2015	*2005 rural share*	1996-2005	2006-2015	*2005 income share*
World	1.26	1.10	*50.8*	2.64	2.90	*100*
Africa	2.24	2.08	*60.3*	3.50	3.78	*1.8*
Latin America and Caribbean	1.47	1.20	*22.4*	2.03	3.61	*5.7*
North America	1.00	0.87	*19.2*	3.02	3.21	*28.7*
Europe	0.00	–0.11	*26.7*	2.33	2.17	*32.1*
Asia	1.28	1.07	*60.1*	2.64	3.13	*30.2*
Oceania	1.36	1.10	*26.7*	3.48	3.09	*1.6*

Note: Income is at 1995 USD market prices. Average annual growth is the least-squares growth rate (see glossary).
Source: UN World Population Prospects (2004 Revision), World Bank Global Economic Prospects 2006 (November 2005).

Statlink: *http://dx.doi.org/10.1787/046358016307*

these countries. Expected income growth over the next decade is highest in Africa and Latin America, with annual average growth rates approaching 4%. But these regions grow from a relatively low level and thus contribute the lowest shares to total world output. Still, compared to the mature markets of OECD, income gains in developing countries tend to translate more directly into stronger demand for higher value agricultural commodities, such as meat and dairy products, demand for which is more responsive to rising incomes. Thus, dynamic developing economies can represent growing import markets, not only for primary agricultural commodities but also for more processed products.

Inflation remains contained, resilient to high energy prices

The evolution of crude oil prices is an important element in the agricultural outlook. The higher price of oil affects agricultural markets not only through increased production costs, but also through its influence on the production of substitute biofuels. Over the medium term, oil prices are assumed to stay well above their average level during the first years of this decade, but nevertheless to decline gradually to around USD 40 per barrel by the end of the outlook period, consistent with medium term projections of the OECD Economics Department. Sustained high oil prices when compared to the early years of the current decade shift agricultural production away from energy-intensive commodities and make capital investment in biofuel production facilities more economically feasible.

Despite the oil price hikes, global growth and world trade expansion, general price levels in many countries have remained stable. This has reinforced expectations that inflation in OECD countries will remain low in the long-term. Relative to the 2000-04 average, estimates of the annual inflation rate for 2005 are slightly lower in both the euro area and for the OECD as a whole, and there have been notable declines in Mexico and Canada. In many of these countries, inflation rates are below 3% and are expected to remain so throughout the outlook horizon. The inflation rate has been reduced significantly in Brazil since 2003, yet in Argentina and Russia it remains a serious concern.

Increasing global focus on the exchange rates of high growth developing economies

Assumptions on exchange rates are critical to the baseline projections as they can strongly influence relative competitiveness and hence agricultural trade across regions. The US dollar is the currency in which the majority of agriculture trade is denominated. Over the course of 2005, the US dollar rebounded against its main competitors in the foreign exchange markets, the euro and the Japanese yen, after a period of depreciation in 2003 and 2004. The US dollar's appreciation against these major currencies is expected to continue in the first year of the Outlook. While the stronger dollar is a relief for euro area agricultural commodity exporters, a weaker yen adversely affects Japanese imports of agricultural and food products from overseas. Over the course of the outlook period beyond 2006, the euro exchange rate is projected to remain stable. However, very low levels of inflation in Japan relative to the United States mean that the yen is expected to appreciate.

With the expansion of global trade opportunities, there is an increasing importance placed on the exchange rates of developing countries *vis-à-vis* the US dollar because of their prime influence on global terms of trade and external imbalances. Of particular interest is the Chinese yuan, which has appreciated by almost 3% since the adoption of a more flexible management system in July 2005 and is expected to appreciate even further

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over the outlook horizon. In strong growth countries like Argentina, Brazil, India, Mexico and Russia, export markets are expanding solidly. Yet over the longer term to 2015, projected inflation rates are higher than in the United States, amid strong demand growth, in particular for imports. In the context of assumed constant real exchange rates, this constitutes a depreciating influence on the exchange rate *vis-à-vis* the dollar.

Domestic support and trade policies affect agricultural markets

Agricultural and trade policies play an important role in both domestic and international agricultural markets, directly affecting the levels of production and consumption of agricultural commodities and food products. Domestic support measures and trade protection policies can represent significant market distortions, influencing both domestic and world market prices. Through their influence on production and consumption decisions, they can alter not only the composition and levels of production and consumption but can also determine where these take place. To limit these distortions and maximise the intended benefits, policies should be decoupled and be specific and targeted to well-defined objectives and beneficiaries. This is equally important for developing countries where agricultural policies are often intended to alleviate poverty. While agricultural trade policies can be aimed at specific domestic agricultural commodities or sectors, they are also part of wider international trade negotiations and agreements.

As the WTO negotiations on the DDA have not yet come to a conclusion, the Outlook is based on existing policies and any future changes that have already been decided. Specifically, the outlook projections assume that trade policies as agreed in the *Uruguay Round Agreement on Agriculture (URAA)* will hold for the entire period to 2015. The policies and provisions of established regional and bilateral trade agreements such as the *North American Free Trade Agreement (NAFTA)*, the *Everything But Arms (EBA)* initiative of the European Union and the *Mercosur* agreement between Argentina, Brazil, Paraguay and Uruguay are taken into account in the Outlook. Where applicable, bilateral preferential trade agreements covering specific commodities are also taken into account. Under the *Central American Free Trade Agreement (CAFTA)*, signed in August 2004, market access for all commodities will be liberalised over a varying period of up to 20 years, which is anticipated to promote greater trade in meat in that region, through gradually expanded tariff rate quotas and reduced tariffs. *CAFTA* has not been explicitly taken into account in the underlying modelling system but allowance for the agreement has been made where the growth in trade is expected to have an impact. Assumptions about prospective agreements in the Doha Development Agenda negotiations have not been incorporated in this *Outlook* baseline.

The programmes and provisions of the United States' *Farm Security and Rural Investment Act (FSRI)* of 2002 are assumed to continue for the entire outlook period, with crop loan rates extended using the assumption of constant levels until 2015. The main policy elements of the EU *Common Agricultural Policy Reform* of 2003, as implemented in previous releases of the Outlook, are assumed to remain unchanged. For other countries, established support measures and policy programmes (such as *PROCAMPO* in Mexico) are implemented as legislated and where well-defined termination dates exist, they are respected, otherwise payments, provisions and other policy measures are assumed to continue through 2015. For sugar, projections take account of the EU sugar reform as agreed in November 2005. In addition to cuts in price support, partially compensated by

direct payments, these include the reduction of EU25 sugar export subsidies to the agreed *URAA/WTO* limit, unrestricted sugar exports to the EU from LDCs under the *EBA* Initiative from 2009. The projections also incorporate the elimination of restrictions and duties on Mexican sugar exports to the US from 2008 under the *NAFTA* agreement and a continuing consumption tax on beverages manufactured with HFCS in Mexico.

Main trends in commodity markets

A number of economic drivers are operating in world agricultural markets. Importantly, rising per capita incomes with broad-based economic growth and increasing urbanisation are leading to dietary changes in most developing countries, generating increased demand for livestock products and feedstuffs together with fruits, vegetables and processed food products. This strong demand growth provides the foundation for increasing import demand, which is reinforced by population growth rates that remain nearly double those of the developed countries despite their significant decline relative to the previous decade. As a consequence, the developing countries are now increasingly determining the contours of the world agricultural landscape and have effectively eclipsed the role of the developed countries in this respect. Developing countries, and particularly Brazil, India and China, are becoming the new epicentre of forces shaping world agricultural production and trade, a tendency which is expected to accelerate over the outlook period.

In addition to the emergence of the developing countries as the main force driving growing demand and trade of agricultural products, there has also been a clear shift on the supply side of the agricultural equation in terms of the main producing and exporting countries. In comparing production growth prospects for the 15 agricultural products listed in Table 1.1, it is apparent that the rate of expansion in production in the developing and transition countries comprising the non-OECD region outpaces that of the OECD area, for every product group and by a large margin for oilseeds and oilseed meals, rice, sugar, pigmeat, beef, butter and milk powders, though to a lesser extent for wheat, coarse grains, poultry meat and vegetable oils. A similar tendency prevails for consumption growth, with the increase in non-OECD countries exceeding that in the OECD area. As a result, the production and consumption shares of the OECD area in the world totals for the products considered in this Outlook continue to decline to 2015 (Table 1.2).

For the Least Developed Countries, the projection is marked by growing net imports of basic food commodities. In these countries populations are increasing rapidly and productivity growth is not keeping pace with domestic demand. The result is increased reliance on international markets, and increased vulnerability to commodity price fluctuations. This underscores the importance of improving domestic supply capacity by investing in education and training, research and development and physical infrastructure. In addition, the development of food accreditation systems would be important to access domestic or international food value chains, in particular for small scale farmers in these countries.

Ongoing policy reform and substantial investment in production agriculture and supporting infrastructure are shifting the location of production and exports of agricultural commodities, particularly for bulk agricultural products, away from the developed countries and towards the developing world. As a consequence, strong competition is expected to be a feature of international agricultural markets not only from traditional exporters but also from the developing and transition country exporters that are exploiting their comparative advantage in agricultural production. Developed countries retain

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Table 1.2. **Consumption and production average annual growth rates, 2005-2015**

	Production			Consumption		
	%			%		
	Total	OECD	Non-OECD	Total	OECD	Non-OECD
Wheat	1.2	1.0	1.3	1.1	0.9	1.2
Rice	1.5	0.0	1.6	1.3	0.1	1.4
Coarse grains	1.6	1.3	2.0	1.5	1.4	1.6
Coarse grains used for feed	. .	. .	. .	1.1	0.6	1.7
Oilseeds	2.2	0.6	3.3	2.4	1.4	3.1
Oilseed meal	2.7	1.4	3.5	2.8	1.7	4.0
Beef	1.9	0.7	2.7	2.0	0.8	2.7
Pig meat	1.9	0.8	2.4	1.9	0.8	2.4
Poultry meat	2.4	1.6	3.0	2.4	1.8	2.9
Milk	1.5	0.7	2.2	. .	. .	. .
Butter	1.6	–0.4	2.8	1.7	–0.3	2.7
Cheese	1.5	1.4	2.0	1.6	1.5	2.0
Skim milk powder	–0.3	–1.3	2.8	–0.7	–1.8	0.7
Whole milk powder	2.0	0.7	3.2	2.2	–0.4	2.9
Vegetable oils	2.6	1.5	2.9	2.7	1.8	3.2
Sugar	1.9	–1.1	2.9	1.7	0.4	2.2

Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/046358016307*

Table 1.3. **Consumption and production of OECD countries as a share of world total**

	Production			Consumption		
	%			%		
	2005	2010	2015	2005	2010	2015
Wheat	40.9	40.5	40.2	32.6	32.4	31.8
Rice	5.5	5.0	4.7	5.2	4.9	4.6
Coarse grains	52.8	51.5	51.1	49.3	49.9	48.9
Coarse grains used for feed	. .	. .	. .	53.9	52.8	51.3
Oilseeds	42.2	38.3	36.0	40.2	37.6	36.2
Oilseed meal	40.8	37.7	36.0	55.0	52.7	49.5
Beef	41.1	39.3	36.3	41.5	39.6	36.9
Pig meat	36.0	34.0	32.5	34.7	32.6	31.2
Poultry meat	45.1	43.5	41.8	42.8	41.2	40.1
Milk	46.6	44.8	42.9	. .	. .	. .
Butter	42.2	38.3	34.8	36.1	32.3	29.5
Cheese	78.1	78.0	77.1	76.1	75.5	75.1
Skim milk powder	78.8	75.3	71.1	58.0	54.5	51.6
Whole milk powder	51.8	48.8	45.5	23.5	20.2	18.2
Vegetable oils	27.1	25.5	24.5	34.1	32.2	31.1
Sugar	28.6	23.1	21.2	27.5	26.0	24.1

Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/046358016307*

substantial presence in trade in bulk agricultural commodities, although in the context of a globalising agri-food industry, trade in value-added agricultural and food products may well be increasing more rapidly.

Projected growth in agricultural commodity trade to 2015 will continue to under perform due in large part to the persistence of higher trade barriers for agricultural

products. For agricultural commodities, trade barriers are, in general, higher for processed agricultural products than for bulk commodities with limited processing (*i.e.* tariff escalation). Trade in processed agricultural products, which grew more rapidly than that of bulk commodities in the last twenty years, is expected to continue to grow, but at a slower rate over the next decade, in part due to these higher trade barriers. Regulatory controls and embargoes on imports continue to apply in some countries. These affect agricultural trade flows in terms of country origins and destinations over the outlook period.

Animal diseases dampen growth in international meat trade

In addition to market access gains achieved under global trade agreements over the past decade, growth in international trade in livestock products has become increasingly dependent on demand from developing countries. In the developed country markets, where per capita consumption is generally high, and demand either stable or falling for some products, concerns about the availability of food have been largely replaced by those related to other product and/or process attributes and food quality. However, trade in meat products has been frequently affected in the last decade by animal disease outbreaks and their after-effects (*i.e.* delays in lifting trade embargoes by importing countries, investment decisions in the sector). These are a dampening factor on otherwise generally positive prospects for world meat trade, driven by an expectation of rising per capita incomes in a broad range of importing countries over the outlook period.

In terms of meat trade developments, Japan and Korea are expected to increase their imports of primarily high quality beef to levels reached prior to the BSE cases in North America. At the same time, despite easing regional consumer concerns about BSE and AI, pigmeat consumption and imports by these countries are expected to grow as well. The US and Canada, whose beef trade is expected to rebuild gradually over the Outlook, regain market share previously lost to the increased presence of Australia and New Zealand. Meanwhile, the EU's position as a net exporter of beef is expected to erode as a result of domestic policy reforms.

Outside the OECD area, growing exports by developing countries will be driven by strong South American exports which are supported by continuing competitiveness and increasing investment in the sector. Some gains from non-traditional developing country exporters, such as Chile and Mexico will be generated by sanitary agreements which facilitate market access into Japan. Russia, despite having imposed a TRQ on beef, pig meat and poultry imports since 2003 and with growing domestic production, continues to be a large market for beef, pork and poultry exports from the EU and Brazil. China's pigmeat production and exports are projected to continue to rise over the outlook period. In the case of poultry, higher projected exports from the US face growing competition from Brazil with its low production costs and competitive prices on world markets. China, Mexico and Russia are expected to remain among the world's largest poultry importers as rising incomes increase demand even faster than the projected growth of domestic production.

Dairy trade continues to be dominated by OECD countries

In response to recent price peaks caused in part by income driven demand as well as to a return to normal weather conditions in some major producing countries, world milk and dairy products output continue expanding over the projection period. The majority of demand growth for dairy products is expected to be realised in the non-OECD area. The strong growth in demand in this region reflects not only faster population and income

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growth, but also the effects of continued urbanisation and technological and product development within the dairy industry in these countries. In the majority of OECD countries, per capita consumption is already high with future demand growth expected to be lower than in the non-OECD area. In terms of individual product categories, consumption in the OECD area is expected to increase for cheese only, while butter, whole milk powder and in particular consumption of skimmed milk powder is projected to decline.

As consumption growth outpaces supply in most importing countries, imports of dairy products are expected to increase with the exception of skimmed milk powder. Australia, New Zealand and the EU remain the biggest exporters in world dairy markets. Nevertheless, EU butter and SMP exports are projected to decline considerably following the cut in price support associated with the CAP reform. Also, a much slower rate of expansion in exports is expected for Oceania compared to the last decade. Increasingly, Argentina and the Ukraine are emerging as important players on dairy export markets. Strong consumption growth in Russia leads to rising butter, cheese and milk powder imports over the projection period. Japan and the US will continue to be important cheese importers while the Middle East, North Africa and Mexico expand imports of milk powders.

Traditional wheat exporters dominate trade, but face increasing competition

The traditional five major wheat exporting countries of Argentina, Australia, Canada, the EU and the US maintain their dominant position in world wheat trade over the outlook period, with their combined market share changing only little. However, increasing exports from Ukraine and Kazakhstan are creating growing competition for exports by these countries. The US retains its position as the world's largest wheat exporter to 2015, but its market share along with that of Canada falls in favour of Australia, the EU, Argentina and a number of suppliers from the Black Sea area.

Growth in wheat trade was limited over the last decade due to lower imports particularly by the Islamic Republic of Iran. But global wheat imports are expected to increase steadily over the coming decade by a broad range of countries, particularly developing countries. Wheat import growth will be concentrated in those developing countries with rising per capita incomes and population, but which are also facing land or climatic constraints on expanding domestic production. Growth markets are found in Africa (particularly Egypt and Nigeria), Brazil and Mexico. With large stocks of low quality wheat available at the start of the Outlook, low prices for these wheat types enable them to compete with maize as a preferred animal feed, boosting feed demand and hence imports for feed wheat in some countries, such as the Republic of Korea.

Growing trade in coarse grains linked to expanding livestock production

Increasing trade in coarse grains is closely tied to expansion in domestic livestock production and particularly by countries unable to meet their own feedstuff needs. Maize is the dominant feed grain traded in world markets, followed by barley and grain sorghum. The US remains the leading producer, consumer and exporter of maize. However, expanding maize-based ethanol production is projected to limit the country's export growth over the projection period. The US is expected to face increased competition in international markets from other exporters such as Eastern Europe, Argentina and Brazil which are likely to increase their market share to 2015. China's maize exports are shown to decline over the projection period. Eventually, the country is projected to become a net

importer of maize by around 2010 due to growing feed requirements of its expanding livestock sector.

The main growth markets for coarse grain imports are in Mexico, North Africa and the Middle East, China, Asia and Latin America, where higher incomes boost demand for animal products, leading to expanding livestock sectors and increased feed requirements. However, in Japan and the Republic of Korea and some other countries in South East Asia increasing meat imports are expected to limit the growth in imports of coarse grains and other feedstuffs. Continuing restrictions on the use of grains containing GMO traits will limit EU imports from the US over the projection period and these are substituted by supplies from other European sources, particularly in the Black Sea region. In terms of the other major coarse grains, trade in barley (both for feed and malting purposes) is also projected to expand, driven largely by strong demand in Asia and North Africa. The increase in demand is likely to be met in large part by higher sales from Australia, Canada, and the EU with strong competition from Ukraine and Russia.

Rice trade to increase at a slower rate than in the last decade

Rice remains a thinly traded cereal when compared with wheat and coarse grains. Global rice trade increased by over 30% between 1995 and 2005, supported by rising demand, especially in Africa. Although no major policy change is envisaged over the outlook period, world rice trade is expected to maintain a fast pace of expansion to 2015, as the increases in rice consumption outstrip production gains in large parts of Asia and Africa. The major rice exporting countries of Thailand and Vietnam are expected to increase exports in response to higher world market prices in the near term. The US remains the main OECD exporting country and its rice exports are projected to reach 4.1 mt in 2015. Over the projection period, Asian countries record the strongest growth in imports, together with certain sub Saharan and Middle East countries.

Oilseeds and products to remain trade leaders

Strong demand for vegetable oil for food consumption and protein meals used in livestock feeding is expected to sustain global trade in oilseeds and oilseed products to well above that of world wheat and coarse grains trade throughout the next decade. Investment in crushing capacity goes hand in hand with growing trade in protein meal. Such investments have been made in China, in particular, in order to capture the value-added in processing. Consequently, China accounts for the bulk of the growth in oilseed imports over the outlook period and strengthens its position as the leading importer. The EU which formerly held this position is not expected to further increase imports because of increased use of domestically produced rapeseed meal, as rapeseed crushing surges in response to rising demand for oilseed derived biofuel. Growth in import demand for vegetable oils is projected to exceed that for protein meals. While vegetable oil imports increase in almost all regions, China, India, Pakistan and the EU remain the largest importers.

The three leading oilseed exporters, the US, Brazil and Argentina, account for more than 80% of world trade throughout the outlook period. Brazil is projected to surpass the US as the leading exporter of oilseeds and its exports expand strongly to 2015. Oilseed exports by Argentina grow by almost 70% over the outlook period. Argentina remains the leading exporter of oilseed oil, followed by Brazil. Global vegetable oil trade continues to be dominated by palm oil with export volumes of almost twice those of oilseed oil. China remains by far the largest importer of vegetable oils over the outlook period.

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Sugar trade is increasingly dominated by Brazil

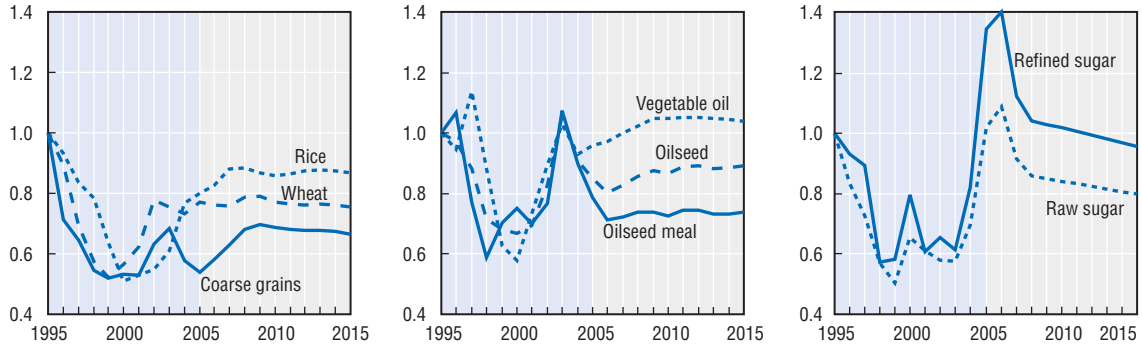
Brazil currently accounts for around 40% of world sugar exports. Rising exports of raw and refined sugar are projected for Brazil over the period to 2015 and these will increase the country's dominance of the world sugar economy and be an important moderating factor on future world sugar price prospects. Developments taking place in Brazil's sugarcane-based ethanol sector are not expected to unduly constrain sugar production and exports to 2015. Following reform of its sugar regime, the EU is expected to reduce production and subsidised exports of sugar and to undergo a switch in trade status from a net exporter to a growing importer of sugar. Australia, Thailand and Cuba should see some expansion in sugar production and exports despite reduced investment in production capacity in recent years and continuing industry restructuring in the case of Cuba. Mexican sugar exports to the US should increase when the over-quota tariff under NAFTA is eliminated from 2008. Sugar imports are less concentrated than exports. Russia is expected to remain the leading importer of raw sugar, but with imports projected to grow strongly in the European Union under the EBA Initiative as well as in China as the latter's consumption of sugar increases with continuing economic growth. Other significant importers in the Asian region are Japan, Korea and Indonesia.

World agricultural product prices show different patterns, but trend down in real terms

Trends in nominal world indicator prices for the different commodities are shown in Figure 1.2 for crop commodities and Figure 1.3 for livestock products. Nominal world prices for wheat are projected to show little change between 2005 and 2015, as supply and demand is maintained in relative balance. On the other hand, maize prices should receive support in the near term from reduced US exports, due to increased domestic use for ethanol production. Similarly, rice quotations are likely to increase more sharply, reflecting growing resource constraints in some of the major producing countries in the form of rural labour shortages, growing competition for land and water and high fuel costs. In real terms (when allowing for inflation), rice prices should still increase somewhat, while world wheat and maize prices are expected to continue their longer-term declining trend. Market developments for oilseeds over the projection period are driven by increasing productivity, changes in area planted and rising demand as incomes and populations grow in most countries.

Figure 1.2. **Outlook for world crop prices to 2015**

Index of nominal prices, 1995 = 1

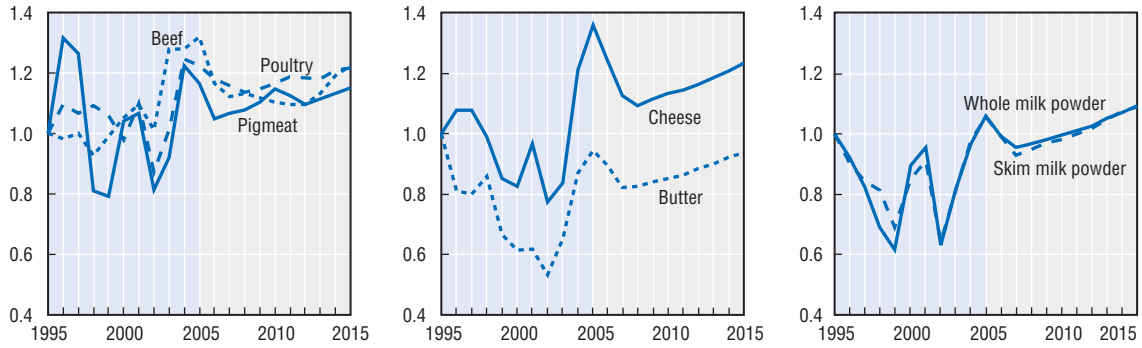


Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/046358016307*

Figure 1.3. **Outlook for world livestock product prices to 2015**

Index of nominal prices, 1995 = 1



Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/046358016307*

On balance, these factors lead to a modest recovery of oilseeds and oilseed meal prices in 2007 and subsequent years, but with real prices either flat or falling. For the sugar market world indicator prices have surged to their highest levels in a quarter century during the 2005/06 marketing year, to reach a level nearly double that of much of the last decade. World prices are projected to rise further in 2006/07 as global consumption exceeds production for a fourth year in a row leading to a further decline in global sugar stocks. Beyond 2006, world sugar prices are expected to average lower than at the beginning of the projection period as global production responds to current high prices. However, they will remain above the average of the last decade. Real sugar prices should continue to decline.

World prices of dairy products are expected to resume their increasing trend pattern in nominal terms after 2008, reaching similar levels attained in 2005 by the end of the projection period, with the exception of cheese. The world indicator cheese price is expected to be nearly 10% lower compared to its exceptionally high 2005 level. A steady growth in import demand, primarily from developing countries, and slower supply growth from the EU and New Zealand is expected to keep upward pressure on dairy product prices. Prices for most meats are projected to stabilise over the Outlook following the disease induced price shocks between 2003 and 2005. These projected prices are in line with projected lower feed costs and continuing productivity growth, and imply that real prices for meat decline until 2015.

Uncertainties

Weather-related production shocks, lower macroeconomic performance and future policy developments and changes are among the main uncertainties affecting the prospects for world agricultural markets over the medium term. Any changes from the basic assumptions that underlie the projections of increasing demand and trade, such as strong economic growth worldwide, or of a less open trade policy setting, further animal disease outbreaks or higher crude oil prices, would have consequences – possibly far reaching – for the prospects of agricultural markets over coming years. In this context, a key policy uncertainty for the Outlook is the outcome of the Doha Development Agenda of multilateral trade negotiations. When this agreement is finally reached, and of course depending on its content, it can be expected to lead to a lowering of existing agricultural

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trade barriers and support for agricultural production, particularly in the developed countries. These changes could result in higher world prices for a number of agricultural commodities and increased trade.

But the DDA negotiations are not the only trade policy uncertainty. A large number of bilateral or regional free trade agreements have seen the light of day in recent years. Many of these agreements are not explicitly reflected in this Outlook. Nevertheless, the implementation of such agreements can be expected to support trade growth between its members. For example, the Central American Free Trade Agreement, signed in August 2004, for which market access for all commodities will be liberalized over a varying period of up to 20 years is anticipated to promote greater trade in that region, through expanded tariff rate quotas and reduced tariffs.

Domestic policy changes also affect the market outcomes depicted in this Outlook assessment. A particular case in point is the next US Farm Bill. Given the importance of the US as an agricultural producer for a number of agricultural products traded on world markets, any substantial changes to domestic support arrangements in the next Farm Bill, to apply from 2008, will impact on world agricultural markets.

In light of the importance of the developing countries to prospects in world agricultural markets, developments taking place in Brazil, China and India are of particular concern. Brazil has increased dramatically its presence as an exporter in a number of markets. China is key to the prospects for a number of commodities, albeit as an importer rather than an exporter. And India poses different questions as it has not been as open to trade as the other two countries. However, given the size of its domestic market, any residual changes in agricultural production and consumption that are transmitted to world markets can have important consequences for global market outcomes. It is obvious that market and trade developments in these countries that are different from those assumed over the period to 2015 will have implications for the Outlook.

For the meat sector, a particular concern is any occurrence of animal disease outbreaks because of their disruptive effect on world meat trade. Various future scenarios are possible. Since the guiding principle for this baseline is to assume "normal" conditions, none of these diseases are specifically considered in the Outlook. Disease outbreaks such as BSE or Avian Influenza tend to have a demand and supply dimension and typically result in large herd slaughtering or flock culling campaigns that could eventually eliminate the commercial supply of entire regions. Depending on the reactions of consumers, demand will fall more or less than supply and consumption will typically be affected even in regions where no outbreaks have occurred. Total meat demand may decrease, and some shift from the affected meat to other meats would likely occur. In addition, some markets will close to meat exports from affected countries. Thus, in the context of increasingly globalised and interlinked commodity markets, the spread of animal diseases such as BSE and avian influenza has the potential to cause a major disruption to the meat sectors of countries directly or indirectly affected with significant flow-on effects to cereal and oilseed markets.

A final element of uncertainty for world agricultural markets is how the increased investment in biofuel production that is taking place will impact on agricultural markets, and particularly those for cereals, oilseeds and sugar crops. With a sustained increase in oil prices since 2004, demand for biofuels is increasing strongly and is likely to accelerate in coming years. In addition to higher oil prices numerous other arguments are mentioned for

increased use of bio-energy, such as possible environmental benefits in terms of reduced net CO_2 emissions and urban pollution, reduced dependency on crude oil imports, job creation and possible social benefits such as higher farm incomes and improved rural economies.

Further growth can be expected in biofuel production as another competing use of agricultural products. This baseline assumes very strong growth in ethanol production in the US, Canada and Brazil, while growth of bio diesel in the EU, where the new biofuel directive has not been signed yet and is therefore not taken into account, remains on trend. To the extent that actual growth will be stronger, it will further increase demand for maize, wheat, oilseeds and sugar, in line with existing experience in ethanol and bio-diesel production in the US, European Union and Brazil. While the direction of change may be clear the magnitude of the changes implied for agriculture and the possible repercussions of expanding production requires further analysis. These would include implied trade-offs between food/feed and non-food uses for particular crop sectors, any cross-commodity impacts of reduced availability for traditional food and feed uses and, importantly, changes in the preferred feedstock to non-agricultural products such as cellulosic fibres and waste materials.

The ongoing increase in investments in biofuel production capacity is based on, in most cases, public support and encouragement. Indeed, in only very few countries is the required feedstock available at prices that would presently allow ethanol and bio-diesel production to be competitive with transport fuels from crude oil without government support. But such support can also create market distortions, the nature and level of which need to be well understood before policies are put in place. Once established, such policies may prove very resilient to necessary modifications due to unanticipated market impacts or the changing economic environment of bio-energy production in the context of technological advances.

Emerging issues: demographic challenges to the global food system

The context at a glance

By the end of the outlook period, the world's food system must deliver foodstuffs to an estimated additional 750 million people. The system will confront new challenges regarding *what* types of food will be supplied and *how* and to *whom* this food will be delivered. The following section describes some of the main ongoing demographic developments, extending longer term trends into the medium term future. While some of these developments have been specifically accounted for in the baseline projections, *e.g.* population growth, others, such as the impacts of ageing or urbanisation have not. Rather than analysing in a comprehensive manner the market impacts of various demographic developments, the purpose of this section is to provide a broader background for the Outlook.

One of the most important demographic developments is population shifts from a rural existence, in developing countries centred on farming, to urban life centred on non-agricultural occupations. This process – urbanisation – while largely concluded in developed countries, is still very much an ongoing process in developing regions. Figure 1.4 shows that by 2015, well over half of the world's population is expected to dwell in cities, and three-quarters of all urban inhabitants are foreseen to be located in developing countries.

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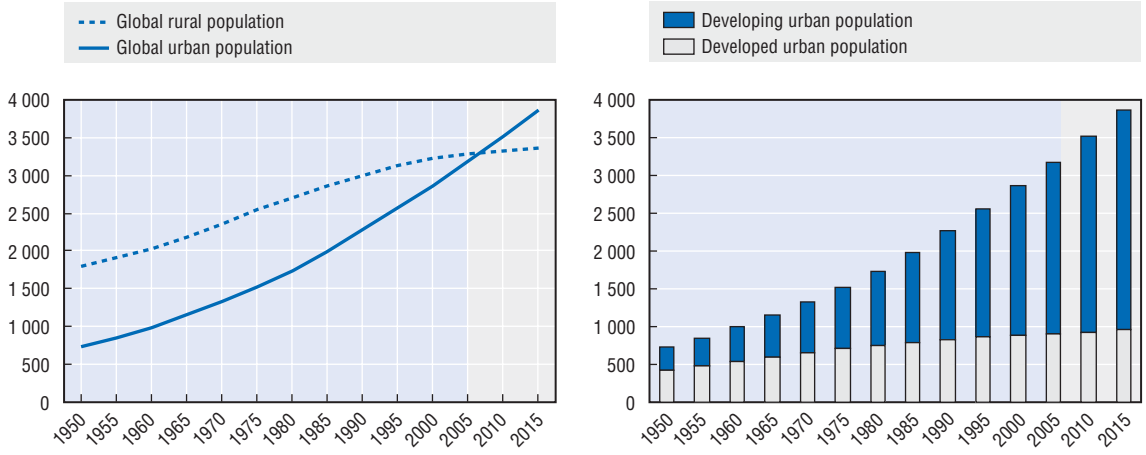
Figure 1.4. **Rural and urban population structures: 1950-2015**



Source: UN Population Division (World Population Prospects: 2004 revision).

Statlink: *http://dx.doi.org/10.1787/046358016307*

The spatial distribution of populations affects food supply and demand[1]

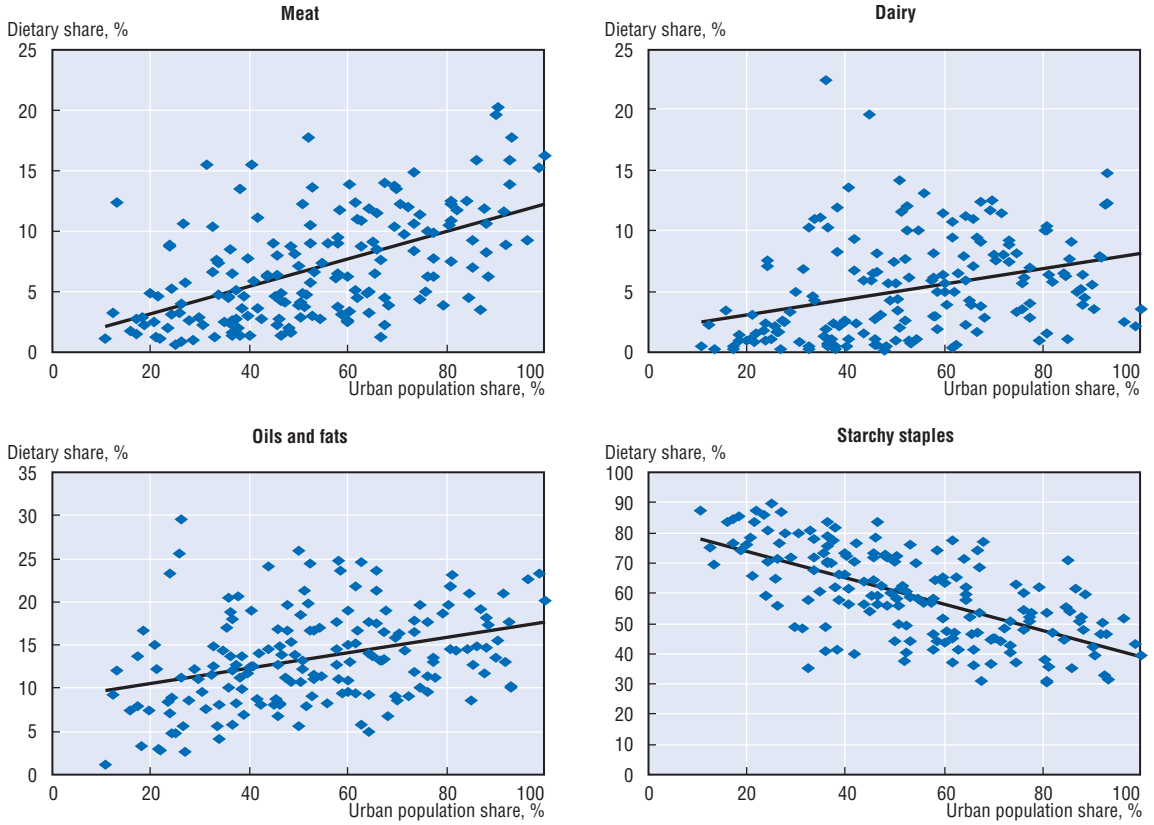
Dietary patterns of urban dwellers differ markedly from those of their rural counterparts. Income, price and availability are the key drivers shaping urban diets. Higher incomes and dependable food supplies, lead to diversity in diets, both in the type of foodstuffs consumed and their source. For instance, access to reliable electricity promotes greater consumption of perishable food products, and modern infrastructure allows these products to travel from further a-field in less time.

Urban occupations raise the opportunity costs of time needed to prepare meals, and as a result city dwellers tend to consume more convenience and processed foods. In addition, urban lifestyles, on average, are more sedentary than rural ones, requiring less reliance on energy-providing staples. This does not necessarily imply lower food intake, since with higher income, there is a propensity of urban consumers to consume more calories than justified by their energy needs alone. A greater proportion of these calories are derived from fats and sweeteners, prompting a growing incidence of obesity and non-communicable diseases such as diabetes and coronary problems, at a time when large segments of the developing population still face under-nutrition.

Figure 1.5 provides some evidence of these tendencies. Urban population shares for 180 countries are plotted against the shares for four basic food groups (in calorie equivalents) – meat, diary, oils and fats, and starchy staples – in the diets of those countries. It can be seen that higher levels of urbanisation are associated with higher calorie intake of animal products, oils and fats, but this is not so for starchy foodstuffs, where consumption shares of such products fall with higher urban population shares.[2]

Witnessed by developments in developed countries, industrialisation and urbanisation draw labour away from agricultural activities into other sectors of the economy. The allocation of resources to agriculture may be further reduced because of the encroachment of cities on agricultural land. This development has gone hand in hand with productivity growth in agriculture, which often has more than offset the move of land and labour resources out of the sector. Nevertheless, these developments may cause problems for the poorer developing countries. If productivity growth is lagging, urbanisation in these

Figure 1.5. **Urbanisation and dietary consumption shares in 180 countries**



Source: FAOSTAT.

Statlink: *http://dx.doi.org/10.1787/046358016307*

countries could lead to falling agricultural production, increased dependency on imported foodstuffs, and rising food insecurity at the national level. Furthermore, urban demand for higher-valued foods could prompt domestic producers to shift production away from staple commodities, compromising the food security of poorer people.

Urbanisation in developing countries: from the fire into the frying pan?

The above described impacts of urbanisation on eating habits and dietary patterns are a generalisation, and in actual practice a range of diverging developments will co-exist. On the one hand, urbanisation can promote the development of commercial agriculture and contribute to the modernisation of rural livelihoods, such as through infrastructure improvements. On the other hand, to the extent that urbanisation is motivated by the flight from rural poverty, rather than by the existence of real economic opportunities in the city, the livelihood and food security problems of these former urban populations can be potentially worsened. For instance, people moving to urban areas are unable to feed themselves through subsistence farming, and if urban employment opportunities are not forthcoming, many will undoubtedly lack the necessary income to buy the food they need, let alone participate in the trend towards consuming more protein rich foods that is apparent in the process of urbanisation.

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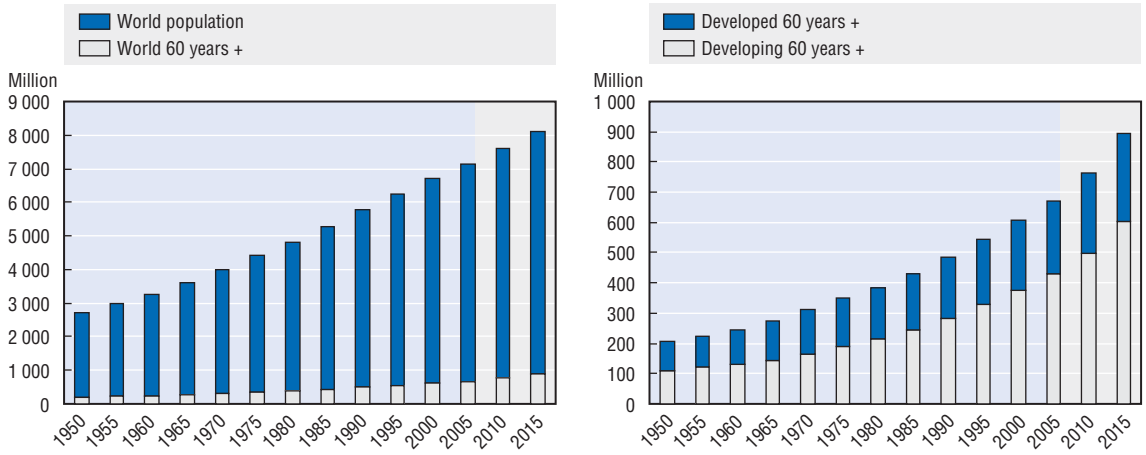
Population ageing: one of the most serious demographic challenges

At the global level, the proportion of the population aged at least 60 years, is now estimated at over 10%, and is expected to rise to 12% by 2015.

Figure 1.6. **Population aged 60 years plus: 1950-2015**



Source: UN Population Division (World Population Prospects: 2004 revision).

Statlink: *http://dx.doi.org/10.1787/046358016307*

These aggregates mask divergent age structures in the various economic regions. In developed countries, the ageing process is far more established. While the absolute number of people having reached 60 years in 2005 in these countries is about half that in developing countries, their share in the total population is 20%. This compares with a level of 8% on average in developing countries. As with other demographic processes, ageing has implications for both the types of foodstuffs demanded and the supply of food.

As populations age, food demand per capita declines with reduced activity levels and consequently lower calorific needs. Research has shown that the composition of food demand also changes with age, with elderly segments of the population consuming more fresh fruits and vegetables and less animal products.[3] An ageing population may also have a bearing on economic growth, and hence on aggregate food demand and supply, through changing the relative shares of economically inactive and dependent persons.

Rural ageing often manifests itself earlier, and advances faster, than in urban areas owing to the movement of younger people to cities. The ageing of the population in rural areas has important implications for food production and food security in developing countries. There is a danger that economic planning in the rural sector of these countries may become less forward-looking and more subsistence-oriented. For instance, older farmers, many of whom are women, are more likely to shift to crops that are less labour-intensive, or to stop farming due to physical incapacity. Older farmers may be less able to adapt to technological change and less willing to invest in land preservation or to adopt new methods of production, which in turn could result in decreased agricultural production and less pressure on the environment in rural areas.

Urbanisation often leads to environmental pressures

Urbanisation is generally regarded as a catalyst for the industrialisation of livestock production – certainly in developing countries. This can increase soil and water contamination, and lead to the degradation of arable land and loss of biodiversity. This, in turn, can impact negatively on agricultural production in rural areas and in the periphery to urban centres. Moreover, in low-income urban areas in developing countries, environmental problems are a major cause of disease and death, both because of the proximity of the environmental problem (pollution of drinking water from rivers, air pollution, disease vectors like rodents and fleas, open sewage, etc.) and the lack of accessible health facilities in these areas. Box 1.1 provides an example of the pressures on the environment as a consequence of the industrialisation of livestock production.

The way ahead…

Food systems are adjusting in line with changing demographic profiles of populations. But the question of how to adequately feed the growing numbers of urban consumers, many of whom in developing countries are currently and will in the future be living in poverty, remains a key challenge to policy makers. As urban food demand rises, food supply and distribution systems will need to provide the inhabitants of cities with increasing amounts of food sourced from new and, possibly, more distant production areas and/or from more intensive production systems.[4] This demands greater efficiency in the food system as well as enhanced agricultural productivity while taking into account issues of sustainability.

An efficiently operating food system should go a long way in responding to consumer demands, including those that are likely forthcoming from city dwellers and ageing consumers. But there may be cases where partnerships between the private and public sectors may be better suited to respond to the evolutions in demand. Such partnerships could assist in developing domestic and international food system infrastructures that are shaped in a context of reduced impediments to food trade and at the same time meet the challenges imposed by changing demographics. The task for policy makers and private sector agents alike is to understand the linkages between population dynamics, natural resources, agriculture and food security, and then to design and implement market strategies or policies which draw on that knowledge. The experience of many developed countries illustrates what can be done to address these issues – and the policies that should be avoided in moving towards a path of sustainable agricultural development.

Freer and fairer trade can be an important step on the path of dealing with some of the challenges described above. But there are other important steps, including investments in less developed economies that will help to improve the productivity of people as well as of natural resources, thereby contributing to broad based economic growth.

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Box 1.1. **Pollution from industrialised livestock production**

Over the past 25 years, global meat production almost doubled. Most of the growth took place in developing countries, where production grew threefold, increasing at an annual rate of more than 5%. Although per capita meat consumption in developed countries is still three to four times the level in developing nations, developing countries now produce and consume well over half the world's meat.

In many developing regions, this rapid growth has been spurred by dramatic shifts in the nature and location of livestock production. Traditional mixed farming systems, in which farmers raise a few animals alongside their crops, have given way to large industrial operations with thousands of animals. New production has shifted increasingly from cattle and other ruminants that graze on grass and fodder to pigs and poultry fattened on diets of concentrate feed.

Much of the new production in developing countries has been concentrated in large, industrial pig and poultry operations located in and around major cities, where there is ready access both to cheap supplies of feed and to good markets for their meat and eggs. In Asia, where growth has been most dramatic, large-scale industrial production accounts for roughly 80% of the total increase in livestock products since 1990.

Large-scale livestock production often creates large-scale environmental problems

In contrast to the situation in developed countries where there are increasingly strict regulations concerning the location of intensive livestock production, this is rarely the case in developing countries. Large industrial farms bring in massive quantities of nutrients in the form of concentrate feed. And they produce far more waste than can be recycled as fertiliser and absorbed on nearby land. When intensive livestock operations are crowded together, pollution can threaten the quality of the soil, water, air, biodiversity and ultimately public health. Pollution damage is especially harmful when large numbers of animals are concentrated in sensitive areas around cities or close to water resources. Effluents are commonly discharged into the environment or stored in vast "lagoons", from which waste may spill or leak into nearby streams and groundwater supplies. Noxious gases escape into the atmosphere, subjecting downwind neighbours to sickening odours and contributing to atmospheric aerosol formation, build-up of greenhouse gases and acid rain.

Much of the increased risk of pollution is caused by a break down of the traditional "short cycle" between livestock production and crop production. In less intensive, mixed farming systems, animal wastes are recycled as fertiliser by farmers who have direct knowledge and control of their value and environmental impact. Industrial production leads to a longer cycle, in which large quantities of wastes accumulate far from croplands where they could be safely and productively recycled. So even though intensive systems tend to make more efficient use of resources, with lower levels of water use, nutrient excretion and gas emissions per kilogram of meat or milk produced, they often generate more pollution than less intensive farms where manure is better managed from an environmental perspective.

Dense concentrations of industrial livestock production create regions with vast quantities of excess manure. This has created problems in certain countries and regions in the OECD area, where the amount of manure produced exceeds that which can be safely applied to the adjacent land. Although much lower on a national scale, concentration of pig and poultry production in parts of China and Brazil is approaching and surpassing levels found in Europe and North America. So, too, are the threats to the water, soil and air from concentrations of animal wastes.

Box 1.1. **Pollution from industrialised livestock production** *(cont.)*

Keys to coping with pollution from industrialized livestock production

Proven policies and technologies exist that could manage and reduce the environmental damage caused by intensive livestock production, including:

- Eliminating subsidies and adjusting taxes to make prices reflect true environmental costs and encourage efficient use of resources.
- Use of zoning regulations and taxes to discourage large concentrations of intensive production close to cities and far from cropland where nutrients could be recycled.
- Setting and enforcing standards for effluent discharges and recycling.
- Providing incentives for investing in technology to reduce pollution.
- Establishing certification programs to encourage improved husbandry practices.
- Establishing guidelines, quality standards and monitoring mechanisms for marketing of manure and manure products.
- Educating and training farmers and engaging stakeholders in establishing codes of best management practices that encompass all aspects of farm operations, including: farm location and construction; nutrient management plans; manure and effluent separation and storage; water utilization; biogas disposal; feed practices; and biosafety.

Source: FAO (Animal Production and Health Division: Livestock Information, Sector Analysis and Policy Branch).

Box 1.2. **Sensitivity of agricultural market projections with respect to assumptions on future crude oil prices**

The agricultural market projections discussed in this Outlook Report are subject to a number of assumptions. Given recent market developments, one of the crucial and much discussed factors is the assumed path of crude oil prices. The baseline projections assume that crude oil prices decline from their current high levels after the year 2006, reaching a level of just under USD 40/barrel (see Table 1 of the Statistical Annex). This box briefly discusses the implications sustained high crude oil prices (*i.e.* crude oil prices remaining at the 2006 level of USD 56/barrel) could have for agricultural production, trade and prices.

As explained in more detail in the methods section, higher energy prices have a direct impact on agricultural production costs. Energy is used directly for machinery operation, and indirectly through other inputs such as fertilisers and pesticides, the production of which is particularly energy demanding. In consequence, higher energy prices would increase production costs and thus reduce agricultural supply relative to the level projected in the baseline. The lower supply would result in higher prices both regionally and internationally, causing consumption and production to eventually adjust towards balanced markets.

As the share of energy in production costs is substantially higher for crops than for livestock, the strongest effects from higher energy prices would be expected in crop markets. Counterfactual simulations with the Aglink-Cosimo model suggest that with sustained high crude oil prices global cereal and oilseed production in 2015 would be between 1% and 2% lower while world prices for these commodities would be between 9% and 13% higher than projected in the baseline. With much of the vegetable oils supply being palm oil, which has a less elastic supply, international vegetable oil prices are expected to be relatively less responsive to higher crude oil prices On the other hand, oilseed meal prices are simulated 14% higher in 2015 compared to the baseline projections.

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Box 1.2. **Sensitivity of agricultural market projections with respect to assumptions on future crude oil prices** *(cont.)*

Livestock production costs depend much less on energy prices than the cost of crop production. The direct effect of higher oil prices on livestock production quantities and prices can therefore be expected to be smaller. At the same time, however, higher crop and hence feed prices would reduce livestock supply. Consequently, global production of meat would be reduced by about 1% in 2015, resulting in international beef and pork prices being between 4% and 7% higher than in the baseline projections. As a result of supply management and lower reliance on grains and oilseed product as feedstuff, milk production would be reduced by less than meat production. Nevertheless, due to thinner markets and, particularly in the case of butter, less elastic demand responses, dairy prices in 2015 would be between 2% and 9% higher than with declining crude oil prices.

In general, a negative supply side shock to all countries can be shown to reduce global trade by reducing excess supply more than excess demand at a given price. Hence, total trade for most commodities and particularly for almost all crop products are expected to be smaller with higher energy prices. However, exceptions to this general result may occur and small increases in trade could be obtained for specific markets due to cross-price relationships and differing responsiveness of supply and demand across commodities and across regions.

It should be noted that the counterfactual simulation discussed above reflects the implications of higher energy prices only in an incomplete manner. Apart from the fact that information on the importance of energy in total crop and livestock production costs is represented in a simplified manner in the model (see the section on methods for details), additional links between energy prices and agricultural markets are not accounted for in this analysis at all. In particular, higher energy prices are likely to:

- increase transportation costs and hence price differentiation across regions;
- increase incentives to produce bio energy and affect demand for feedstock commodities; and,
- increase income in oil-exporting countries and regions, and decrease (disposable) income in oil-importing ones.

As a consequence, the results discussed above should be viewed as indicative of supply side effects and consequent market changes.

Notes

1. For more information on the issues see: *The State of Agricultural Commodity Markets 2004*, FAO, 2004.
2. Since growth rates of urbanisation and income share similar trends, it is somewhat problematic to disentangle the relative importance of each in driving consumption patterns, particularly at the country level. However, a study by FAO employed a statistical model to show that in aggregate, rates of urbanisation were more pertinent in explaining variations in dietary shares than income growth and changes in relative food prices alone. See "Cereals and Other Starch-based Staples: are consumption patterns changing?", Joint Meeting of the Intergovernmental Group on Grains (30th Session) and the Intergovernmental Group on Rice (41st Session), Rome, FAO, 2004.
3. See for example: Food Consumption in an Aging World, in *Changing Structure of Global Food Consumption and Trade*, ERS, USDA, 2001.
4. "Urban Food Security and Food Marketing" in Food into Cities, FAO 1999.

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Chapter 2

Cereals

World market trends and prospects[1]

Key market drivers

International markets for wheat, coarse grains and rice were characterised by substantial production shortfalls in the face of rising demand and rapidly declining global stocks for several years until the 2003 marketing year. Followed by record harvests and rising stocks in 2004, the global supply and demand situation has been fairly balanced in 2005. World production of wheat and coarse grains have both declined slightly in 2005 from their 2004 levels, but with almost 620 mt and 970 mt, respectively, remain high in historical terms. This second good global harvest in a row resulted from increased plantings for coarse grains, but also from sustained high wheat and coarse grains yields. Due to favourable weather conditions, these declined on average for the world only moderately from their high levels of the previous year. This Outlook assumes continued growth in global crop yields of about 1% per cent per year.

On the other hand, 2005 was a record-breaking year for the world rice economy, as both production and trade reached new highs. International rice prices also held remarkably strong, reflecting government policies that curtail supplies in some major exporting countries and sustained import demand. The pattern of prices, however, diverged across regions, weakening in Latin America and the Caribbean, while surging in large parts of Asia and Africa where they often instigated consumer outcries. Despite rising global paddy production, this was still not sufficient to cover fully aggregate consumption, making a sixth-year consecutive release of stocks necessary to cover the shortfall.

As total use of cereals continued to grow and production increases could not quite keep pace with this rise, global stocks of wheat and coarse grains declined slightly after their intermediate high in 2004. Particularly in China, which has shown the bulk of the global stock declines since 1999, cereal stocks have been further reduced, although the drawdown has continued at much reduced rates in recent years.

Under conditions of normal weather and a continuation of current agricultural policies, income and population developments, changing consumption patterns and the evolution in feed to meat conversion rates[2] remain key market drivers. But these are complemented by developments of new markets for agricultural produce. Both wheat and maize, and to a minor extent rice as well, are becoming increasingly used by the industry producing fuel ethanol. From the perspective of cereals, the United States is expected to strengthen its position as the most important ethanol producer from maize.[3] Boosted by Renewable Fuels Standard (RFS) legislations and crude oil prices that stay well above the average during the early years of this decade, maize use for ethanol is expected to grow rapidly in the US particularly in the first few years of the Outlook. The RFS mandates minimum renewable fuels consumption to increase from 4 billion gallons (15.1 bn litres) in 2006 to 7.5 billion gallons (28.4 bn litres) in 2012.

While livestock production is projected to increase rapidly around the globe, higher feed efficiency and a declining share of relatively inefficient grain-fed beef production

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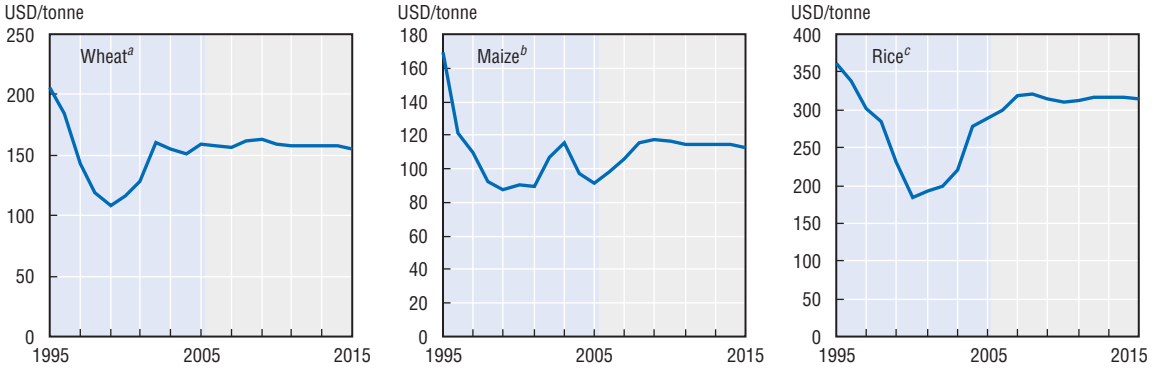
results in a declining use of cereals per kilogramme of meat and dairy product produced. In spite of its continued importance in total cereal use, cereal utilization as feed is becoming less of a driving force in sustaining growth in cereal production and trade than in the past.

International cereal prices are expected to move only little in nominal terms over the coming decade. This is particularly true for wheat, much of which is destined for food rather than for feed and/or industrial use. Coarse grains prices are likely to benefit from strong demand for feed and expansion in industrial use, especially for ethanol production.

Rice prices have continued to increase in the recent years and are now more than 50% higher compared to their 2000 low on an annual basis. For the coming years, only moderate further price increases are expected until 2007, with little price movements projected for the remaining period (see Figure 2.1).

Figure 2.1. **Nominal wheat and rice prices to increase only slightly over the next years, but more significantly for coarse grains**

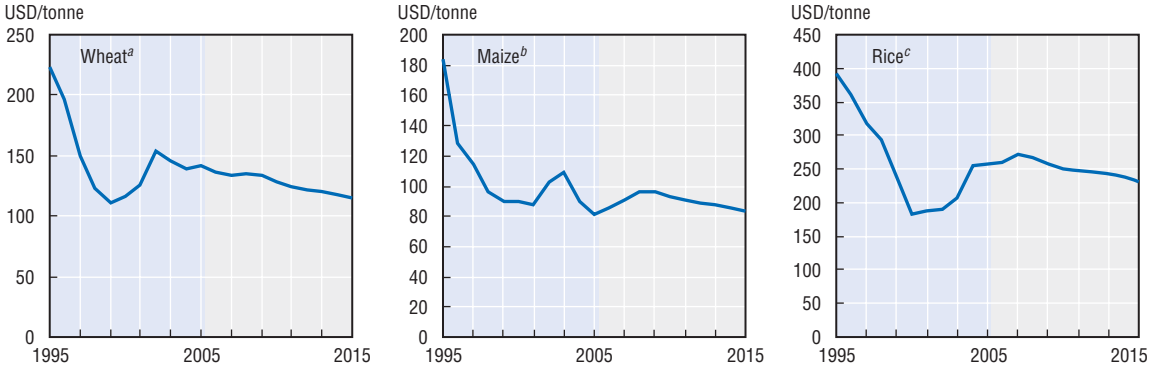


a) No. 2 hard red winter, ordinary protein, wheat, USA, f.o.b. Gulf Ports.
b) No. 2 yellow corn, USA, f.o.b., Gulf Ports.
c) Milled, grade b rice, f.o.b. Thailand.

Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/567541332883*

Figure 2.2. **Wheat and rice prices to decline in real terms, following their long-term trend of past decades**



a) No. 2 hard red winter, ordinary protein, wheat, USA, f.o.b. Gulf Ports.
b) No. 2 yellow corn, USA, f.o.b., Gulf Ports.
c) Milled, grade b rice, f.o.b. Thailand.
All prices deflated by the USA GDP deflator with 2000 = 1.

Source: OECD and FAO Secretariats.

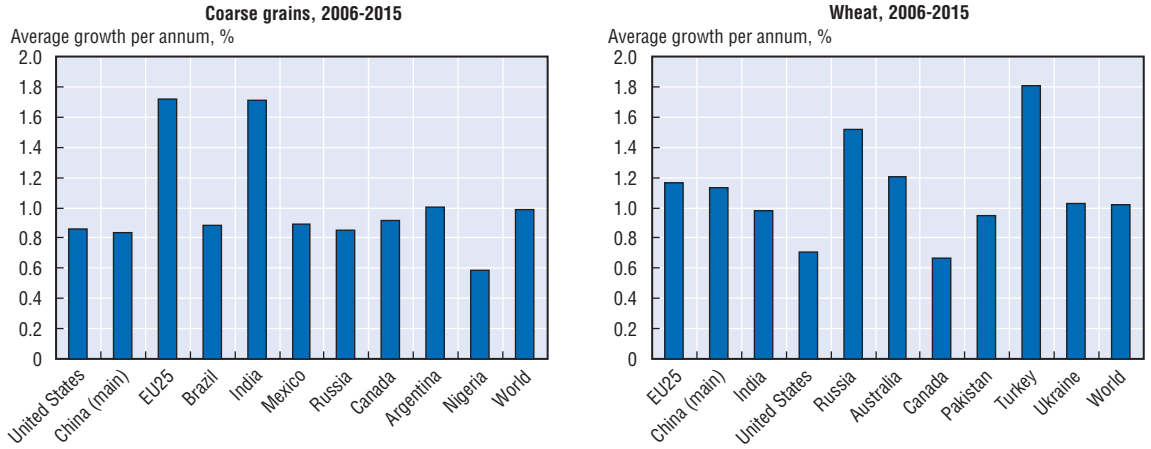
Statlink: *http://dx.doi.org/10.1787/567541332883*

Main market developments: Wheat and coarse grains

Continued growth in global wheat and coarse grains production driven by yield developments

Only moderate amounts of additional land is projected to become available for wheat and coarse grains and most of the growth in global cereal production is expected to be driven by yield increases. After having returned to more normal levels in 2006, yield growth over the medium term is expected to range from just under 1% to 2% p.a. for most major producers. Above-average yield growth is projected for countries with relatively lower yield levels, such as India and Russia, while high-yield producers, mainly OECD countries, are expected to experience lower productivity gains. Globally, average wheat and coarse grains yields are set to increase by 1.0% p.a. each between 2006 and 2015 (see Figure 2.3).

Figure 2.3. **After adjusting to normal levels, average wheat and coarse grains yields to grow steadily in major producing countries**



Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/567541332883*

In contrast, land planted to wheat and coarse grains is expected to grow by less than 5% globally between 2005 and 2015. Relatively high production costs, fostered by energy prices that stay well above the levels of the early years of this decade, should limit further area expansion. Most of the additional land will be used for the production of coarse grains in a number of African countries, including Nigeria. Additional land will also come into production in Latin America (mostly Brazil, but also Argentina). Finally, the increased use for ethanol production is expected to stimulate maize areas in several other countries, including the US, Canada and China. In the US, however, this expansion partly comes at the expense of wheat. Additional areas would be planted to wheat particularly in Latin America (again mostly Argentina and Brazil), Australia, India and its neighbours Bangladesh and Pakistan, as well as Iran.

In total, world production of wheat and coarse grains is expected to grow at a moderate pace over the next decade. Wheat output in 2015 is projected at just under 700 mt, 13% more than in 2005. Coarse grains production is projected to grow from some 968 mt in 2005 to almost 1.14 bn tonnes in 2015, an increase of 18%.

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Markets projected to be more dynamic for coarse grains than for wheat

The demand for wheat remains dominated by food use: almost 72% of all wheat is currently used in this category. This share, which includes some processing in the food industry, is expected to increase slightly. In most industrialised countries, food use of wheat is projected to largely follow population growth, with little or no increase or even declines in per capita use. In contrast, increasing per capita consumption of wheat is expected for the EU, Turkey and many transition and developing countries, in particular Russia, Ukraine, India and Brazil. Consumption per head of population is also expected to grow, albeit from lower levels, in the two populous countries of Nigeria and Bangladesh where wheat has traditionally played a less important role in total cereal consumption. As a global average, per capita consumption of wheat is projected to increase by just 0.6 kg or about 1% to reach 69.9 kg in 2015.

Food use of coarse grains is much less important than that for wheat. Nevertheless, it is also expected to grow essentially in line with population growth, with slight gains in per capita consumption mainly in developing countries. Within the OECD, coarse grains – mainly maize – are an important part of the diet only in Mexico, where per capita consumption is expected to stagnate at high levels of around 160 kg per year. Elsewhere, large quantities of maize (mostly of the white variety) are consumed directly for food in a number of African countries, such as Nigeria, Tanzania and Zambia. Also because of slowly improving economic conditions, per capita use is expected to moderately increase in these countries.

The production of ethanol represents an emerging source of additional demand particularly for maize in the US, but also for other cereals in other countries. Demand for maize in the US ethanol industry has increased by 6.4 mt or 19% in 2005. In that year, it represented one-sixth of the entire US coarse grains consumption and more than 4% of global coarse grain use. Maize use for ethanol production in the US is projected to increase by 65% until 2010 and by 85% until 2015, raising its share in US coarse grains use to more than one-fourth. This reflects assumed high crude oil prices in the first years of the Outlook, as well the fact that the Renewable Fuels Standard (RFS) has been signed into law in 2005. This law has changed standards in favour of ethanol and other biofuels and increased mandated biofuel consumption quantities.

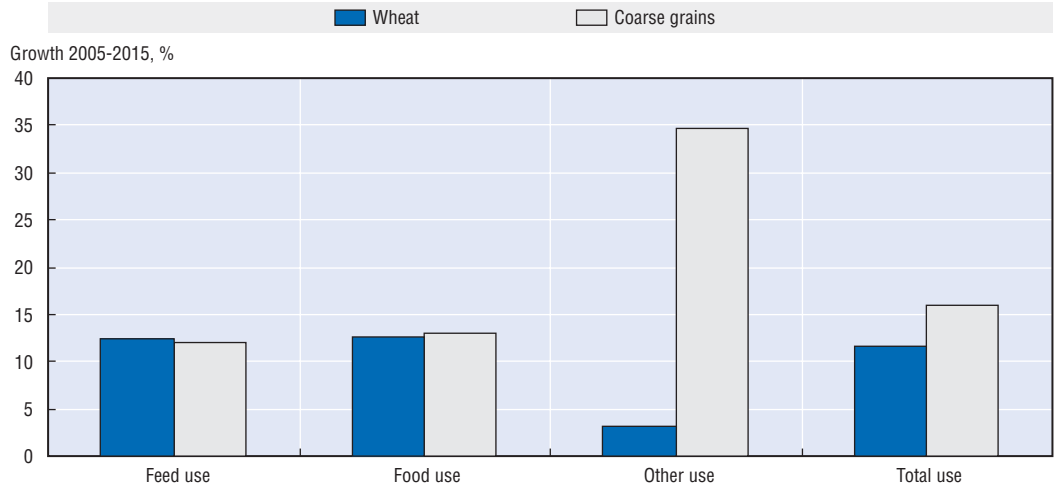
Growth in the production of ethanol is expected to generate additional cereal demand in other countries as well, but quantities are generally less important for global markets. Canada is expected to raise ethanol production mainly on the basis of imported US maize, but to also use additional wheat in the biofuel industry, particularly between 2005 and 2007. In the EU, a new biofuels directive is expected for 2006 which should make the voluntary targets of a 5.75% share of biofuels in total transport fuel consumption by 2010 compulsory for all Member States. Some growth in the use of wheat for ethanol production has been observed in recent years, but quantities remain relatively small; so far, much of the biofuel industry's emphasis had been on biodiesel. Contrary to the US legislation, the new EU directive has not been signed yet and is therefore not taken into account in determining the growth of cereal use for ethanol production over the projection period. This constitutes some uncertainty in the projections as with the passing of the new regulation, substantial additional demand can be expected in the EU as well.

A number of other countries that have engaged in ethanol production from cereals, using maize as the principal feed stock, include China and South Africa. In these and other

countries, maize use for fuel generation is likely to increase in the years to come. Ethanol production therefore plays an increasingly important role as a new source of demand in cereal markets (see also Box 2.1). In total, coarse grains use, other than for feed and food purposes, is expected to grow by 35% over the decade to come, thus representing by far the most dynamic element in cereal consumption (Figure 2.4).

Large parts of the global cereal supply continue to be used in the livestock sectors. While still a huge outlet for cereals, the relative importance of feed use as a driving force in cereal markets is probably declining somewhat. While particularly important for coarse grains, more than 60% of which are consumed in feed lots, feed demand is also significant for wheat, with 19% of total use. Several, and often contrasting, factors influence the growth in cereal feed utilization. First, increasing incomes in a number of developing countries in Asia and Latin America combined with the continuous migration of populations to urban centres are fostering a shift towards animal protein-based diets. This, in parallel, triggers growth in livestock production, thereby indirectly raising the demand for feed grains. Second, consumers are foreseen to move either towards grass-feed beef or pork and, particularly, poultry meat, which use relatively less grains per unit of output than grain-fed beef. At the same time, growing utilization of oilseed meals and other protein feeds in compounds reduces the feed use of cereals relative to livestock production. The greater feed-to-meat efficiency, together with the replacement of grains by other feedstuffs, more than offset the impact of declining shares of backyard production systems particularly in China.[4] Due to the increased use of maize for ethanol and hence both lower availabilities of feed grains and larger supplies of ethanol by-products used for feed, growth in the feed use of coarse grains is even slightly below that of wheat.

Figure 2.4. **Strongest growth in grain demand mostly driven by a surge in ethanol production**



Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/567541332883*

Declining cereal stocks, partly drive by lower maize stocks in the US

World cereal stocks had been declining strongly during the 1999-2003 period but have recovered substantially, following the exceptionally good global harvest in 2004. Wheat stocks are not expected to change significantly over the coming decade. With the shift

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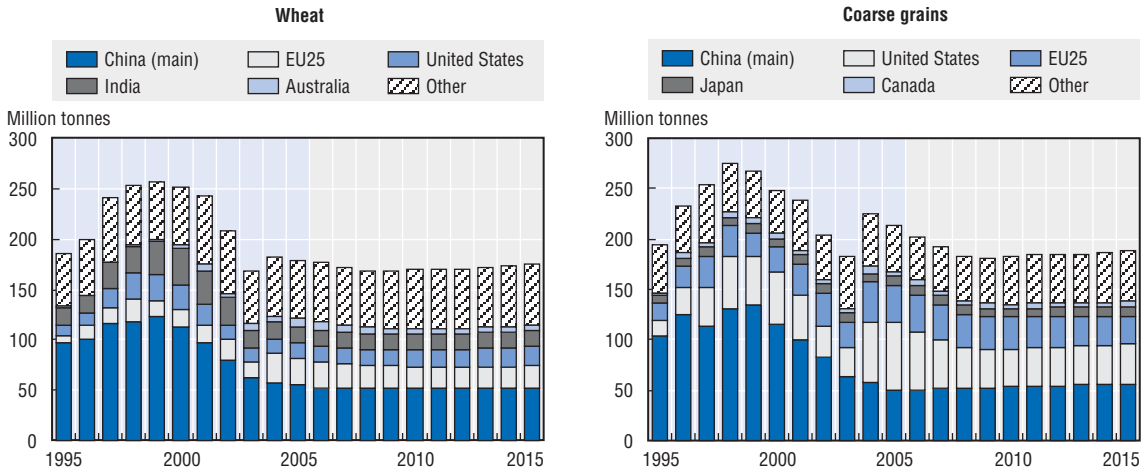
towards more wheat use in the feed mix of several countries, stocks should decline slightly in the early years, before slowly increasing again after 2008. As wheat is an important food grain in many countries, stocks remain spread across the globe. Nevertheless, more than 60% of global wheat stocks remain in the four countries/regions of China, the EU, India and the US (Figure 2.5). With little changes in global wheat stocks and utilisation on the rise, the stocks-to-use ratio is expected to decline. This could imply larger price volatility in future. However, given the large exportable supplies available this lower stocks-to-use ratio is not expected to result in increasing prices.

World coarse grains stocks, which recovered due to the large 2004 harvest, are expected to remain under pressure due to the increased demand for ethanol production. US stocks in particular have reached very high levels in 2004 and 2005 and are expected to decline by 44% before bottoming out in 2010 at levels that, however, still remain above those seen after the droughts in 2002. Due to these developments in the US, but also following declining intervention stocks in the EU and reduced inventories in Canada, global coarse grains stocks are projected to decline by 31 mt or 15% before starting a very modest upward trend from 2009. The strongly declining stocks-to-use ratio in the first years should give way to higher global prices. But more importantly, it may have implications for price stability in the longer run.

Figure 2.5. **World cereal stocks to bottom our in the early years of the projection**



Source: OECD and FAO Secretariats.

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Little scope for higher cereal prices after the first few years of the Outlook

With global supplies generally well keeping pace with overall demand, international prices for wheat and coarse grains are not expected to increase significantly over the next decade (see Figures 2.1 and 2.2). US export prices for maize are projected to increase between 2005 and 2009 following the rapid expansion of ethanol production in the US and other countries, but to decline slightly thereafter in nominal terms as the growth of this additional demand slows down. In 2015, the US export price for maize is projected at some USD 113/tonne, some 24% above 2005 prices. Corrected for inflation, world maize prices are projected to increase by some 18% between 2005 and 2009 before starting to decline towards levels slightly above 2005 prices. The gains in world maize prices are expected to

support world wheat prices to some degree as they tend to push more wheat into the feed ratios, and some wheat area into coarse grains production. World wheat prices are projected to increase slightly until 2009, but to start falling thereafter to reach some USD 155/tonne in 2015. In real terms they will decline by about 2.1% p.a. between 2005 and 2015. Thus, the longer term trend in real prices remains fairly close to that of the past 50 years.

Wheat trade to expand following larger supplies, coarse grains stagnate

International trade in wheat is projected to expand over the coming decade (Figure 2.6). With declining real prices, this increase largely reflects increased exports by the US, Australia and the EU. In the case of the EU, the relatively slow growth of livestock industries relative to historical standards and improved infrastructure due to increasing integration of the New Member States allows much of the increased wheat production to become available for exports. In addition, EU coarse grain prices remain above world market prices and therefore the projected increase in international maize prices has little impact on EU markets. In the US and Australia, almost half and more than two-thirds of the domestic wheat production is exported, respectively, and much of the growth in production translates into additional export supplies. Other countries to increase their export supplies include Argentina and some of the CIS countries. However, during the decade to come, Russia is not expected to repeat the large wheat exports from 2005 which were stimulated by a particularly good harvest. With increasing incomes and the domestic livestock industry eventually coming up to speed, most of the growing Russian wheat production is expected to be used internally.

On the importers' side, a number of countries are projected to increase purchases on international markets. This is especially the case in many less developed countries where production is not able to keep pace with increasing domestic use. Within the OECD, Mexico is expected to expand imports the most, but the Republic of Korea, too, is projected to increase domestic use mainly for food, and hence imports from abroad. Outside the OECD, wheat imports are to expand particularly to Egypt, Brazil, Nigeria, China, and Iran following growing demand and increasing use of wheat. On aggregate, OECD net wheat exports to non-OECD countries are projected to increase by about 8 mt or 17% over the outlook period. This is about in line with growth in global trade which is projected to reach 128 mt in 2015, up from 108 mt in 2005.

Trade in coarse grains is substantially affected by the increased use of US maize in the ethanol industry. US exports, which accounted for almost half of global coarse grains exports in 2005, is projected to decline over the next several years. Some of the reduction in US sales can be offset by increased exports from other suppliers. Canada is expected to expand barley exports while at the same time purchasing more US maize, largely for use in ethanol. Coarse grains exports are also expected to expand in Argentina and Australia following increased production in their export oriented grains industries. Some growing exports are also expected for Russia in the short run, before domestic demand constraints exports in later years. Following a forecast decline in 2006 after the record harvest in the previous year, South Africa, is expected to expand coarse grain exports by more than two-fold between then and 2015. In 2006, global coarse grains exports are set to recover from the 2005 low due to increased exports by the EU, but largely to stagnate between 2006 and 2010. During that period, the US share in world coarse grains exports is projected to fall to less than 40%, this would be even lower than its share in 2002 when the US experienced

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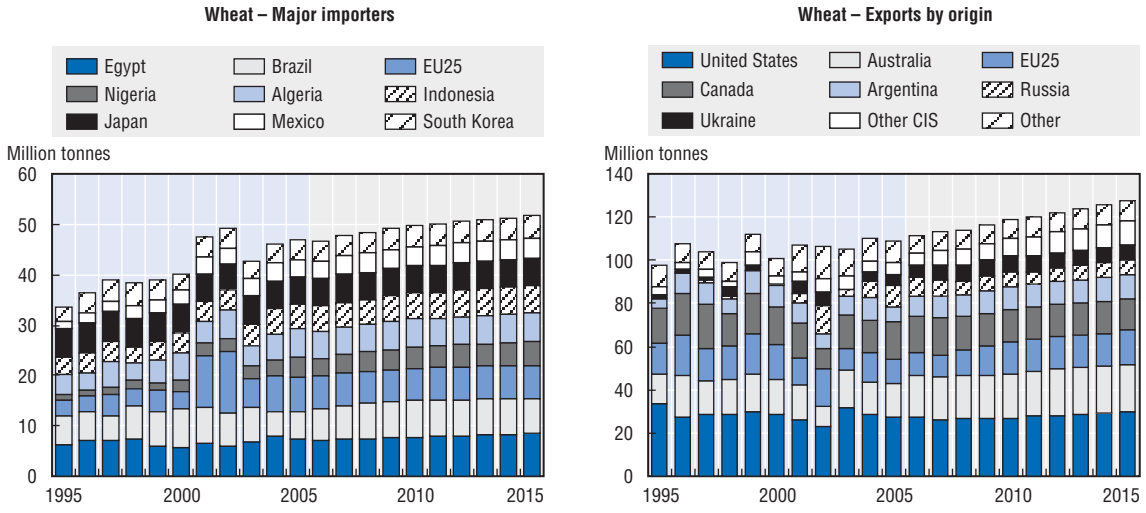
Figure 2.6. **Increasing export supplies meet expanding import demand from developing countries**



Source: OECD and FAO Secretariats.

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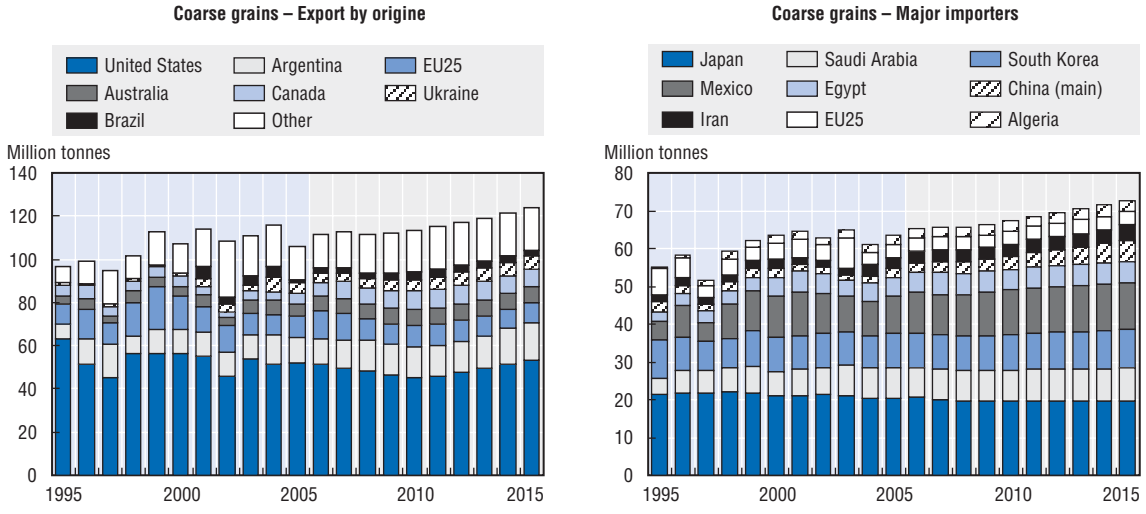
a significant drought. Growing trade in coarse grains is expected only after 2010 when the US is projected to return to the world market with larger supplies (Figure 2.7).

Apart from Canada, whose maize imports from the US are expected to expand almost 2.5 fold from 2005 to 2007 due to increased ethanol and livestock production, Mexico, where imports are projected to increase by 27% following the abolition of the maize TRQ for trade within the NAFTA, and South Korea, practically all of the increase in coarse grains imports is projected to go to non-OECD countries. As is the case for wheat, domestic production in these countries cannot keep pace with the increased use particularly due to

Figure 2.7. **Moderate growth in coarse grains trade as the US export less of their maize output**



Source: OECD and FAO Secretariats.

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expanding livestock industries. Developing Asia and Africa are set to purchase most of the additional supplies on international markets. China, which had supplied significant quantities as a net exporter for a number of years in the past, has increased maize purchases in 2005 and is projected to become a net importer of coarse grains within the first half of the Outlook period. Imports could reach five to six million tonnes by 2015 with an increasing trend. Iran, where the livestock industry is growing, is projected to increase coarse grains imports by almost 1 mt or 30% over the decade to come. Substantial additional import demand is expected to come from Egypt and Algeria, too, again used to feed the expanding livestock industries. Many other developing countries, though smaller in absolute terms, are going to demand more feed grains from international markets as well. It is only because of the lack of supply and hence increased coarse grain prices that much of the additional demand does not immediately express itself in growing imports during the first few years of the projection. However, such growth should be seen during the second half of the outlook period. Overall, net exports from OECD countries are expected to decline sharply between 2006 and 2010 as the US export less of their maize crop, but to recover to close to 2005 levels thereafter.

Main market developments: Rice

Stronger growth in global rice production foreseen in the next 10 years

Excessive production growth in the late 1990s created large imbalances in global rice markets, depressing world prices and resulting in large stock overhang. The ensuing process of adjustment saw production declines from 1999 to 2002, before resuming growth. Only by 2005 did global production recover to the pre-2000 levels. Rice production is foreseen to follow a more dynamic pace of expansion in the next decade, sustained by moderate growth in the area planted to rice. The opening of new land should help sustain production in countries such as Myanmar or Indonesia in Asia and is likely to remain the main source of growth in Africa. In other cases, the increase in the rice land bases would reflect multiple cropping, as more rice is grown off season with irrigation, a process already well advanced among Asian countries, in particular Bangladesh. By contrast, the rice land bases are expected to shrink in some major producing countries, including China, Thailand and Vietnam, where governments have opted for a removal of the crop from marginal lands and for the establishment of specialized rice producing zones. In general, however, productivity gains are expected to be the overriding factor in sustaining global production in the coming ten years. Most countries still have considerable scope for raising yields through the adoption of improved management practices and the dissemination of hybrids, which several governments are supporting through subsidies. However, although productivity gains are expected in all regions, wide yield differences are likely to persist across countries, with Egypt expected to grow 10-times more per hectare than Nigeria or Mozambique (see Figure 2.8).

Rice will remain an Asian crop *par excellence*, as the region's share in global production is projected to remain in the order of 88% percent, with particularly fast growth projected for Bangladesh, the Philippines, the Islamic Republic of Iran and Vietnam. Production growth in China is anticipated to return positive, as the country appears to have completed the adjustment process undertaken in the past 5 years to reduce excess supplies, but barely sufficient to meet domestic requirements. Supportive production policies will likely continue to sustain output growth in India. Countries in Africa and in Latin America and

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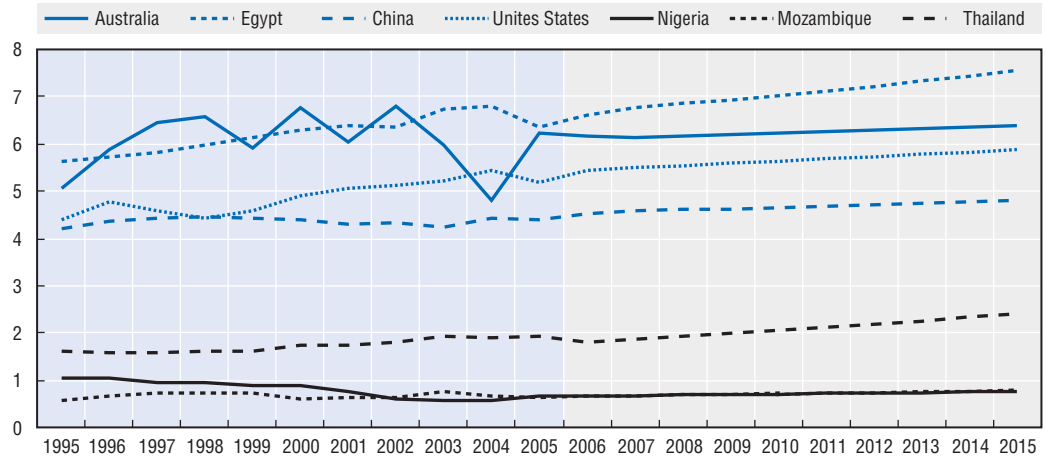
Figure 2.8. **Rice yields in selected countries**



Source: OECD and FAO Secretariats.

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the Caribbean may also face dynamic rates of expansion in the next ten years, largely in response to rising domestic demand. However, some of this growth could also be export-driven, as in the case of Argentina and Uruguay. Rice production in OECD countries is not expected to change much, overall, as increases in the United States and Australia offset a contraction in the European Union, Japan and the Republic of Korea, where the rice sectors are undergoing structural reforms.

Rice consumption to growth slightly faster than population

Relatively high rice production costs mean that rice will essentially remain a food commodity, as its utilization in feed or bio-fuel production will be uneconomical. Aggregate rice consumption is projected to expand by some 60 million tonnes over the next ten years, to 490 million tonnes, or 1.3% year. Although population growth will constitute the main factor underlying the overall increase in consumption, this also rests on a rise in per caput rice consumption, from 65.7 kg in 2005 to some 67.9 kg in 2015. Much of this increase reflects the on-going process of urbanization, especially in Africa, and fast GDP growth in places where demand for rice is still positively related to income. Per capita rice consumption is also foreseen to increase in the developed countries, sustained by a diversification of diets and the arrival of new migrants from traditional rice-eating countries.

Growth in international trade in rice accelerates

The fast expansion of world rice trade since 1995 represents one of the most outstanding developments in the rice economy in the past 20 years. While the share of international trade in global rice production is still small relative to that of other cereals, growth in rice trade is seen to accelerate in the next ten years, lifting the size of the international market from 26 million tonnes in 2005 to 34 million tonnes in 2015 and contributing to a further "deepening" of the rice market, as the share of production traded internationally rises to 7% in 2015, up from 5% in 1995 and 6% in 2005. In general, the pattern of rice trade is anticipated to become less segmented by region, as rice from Uruguay and Argentina gains greater access to markets in Africa and the Near East, while

Figure 2.9. **Ratio of trade to global production for rice, wheat, and coarse grains in 1995, 2005, 2015**

Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/567541332883*

growing volumes of rice from Asia flow to Latin America and the Caribbean, a process already at play.

Traditional exporters are expected to sustain the expansion of global rice trade, especially Thailand and Vietnam, although both have adopted a policy stance targeting high-quality rice markets. Larger exports from India, Pakistan, Egypt and the US are also foreseen. Some least developed countries in Asia may gain a greater share of the world market by capitalizing on their preferential access to other countries in Asia, under the Asean Regional Agreement, and to the EU, under the "Everything but Arms" programme. With moderately increasing imports by Brazil, shipments from Argentina and Uruguay are also seen higher. By contrast, sales by China may dwindle, as abundant supplies of low quality rice from stocks, which formed the bulk of the country's exports, are no longer available.

Much of the expansion in import demand is expected to originate in Africa and Asia. Imports by South Africa and most western Africa countries, which maintain relatively low levels of external protection, are expected to rise in response to growing domestic demand. By contrast, following the imposition of a rice import ban in 2006, purchases by Nigeria, one of the largest rice importers in recent years, are projected to fall and to be largely limited to rice smuggled from neighbouring countries. In Asia, imports by Indonesia, which were particularly low in 2005, might resume growing, because production in the country is not expected to keep pace with demand. Purchases by Near East countries including Iraq, Saudi Arabia, Turkey and the United Arab Emirates, are anticipated to surge. Over the next ten years, China is projected to maintain a small but growing net trade deficit, as domestic demand for high quality and fragrant rice rises. This would mean a significant departure from the traditionally adamant rice self-sufficiency policy pursued by the Government. Its willingness to accept a greater reliance on imports was illustrated in 2005 through the signing of a protocol with Pakistan that give this country a 250 000 tonne preferential access to China' rice market. Among OECD countries, purchases by the EU are projected to rise, following the 2005 reduction of import duties and the full opening of the Union's rice market to least developed countries as of 2009. Similarly, in the Republic of Korea, the

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extension in 2004 of the WTO Special Treatment Clause will result in the opening of its rice market to 408 000 tonnes of foreign rice by 2014 up from 250 000 tonnes in 2005. Limited increases in rice area are expected to moderately raise Brazil's imports by 2015, while those by Japan are anticipated to change little, under the prevailing trade policy.

Global rice inventories recovering since 2007 but never return to pre-2000 levels

The adjustment to reduce rice inventories, which was a dominant feature of rice markets in the early 2000s, is expected to be concluded by 2007. From then on, global rice inventories are foreseen to recover somewhat from the steep fall undergone in the past five years, reaching some 77 million tonnes by 2015, never returning, therefore, to the high levels of the late 1990s, when more than 160 million tonnes were estimated to be held as carry-over stocks. The major rice producing countries, in particular China, India, Bangladesh, Indonesia and Vietnam are expected to hold to bulk of the reserves. The cut of global rice inventories is anticipated to reduce the rice stock-to-use ratio from 16.9% to 15.7%.

International prices to strengthen somewhat

World rice prices are expected to increase slightly in nominal terms, particularly in the early projection years, to reach USD 314/t by 2015 up from USD 290/t in 2005 against the backdrop of rising competition for land and water in several major producing countries and growing rural labour and energy costs.

Key issues and uncertainties

Biofuels are key to cereal markets – to an unknown extent

The increased production of grain-based ethanol is one of the key market elements for cereals and a growing driver in future market outcomes. Many countries are engaging into biofuels production, with arguments for public efforts covering possible environmental benefits such as reduced net CO_2 emissions and urban pollution, expected economic benefits such as reduced dependency on expensive crude oil imports and job creation, and possible social benefits such as higher farm incomes and improved rural economies. The degree to which these benefits materialise is not finally clear, but as shown in a recent OECD report,[5] the impacts on agricultural commodity markets can be substantial (see Box 2.1).

With the Renewable Fuels Standard (RFS) in place, the US remain a dominant actor on that stage, but growth in ethanol production is foreseen for other countries as well, such as Canada, China and Australia, to mention but a few. On the other hand, no explicit assumptions have been made for the European Union, where a new directive in 2006 is expected to make compulsory the so far voluntary target of 5.75% biofuels share in total transport fuel use by 2010. While much of the growth in biofuels in the EU is expected to be in biodiesel, ethanol production can be expected to create substantial additional demand for wheat and coarse grains, as well as for sugar beet, even though some of the growth in ethanol consumption might be sourced from ethanol imports from countries with lower production costs. As shown in the OECD report, production costs of biofuels in several countries are expected to remain relatively high so that, without support, production does not become viable at current crude oil prices of around USD 60/barrel. Increased public efforts and compulsory blending rates could, however, cause biofuel production to expand rapidly in the coming years. But such public efforts could also create market distortions,

the nature and level of which need to be well understood before policies are put in place. Once established, such policies may prove very resilient to necessary modifications due to unanticipated market impacts or the changing economic environment of bioenergy production in the context of technological advances.

Overall, grain-based ethanol production could increase globally more strongly in the years to come, although a more rapid and pronounced decline in crude oil prices could undermine biofuel growth as it would increase (or reinforce) the dependency on public support. The number of countries eventually engaging in biofuels production, and the amount of ethanol produced from grains, remains unclear at this stage. In the long run, however, it seems quite likely that grain- and sugar-based ethanol – as well as vegetable oil based biodiesel – could become successively replaced by more efficient ways of biofuel production. Two technologies are being developed with promising perspectives: the enzyme-based use of cellulosis and hemi-cellulosis[6] to produce ethanol, and the two-step process of Biomass-to-Liquid (BTL) resulting in tailored fuels for both Otto and Diesel vehicles. While these technologies are still to expensive to compete in current fuel markets, their use of biomass is much more efficient; future biofuel demand could therefore be met by using relatively much less agricultural land. On the other hand, biofuel quantities could become much larger, thus partly offsetting the effect of increased efficiency on agricultural commodity markets.

Cereal trade by China and India remains largely policy determined

In China, the self-sufficiency policy for cereals has prevented large imports in the past. This doctrine is still determining markets and trade particularly of food grains. In consequence, rice imports are expected to remain small. Wheat, predominantly a food grain in China as well, has been treated less rigorously in the past, but imports remain largely policy determined and hence difficult to assess. Recent analysis has shown that the implications of alternative import policies on international wheat markets can be significant.[7] These import policies can range from a self-sufficiency policy similar to that expected for the rice markets with very few imports allowed to come in, to a fairly liberal approach allowing imports at low tariffs beyond the TRQ agreed and scheduled for the WTO. As 90% of the wheat TRQ remains under the control of state trading entities and hence of the central government, wheat imports significantly depend on political decisions.

For coarse grains, the Chinese authorities seem to be willing to allow for larger imports in order to feed both the expanding livestock industry and to prepare for growing ethanol production. Coarse grains imports therefore seem to be determined more by economic than by political considerations. Projections of the absolute import quantities remain subject to uncertainty, however. Given the environmental concerns such as increasing erosion and desertification problems, and more agricultural land becoming lost to urban agglomerations and infrastructure areas, productive resources may shrink more rapidly than expected. A 1% change in domestic supplies would translate in a trade effect of more than 1.5 mt, thus indicating the sensitivity of international markets to Chinese market conditions.

The influence of increasing imports by China could even be stronger in the case of rice. In negotiating its membership to WTO, the country consented to rice imports of up to 5.3 million tonnes by 2004 under a 1% tariff rate quota by 2004. That volume represented only 4% of China's production but as much as 20% of global trade in the same year. This

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underscores the potential impact the filling of the quota would have had on the international rice trade volumes and prices. In practice, actual imports have fallen well short of the import quota, as the Chinese authorities were well aware of the possible disruptions they could cause to the world rice economy. For this reason, the government fined-tuned its rice policies to limit China's reliance on the world market in most years. For instance, when faced with a mounting surplus in the early 2000s, it reduced supply incentives to cut excess production rather than unloading surpluses on external markets through extraordinarily large exports. The reverse held true in 2004, when the Government responded to rising prices by reintroducing minimum protective prices, to sustain production growth and reduce the need for imports. Nonetheless, although the government is unlikely to reverse its current policy stance on rice, it is giving signs that it might be willing to increase the country's reliance on external supplies in coming years, for instance through the signing of protocols with major rice exporters. The interest in China's high quality rice market is also illustrated by Japan's recent effort to have China lift the phytosanitary import restrictions it imposes on Japanese rice.

With its complex and regionalised agricultural policies, India plays a similarly difficult role in cereal markets. With large public stocks, and trade controlled to a significant extent by public authorities, India is not expected to be a major player in wheat and coarse grains trade over the next decade, and to remain a moderate supplier of mostly flavoured rice. Similar to China, however, small relative changes in the domestic supply and demand balance or in the public inclination relative to foreign trade could result in substantial effects on international markets.

Global policy setting to affect cereals less than other markets

A successful conclusion of the Doha Development Round with an agreement to substantially reduce all forms of export support, improve market access and cut domestic support will affect the outcomes for international markets for agricultural commodities. The size and nature of the impacts, of course, will depend on the details of the eventual DDA agreement. But in any case, cereals are likely to be less affected than other markets. While with 33%, 31% and 43% the Producer Support Estimates, on average for the OECD, for wheat, maize and other grains respectively are slightly above the average for all commodities,[8] cereals are among the commodities with relatively low shares of support in particularly strongly distortive forms such as market price support, payments based on output or on input use. While direct implications of policy reform on cereal markets may therefore be more modest relative to other products, indirect effects due to changes in livestock and other crop markets could still be notable, and a careful analysis of an eventual outcome of the negotiations will be needed.

Rice remains a strategic commodity for many countries

Recent regional agreements confirm that many developing countries, and some developed countries as well, are deeply concerned over the impacts of liberalization on their rice economies, as illustrated by their position in on-going negotiations. Under the 2004 CAFTA-DR-US Free Trade Agreement signed between the United States and six countries in Central America and the Caribbean (Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras and Nicaragua), rice, of all commodities, was assigned the longest transition period for the purpose of tariff elimination, varying between 18 and 20 years. More recently, the two bilateral agreements signed between Peru and the United

Box 2.1. **Agricultural market impacts of future growth in the production of biofuels**

Biofuels represent a significant and growing source of demand for agricultural commodities. Cereals, sugar beet and sugar cane are currently used to produce ethanol, which has become a ready substitute for oil-based gasoline. Furthermore, biodiesel is produced primarily from vegetable oils (other feedstocks include animal fats and used frying oils) and has the potential to be used instead of oil-based diesel. While both ethanol and biodiesel require some modifications in the engines of normal transport vehicles, both blending and the sale of modified engine vehicles give rise to the expectation that these fuels can gain non-trivial shares in total transport fuel consumption, particularly as it is widely supported by public measures in a number of countries. As such developments are deemed to have potentially substantial impacts on future developments of agricultural markets, this box summarises the findings of a recent OECD report "Agricultural Market Impacts of Future Growth in the Production of Biofuels" [AGR/CA/APM(2005)24/FINAL], which specifically looks at the economics and likely market impacts of a further expansion of biofuel production, primarily of first generation ethanol and biodiesel,[1] in a number of major producing countries.

Production costs vary considerably across the main biofuels producing countries as well as across feedstocks. Although estimates of biofuel production costs are subject to substantial uncertainty, the available data suggest that costs per unit of Brazilian ethanol from sugar cane are far below those of most other production systems. Consequently, only Brazil would be able to produce ethanol in an economically viable manner with world crude oil prices of around USD 39, which was the prevailing price in 2004, the base period used in the report referred to earlier. Production cost estimates for the US, Canada and the EU suggest that economic viability without public support can be expected only at higher oil prices. While US ethanol production from maize would become viable – according to these calculations – at oil prices above USD 44, *i.e.* at prices lower than those observed in 2005, estimates for ethanol and biodiesel in other countries and with different feedstocks range from between USD 65 and USD 145. Consequently, the oil prices that would allow national biofuel production to become profitable without subsidies vary widely across countries, but also across feedstock products. Important variables determining the relative comparison across countries and feedstocks particularly include the domestic crop prices which are driven by regional supply and demand conditions, as well as by domestic and trade policies. Similar results can be found with respect to the area requirements for a given share of domestic transport fuel consumption. According to these calculations, the three OECD regions, the US, Canada and EU15 would require between 30% and 70% of their respective current crop area if they are to replace 10% of their transport fuel consumption by biofuels.[2] This is based on the assumption of unchanged production technologies and crop yields, and in the absence of international trade or use of marginal or fallow land. However, only 3% would be required in Brazil due to not only the high ethanol yield per hectare of land, but also because of the relatively low per capita fuel consumption in this country. Both production costs and area requirements suggest a substantial comparative advantage of Brazil relative to OECD countries in the northern hemisphere. Similarly, favourable agro-climatic conditions hold for other tropical and subtropical countries as well, countries such as India, China and other Latin American countries. In addition to Brazil, these countries could also be able to produce comparatively cost effective biofuels. The report referred to above does not deal with this issue and further work is needed in this area as well as on the environmental costs and benefits of biofuel production systems in different countries.

The additional demand for agricultural commodities is likely to substantially affect the outlook for their markets. The major producers of biofuels explicitly covered in the analysis – Brazil, the US, the EU and Canada – are expected to significantly reduce their exports of the respective feedstock commodities or to increase their imports. The strongest impact on international price levels can be expected for sugar, where world prices could increase by up to 60% in 2014 compared to a situation with unchanged biofuel quantities at their current levels. Other prices would respond less dramatically,

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Box 2.1. **Agricultural market impacts of future growth in the production of biofuels** *(cont.)*

but could still gain some 4% in the case of cereals, and up to 20% in the case of vegetable oils. Note that other countries not covered in the analysis are likely to increase biofuel production and use in the coming decade as well, most notably India and China.

While for the baseline underlying the analysis a declining world oil price from its 2005 peak was assumed, recent developments suggest that crude oil could remain valued above USD 60 per barrel. Assuming unchanged policies, these higher crude oil prices would further stimulate biofuels production. The degree to which this would happen strongly depends on parameters that are yet unobserved, in particular how quickly and how strongly biofuel industries would increase production following improved profitability. While increased feedstock demand for use in biofuel production would affect agricultural markets through higher prices, the results of this analysis suggest that these impacts may well be smaller than those resulting from reduced supplies due to the direct effects of higher oil prices on agricultural production costs.

Further growth in biofuel production is taken into account in a number of countries explicitly in the projections for the present *OECD/FAO Agricultural Outlook*, including Brazil, the United States and Canada. While ethanol production in Brazil is assumed to continue its growth path, maize use for ethanol in the US,[3] and maize and wheat use for ethanol in Canada, are assumed to accelerate in the coming years, resulting in a marked upward movement of international coarse grains prices in particular. For the EU, increasing production of biodiesel along the trends observed in the recent past is taken into account. However, the current EU targets to replace 5.75% of all transport fuel consumption with biofuels by 2010, to become compulsory with the new Directive expected for 2006, could create a much stronger growth in biofuel production and use than assumed in the present Outlook. This could therefore substantially reduce projected exports of wheat, and increase projected imports of oilseeds and/or vegetable oils, resulting in firmer prices on international markets. Other countries, such as China, India and others, are increasingly engaging in the production of biofuels, too.

The study summarised in this box is still of a limited and preliminary basis. A number of caveats apply to the quantitative analysis presented in the biofuel study, in particular concerning the assumptions for production costs and techniques and the impacts of these on area requirements. Also, differences in the biofuel competitiveness between EU countries and the potential benefits of "advanced" biofuels have not been considered. Finally, international trade implications have not been taken into account. The present study indicates the direction and possible size of market effects of increased biofuel production. However, the above mentioned caveats need further work in order to assess with more accuracy than is possible now the contribution of market and policy based measures in this development.

1. The production of second-generation biofuels, such as ethanol from cellulosis or biomass-to-liquid (BTL), is currently being developed in pilot plants in a number of counties. While currently conversion costs are economically not viable, these costs are expected to decline substantially over the next 10-20 years, and second-generation biofuels could become more cost effective than current biofuels.
2. More recent calculations for the EU25 suggest substantially lower area requirements of about 43% of total land used for cereals, oilseeds and sugar beet compared to the more than 70% calculated for the EU15 in the quoted study. This reflects intra-EU trade of biofuels and biofuel feedstocks as well as the higher oil extraction rate of rape seed compared to other oilseeds.
3. In contrast to the quoted study, the present Agricultural Outlook takes into account the US Renewable Fuel Standard (RFS), signed into law in 2005. This law has changed standards in favour of ethanol and other biofuels and increased mandated biofuel consumption quantities.

States first and between Colombia and the United States later, grant to the two South American countries similarly long implementation periods for the opening of their rice market. Rice has represented the major hurdle stalling the achievement of a free trade

agreement between the Republic of Korea and 10 Asean member countries last December. In 2004, the Republic of Korea successfully negotiated the extension of the preferential treatment it grants to rice up to 2014, a measure that allows the country to retain non-tariff barriers, provided it raises its minimum access to rice imports. A similar agreement for the extension of the rice special treatment provision by the Philippines is under negotiations. More generally, many countries have expressed their intention to designate rice as a Special Product or Sensitive Product in the on-going WTO negotiations.

Notes

1. All dates are on a marketing year basis (*e.g.* 2005 represents the 2005/06 marketing year) unless stated otherwise. While in general these are June/May for wheat, September/August for coarse grains and January/December for rice, data for individual countries may use slightly different periods.
2. Population and income growth and a continued westernisation of food diets result in increasing demand for higher-valued food, such as meat and dairy products. These translate into growing use of cereals for animal feed on the one hand. On the other hand, and despite limited expansion of planted areas, further developments in crop productivity due to continued breeding and improved production processes result in increasing supply.
3. Brazil is the world's leading producer of ethanol but its ethanol industry is sugar based.
4. While these systems are relatively inefficient, they are based to a lesser extent on cereals and oilseed meals. Therefore, a change from these to more commercial production systems would in principle increase the amount of feed used per unit of meat produced.
5. OECD (2006), *Agricultural Market Impacts of Future Growth in the Production of Biofuels*.
6. See the glossary provided in OECD (2006).
7. OECD (2005), *OECD Review of Agricultural Policies: China*. Chapter 3.3: Domestic and World Market Implications of Alternative Grain Stock Estimates and Trade Policies in China.
8. Thirty per cent, data for 2004 (see OECD (2005), *Agricultural Policies in OECD Countries – Monitoring and Evaluation 2005*).

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Chapter 3

Oilseeds and Oilseed Products

World market trends and prospects[1]

Key market drivers

The world oilseed and oilseed meal markets begin the projection period after two years of falling prices. During 2003 and 2004, a combination of increased area and yield recovery resulted in a leap in production. With supplies exceeding demand and stock levels increasing, a sustained downward pressure on prices resulted. In 2005, this trend continued despite a slow-down in the growth of global production. Global stocks-to-use ratios remain above average and cause prices for oilseeds and meals to remain depressed. Vegetable oil markets showed more stability and firmer prices during the same period. After a period of steep price increases came to an end in 2003, prices stabilised at an above average level thanks to a steady expansion of global consumption and trade in 2004 and 2005. Greater diversity of supply and demand, which depends on many sources and uses, has contributed to a relative stability of vegetable oil markets.

The projection period assumptions of average weather, unchanging policy and a macroeconomic setting that is both strong and stable all contribute to the expected evolution in commodity markets. Oilseeds, oilseed meal and vegetable oil markets continue to expand, but at a slower pace than during the previous decade, Market developments over the projection period are driven by increasing productivity, slower, but continuing enlargement of the area planted to oilseeds and rising demand as incomes and populations grow in most countries. On balance, these factors lead to the expectation that the decline in nominal prices of oilseeds and oilseed meals will bottom out in 2006 under pressure of ample supplies. Following that, oilseed prices are expected to recover fully but oilseed meal prices only partially over the projection period. Vegetable oil prices strengthen in the first half of the Outlook but flatten in the outer years (Figure 3.1).

The central issue in the projections for oilseeds and oilseed products continues to be the potential for further expansion in South America, on the one hand, and the rising demand in China and other developing countries on the other. There are other interesting questions, such as the potential for new suppliers, of oilseeds or vegetable oils, or the cross-effects from other commodity markets. OECD sellers and buyers continue to be critical to the markets over-all, accounting for large shares of global supply and demand, but they also tend to be mature markets with below average growth rates.

Main market developments

Oilseed sector resumes solid growth after early slowdown

Oilseed production growth is expected to slow down at the start of the outlook period, due to a continued decrease in oilseed prices, but then to resume its upward path. The projections show oilseed production rising by about 25% in 2015 relative to the 2005 level, or 46% as compared to the 2000-2004 average. By the end of 2005, stocks had accumulated to about 12% of consumption, up from 10% in 2004, due to record production in the

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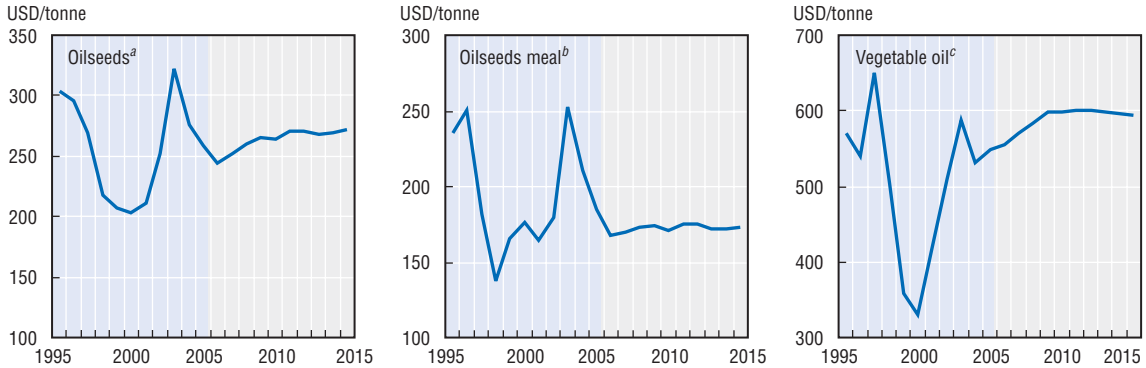
Figure 3.1. **Slightly recovering nominal world prices for oilseeds and oilseed meal, rising vegetable oil prices**



a) Weighted average oilseed import price, Europe.
b) Weighted average oilseed meal import price, Europe.
c) Weighted average export price of oilseed oils and palm oil, Europe.

Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/654542610025*

previous season. Stocks will be partially released over the outlook period, adding to the global availability of oilseeds to meet increasing crush demand.

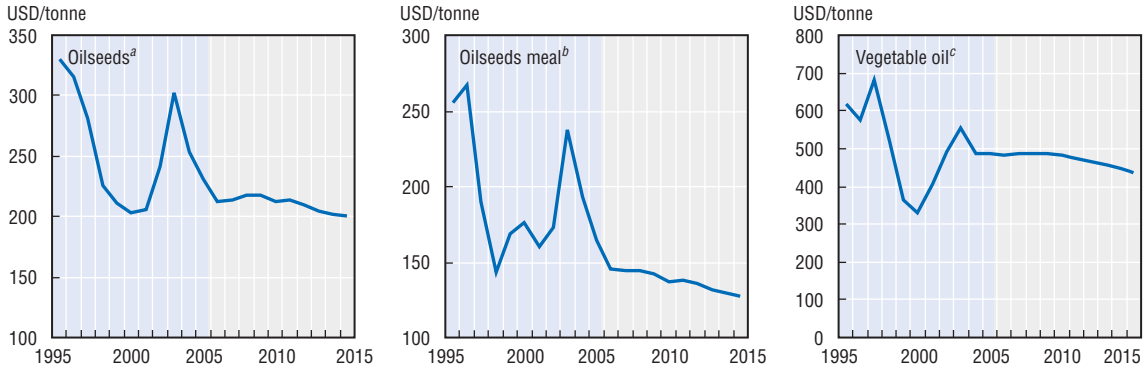
Crushing demand for oilseeds depends on the oilseed meal and vegetable oil markets. Rising income and population have led to higher world demand for livestock products, and this in turn has raised feed demand. Thus, oilseed meal demand is anticipated to continue to rise in the projection period. By 2015, oilseed meal consumption is expected to be more than 30% higher than in 2005, and more than 50% above the 2000-2004 average.

The same factors that stimulate oilseed meal demand will cause a comparable increase in global demand for vegetable oils, propelling consumption in 2015 to increase by about 31% relative to 2005, or 54% as compared to 2000-2004, even as nominal prices rise steadily. Nevertheless, growth rates of consumption of these meals and oils are expected to fall short of their historical rates.

Business as usual in OECD oilseed markets

The OECD region's share of the global oilseed production is projected to remain significant, but to decrease from 42% in 2005 to 36% in 2015. As Figure 3.2 illustrates, OECD oilseed production will grow by only 7% during the projection period. Due to record production in the base year 2005, the increase relative to the 2000-2004 average will be more substantial. Weak oilseed prices are expected to depress oilseed production early in the outlook period. Production will recover as prices strengthen and return to current levels within about three years. Expectations for production growth are mainly based on yield increases in the US, EU and Canada and on some area expansion, driven by increasing demand for seeds and oilseed products. Even though the global OECD oilseed picture is expected to remain stable, some changes are expected in the geographical distribution of production. In the US, production will increase by only 0.4% annually between 2005 and 2015. In the longer term, soybean area growth will be limited by a strong demand for maize for ethanol production. In 2006, it is projected that the higher energy-related production costs for maize will lead to an increase in the area planted to oilseeds in the US. However, for the remainder of the outlook period, land currently reserved for soybeans is

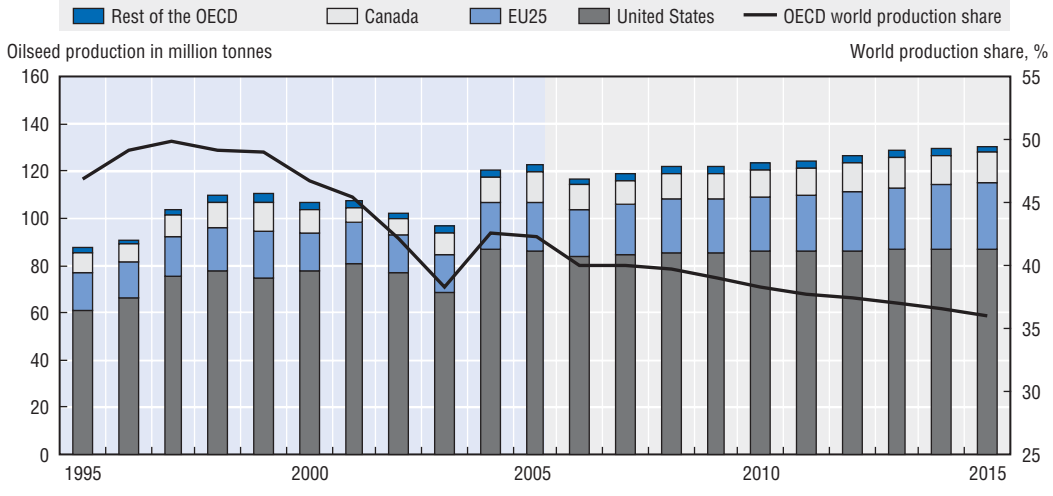
Figure 3.2. **In real terms, oilseeds and oilseed meal prices are slightly decreasing while vegetable oil prices stay relatively stable**



a) Weighted average oilseed import price, Europe.
b) Weighted average oilseed meal import price, Europe.
c) Weighted average export price of oilseed oils and palm oil, Europe.
All prices deflated by the USA GDP deflator with 2000 = 1.
Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/654542610025*

Figure 3.3. **OECD Oilseed production growth is driven by the EU**



Source: OECD and FAO Secretariats.

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projected to shift to maize because of the rising demand for ethanol production. As a result, the US oilseed area will fall by 4% by 2015 relative to the 2000-2004 average. Although the US share in OECD oilseed production will remain by far the largest, it will decrease from 73% on average during 2000-2004 to 67% in 2015.

EU oilseed production increasingly driven by biofuel demand

The main engine of oilseed production growth in the OECD over the outlook period is the European Union. Its production of oilseeds will increase by 35% over the ten years due to both area expansion and yield improvements, accounting for 90% of the global OECD growth in this sector. Between 2000 and 2004, the use of rapeseed oil for biodiesel production increased significantly in the EU. This is anticipated to continue and thus to

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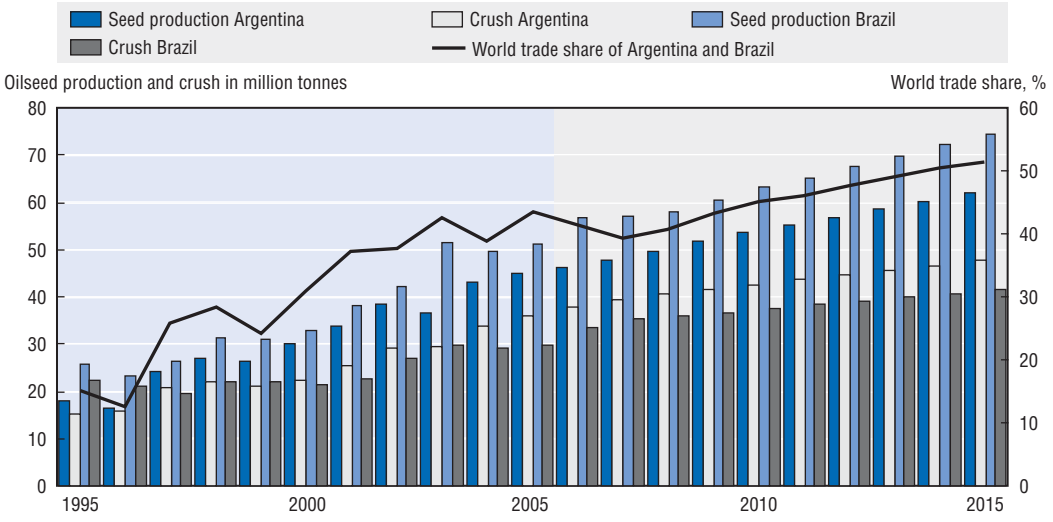
provide the incentive to further expansion of domestic rapeseed production. Area planted will increase by 17% over the projection period at the expense of the area planted to cereals. At the same time, yields are expected to increase by 16%. The assumptions used to generate the present Outlook are based on the most recent market trends. They also take into consideration the biofuel directive of 2003 which proposed non-compulsory targets for biofuel use in Member States. However, they do not reflect the global market potential of an agreement on a more stringent directive that might be introduced in the EU at a later date.

Latin America remains the growth leader in oilseed supply

South America remains the world's leading oilseed producing region driving the growth in global production. Production in both Argentina and Brazil is projected to increase by respectively 34% and 58% over the outlook period (Figure 3.4). Their combined share in global production will rise from 33% in 2005 to 39% in 2015. Total land in agriculture in Argentina continues to grow over the outlook period, but at a much slower pace compared to recent expansion rates. This area expansion combined with higher yields will result in an annual production growth of 3% in Argentina. Brazil is expected to expand its production at a slightly faster rate. After an initial period of stagnation due to low prices, area growth is expected to resume after 2008, but at a rate of less than 2.5% per year. Although unfavourable weather conditions caused poor yields in 2005, it is expected that yields will recover and achieve solid growth rates during the outlook period. Paraguay also plays a significant role in Latin America, with an expected growth of more than 70% in oilseed production to 2015.

World oilseed trade is expected to grow by over 27 million tonnes over the outlook period, with 65% of the growth in import demand supplied by Brazil and 20% by Argentina. By 2015, it is projected that Brazil will be exporting 2.5 times the amount that was shipped during the 2000-2004 period, Argentina almost twice. Although the crushing industries in both Argentina and Brazil are expected to expand their capacity, seed processing will lag behind the growth in seed production, especially in Brazil. Argentina's differential export

Figure 3.4. **Argentina and Brazil are the leading oilseed producers and suppliers**



Source: OECD and FAO Secretariats.

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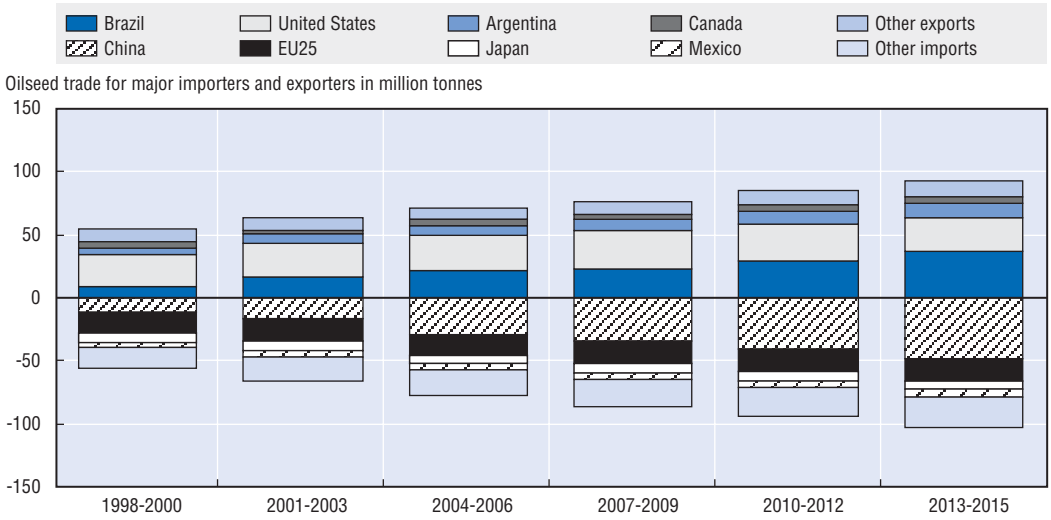
tax system for oilseeds and oilseed products encourages domestic crush of seeds and exports of oilseed products, at the cost of oilseed exports. Paraguay will follow the trend of Brazil and Argentina by increasing exports; domestic processing of oilseeds is set to increase by 50% and exports by 85% over the projection period.

Competitive pressure from Latin American exports depressed US soybean exports in 2005, which fell by 13% drop from their 2004 level resulting in a doubling of oilseed stocks. From 2006 onwards, US exports are expected to increase due to large stocks and competitive prices. But towards the end of the period, exports will fall again along with declining US oilseed production. Exports from Canada follow domestic seed production over the projection period and thus should remain globally stable towards the end of the next ten years. Australian oilseed shipments are expected to decrease by 36% in comparison to 2000-2004 as a result of stable production and increased domestic consumption.

India's oilseed area expanded significantly in 2003 and production reached a new record in 2004, also because of favourable growing conditions and higher support prices for oilseeds relative to other crops. This encouraged some shift from grains into oilseeds, thus halting the surge in oil imports and the rise in grain stocks. Production is projected to grow only moderately throughout the baseline period, mainly based on yield improvements from the application of modern biotechnology. This expectation is accompanied by a considerable degree of uncertainty as India's commodity-specific production support policies and import measures tend to change over time, strongly affecting the relative economics of crop production, and thus the allocation of resources across different crops.

Figure 3.5. **China's imports are key for oilseeds markets**



a) Exports are shown as positive numbers.
b) Imports are shown as negative numbers.
Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/654542610025*

China the giant oilseed consumer

It is projected in the Outlook that China will expand its domestic production of livestock and rely even more on oilseed imports to satisfy its growing demand for feedstuffs. It is assumed that China is developing its oilseed processing industry to capture

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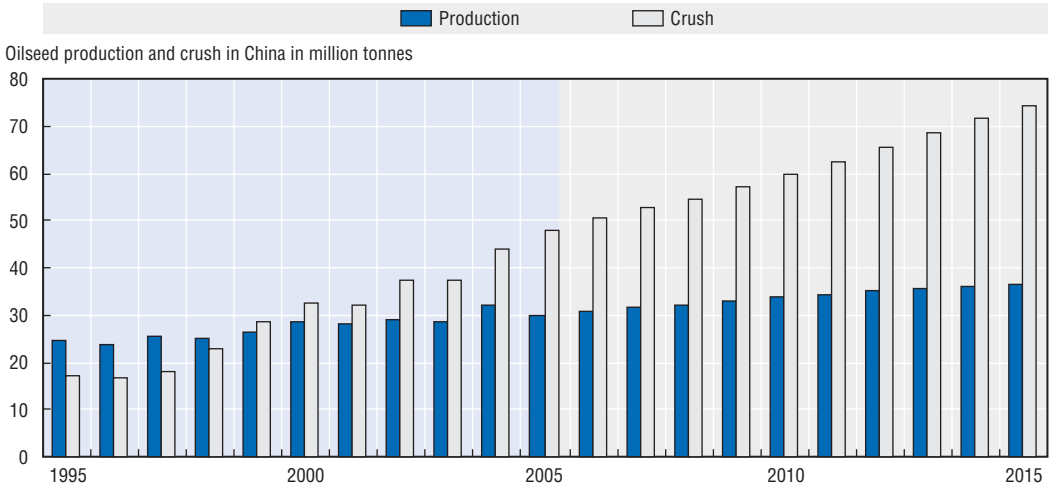
Figure 3.6. **Chinese processing industry continues to expand**



Source: OECD and FAO Secretariats.

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the added value of crushing imported seeds domestically (Figure 3.6). As a result of this policy, China will consolidate its position as the world's largest importer of oilseeds. Growth in oilseed consumption is expected to remain very strong at almost 4% per year or almost 27 million tons during the projection period. In 2015, 58% of China's consumption is expected to be covered by imports. These shipments will account for almost half of global oilseed imports and 14% of the world's oilseed consumption. China's oilseed imports are thus critical to the projections for oilseed markets (Figure 3.5). It is expected that by 2015 China will reach import levels between two and three times greater than the 2000-2004 average and nearly 75% above the 2005 level. Domestic oilseed production is projected to expand by 2% annually over the outlook period mainly due to modest increases in both area and yields.

In the OECD region, several countries depend on oilseed imports to meet the needs of their domestic crush industries. Net importers such as Korea, Mexico and Turkey are expected to expand their domestic processing and imports in line with recent trends. Although the EU remains a significant and stable importer, the anticipated strong expansion of domestic oilseed production will lead to a modest decline in EU oilseed imports over the projection period.

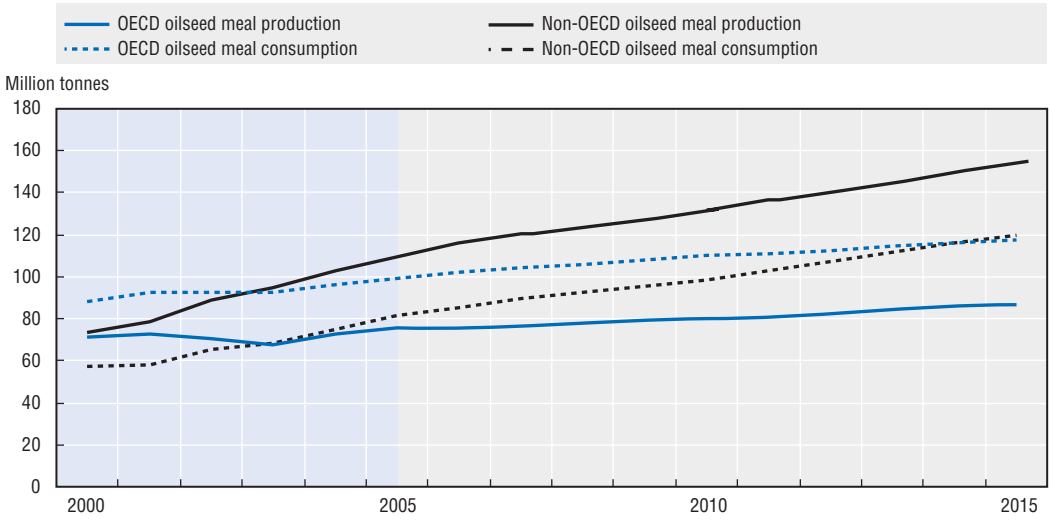
The potential for uncertainty concerning oilseed import expansion should be recognised: domestic demand or supply could easily differ from the projection levels. For example, there is the possibility of Chinese imports being significantly higher or lower than projected in this report. Sources of uncertainties can also come from other traditional importers of oilseeds whose import volumes are anticipated to further increase. Projected demand in Mexico, Turkey, Thailand, Egypt and other developing countries is sensitive to the assumptions in the Outlook.

OECD share of oilseed meal consumption declining

A worldwide increase in livestock production is expected to result in a 32% growth in world oilseed meal consumption over the outlook period. Market uncertainties related to the recent incidences of animal disease outbreaks, FMD in South America, and shocks due

to the progressive movement of Avian Influenza have not been incorporated in the Outlook and therefore do not impact on the projections for oilseed meal demand. OECD oilseed meal demand is expected to increase by around 20% over the outlook period. Still, it is projected that the region's share of global oilseed meal consumption will decrease from nearly 60% during the 2000-2004 period to 50% in 2015. The demand for oilseed meal from mature livestock industries in the US and the EU will increase at a much slower pace than in countries such as Mexico or Turkey due to the reduced rates of growth in livestock product output. In the EU, oilseed meal utilization in non-ruminant production is slightly intensified. Consumption growth rates in Australia and Canada will be similar to the global growth rates based on the development of their non-ruminant livestock production (Figure 3.7).

Figure 3.7. **Oilseed meal demand is increasingly driven by non-OECD economies**



Source: OECD and FAO Secretariats.

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Meal consumption in non-OECD economies rapidly expanding

Emerging and expanding livestock sectors will lead to a significant increase in oilseed meal consumption in many non-OECD countries (Figure 3.7). Projections for China, Brazil and Argentina see oilseed meal demand expand by around 60% each over the projection period. China's demand increase will be met by domestic meal production growth, an increasing share of which comes from imported beans. As a result of their expanding crushing industries, Argentina and Brazil will consolidate their role as the largest oilseed meal exporters with respective shares of 48% and 24% of global exports in 2015. Despite its expanding oilseed production and processing capacity, the EU will continue to import more than half of its total meal consumption. It is expected that the EU crush industry will concentrate on processing oil-rich rapeseed due to the increased demand for biodiesel. Additional meal demand for livestock feed will have to be satisfied through meal imports.

Meat production will continue to expand rapidly in India, driving domestic meal production and consumption. India is expected to maintain its position as an exporter of oilseed meal thereby securing a share of the growing Asian import market. Sustained growth in the livestock sector is also expected to continue to drive up meal demand in the

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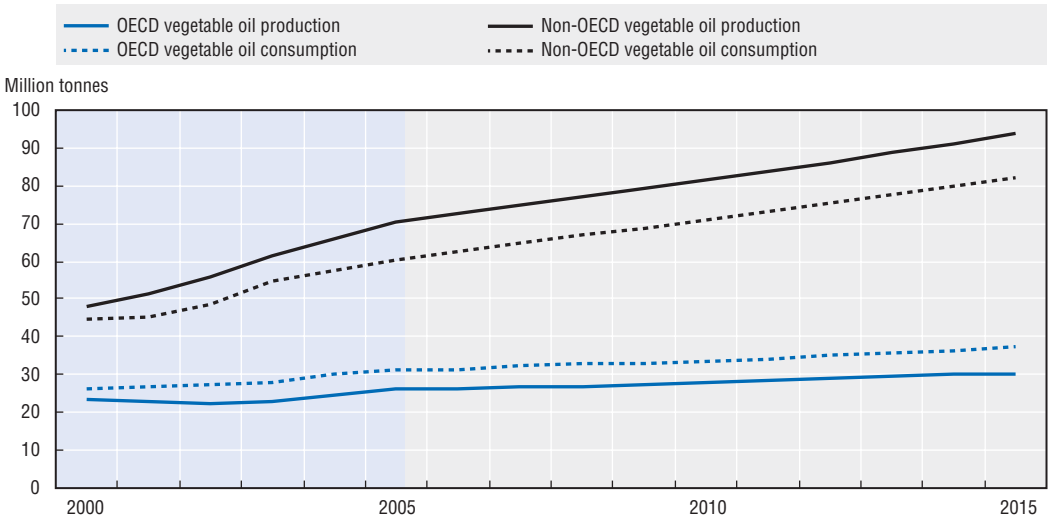
Philippines, Malaysia, Saudi Arabia and Egypt, as well as in several other developing countries in Africa and Latin America. When domestic meal availability is expressed in per capita terms, the average projected consumption levels in developing countries remains very low, even falling in several Asian and African countries. Countries in transition will also use much less oilseed meal in per caput terms compared to developed countries. However, expected development paths differ in the countries of this region. While Russia, the largest CIS country, is expected to expand its livestock industry, and therefore its meal utilization and imports, it is projected that Ukraine, the second largest member of the CIS, will remain primarily a meal exporter with a decreasing rate of domestic meal use.

In view of the rising supplies from South American countries, growth in aggregate demand is not strong enough to increase oilseed meal prices. Like most other commodity prices, real oilseed meal prices are projected to fall over the outlook period. It should be noted that the development of oilseed production in South America and the demand level in developing countries in particular are critical uncertainties in the Outlook.

The developing world is crucial for vegetable oil supply

Vegetable oil has two major sources. About two-thirds of global supply is produced by crushing oilseeds and the remainder is extracted directly from the fruit bunches of the oil palm. As a result of increasing demand based on global production and income growth, vegetable oil production is expected to increase by around 30% over the projection period, with developing countries accounting for three quarters of the expected expansion in production. Production in the OECD region will grow slightly below the global rate, at 1.7% per year (Figure 3.8). The OECD share in global production is therefore expected to fall. In 2015, it is projected that almost 80% of OECD vegetable oil production will originate in the EU and the US. Significant expansion of EU domestic seed production and crush capacity will lead to sustained growth in vegetable oil production of 2.1% per year. China's domestic oilseeds oil production from imported and domestically produced seeds is

Figure 3.8. **Vegetable oil production and consumption mostly take place in non-OECD countries**



Source: OECD and FAO Secretariats.

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projected to increase by 6 million tonnes, which covers 85% of the total demand growth. Vegetable oil sectors in Argentina and Brazil are strongly export-oriented and should continue to satisfy the growing demand from their established customers in Europe and Asia but also supply the emerging markets in Asia and Africa. Both countries are expected to increase their output each by more than 2 million tonnes over the next decade. Soybean oil from South America will be competing with palm oil from Southeast Asia for many of the traditional and emerging markets.

Palm oil production will be clearly dominated by two countries, Malaysia and Indonesia. Currently, palm oil produced in these two countries accounts for almost one third of global vegetable oil output. In recent years, palm oil has surpassed soybean oil as the leading vegetable oil in terms of quantities produced and consumed. Over the last decade, palm oil became the most widely traded vegetable oil and its dominant position is expected to be consolidated over the coming years. The combined production of Malaysia and Indonesia will expand by 9 million tonnes. Malaysia has been the leading producer in the world for many years, but Indonesia has posted higher growth rates in recent years. These different trends are expected to continue and the projections see a reversal of positions in 2009. In 2015, Indonesia will be the largest palm oil producer with an annual output of 21 million tonnes. However, projections for Malaysia and Indonesia are characterized by a considerable degree of uncertainty. Current projections are conditioned on a stable, growth-oriented political and economic environment in the region, encouraging the substantial long-term investments necessary for sustainable expansion of the industry.

With strong demand, vegetable oil trade grows rapidly

Vegetable oil consumption will rise world-wide due to rising population and income growth. It is projected that world trade will expand by 28% over the outlook period fuelled by high demand in non-producing regions.

Due to the faster population growth of non-OECD countries, there tends to be a higher demand growth for vegetable oils in these countries than in the OECD region (Figure 3.8). In the non-OECD region, total vegetable oil use will grow at 3.1% per year. In recent years, China has become the world's leading vegetable oil consumer and it is expected to remain in this position throughout the projection period. Annual consumption growth is projected at 3.2% per year. While this is high compared to other countries, China's per capita consumption is only slowly catching up to that of developed countries (Figure 3.9). China's imports are projected to increase in line with the growth in vegetable oil consumption, importing about 30% of its total consumption throughout the projection period. Despite a fast paced consumption growth, China is not expected to increase its dependency on imported vegetable oils.

Other important developments in vegetable oil trade include rising palm exports from Indonesia and Malaysia, and sustained expansion in purchases by traditional buyers in Asia (Iran and Pakistan) as well as Africa (Egypt and West African coastal nations) and Latin America (Mexico, Venezuela, Chile). In India, the world's fourth largest buyer of vegetable oil, import purchases have, in recent years, reached about 60% of domestic use. During the last decade, oil consumption has grown about three times as fast as domestic production. Based on the expectation of sustained growth in domestic consumption, considerable further growth in the volume of imports is anticipated over the coming years. Although

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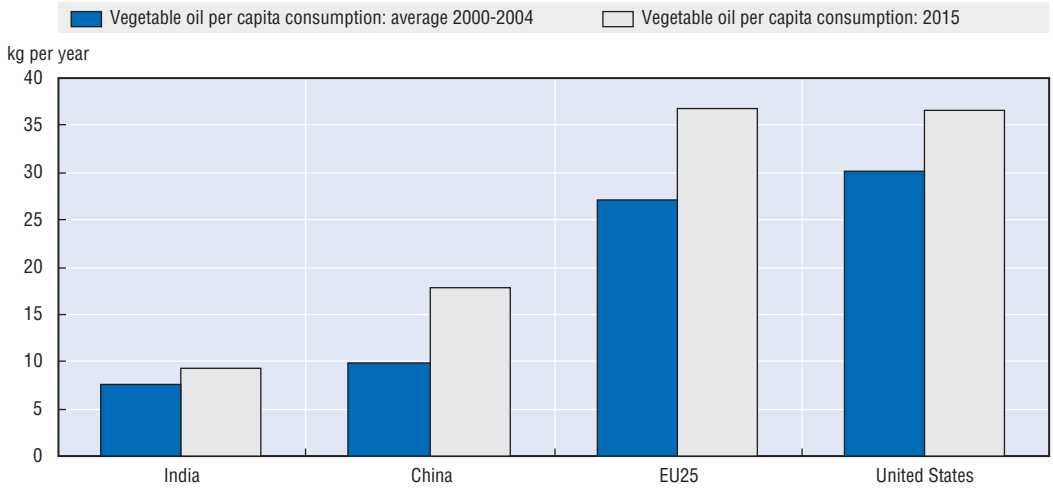
Figure 3.9. **China's and India's vegetable oil per capita consumption is only slowly catching up**



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domestic production of oilseeds is expected to accelerate, the increase will not be sufficient to reduce the current deficit between domestic supply and demand of vegetable oil.

Despite the growth in total consumption, the current projections imply a slowdown – compared to the last decade – in the annual expansion of total vegetable oil availability, and India's average per capita consumption level is expected to remain behind that of most other developing countries in Asia. The divergence in average per capita consumption levels between developed countries, on the one hand, and developing countries (in particular least developed nations in Africa) and transitional economies, on the other, remains significant during the projection period (Figure 3.9).

Within the OECD region, total vegetable oil use will grow at 1.8% per year, driven by Mexico and the US. Net imports into OECD countries are expected to be 20% higher in 2015 as compared to the 2000-2004 period. During the latter period, demand for vegetable oil in the EU increased by 22% due to a significant increase in the use of rapeseed oil for biodiesel production. In 2005, non-food use of rapeseed oil should become for the first time more important than that for food use. Over the outlook period, EU demand for vegetable oil should increase at a rate close to the OECD region average. However, since no binding agreement on a biodiesel directive has been reached in the EU, the potential global market impact of biofuel remains uncertain and thus is not taken into account in this Outlook. The important growth in demand during the 2000-2004 period and the global context in vegetable oil markets are nevertheless expected to create incentives for expanding rapeseed production and crushing in the EU. This is reflected in vegetable oil production increasing at about 2.1% per year. European vegetable oil imports, which grew by 58% over the 2000-2004 period, are expected to decrease by 9% over the outlook period. The import share in vegetable oil consumption in the EU should remain significant but decrease from 33% in 2005 to 25% in 2015.

Key issues and uncertainties

The present Outlook is subject to some important uncertainties that must be well understood when analysing the global oilseed, oilseed meal and vegetable oil sectors. The evolution of the macro economic environment, of agricultural policies, and possible changes in weather conditions are likely to affect the oilseed sector. The adoption of new oilseed and cereal production techniques based in particular on genetically modified varieties has the potential to affect markets significantly through higher yields and lower production costs. However, the scale of these impacts depends on decisions by policy makers and traders regarding GM binding regulations in response to consumer and producer concerns. Another source of uncertainty might be the consequences of growing health considerations for consumer demand for vegetable oil. It is yet difficult to assess how these trends might evolve over the outlook period.

Other factors need to be kept in mind when anticipating oilseed market evolution over the outlook period: the impacts on livestock production and feed demand of a possible spread of avian influenza and other animal diseases, the impacts on vegetable oil demand of further growth in biofuel markets, the evolution of demand and supply in China and India, and future WTO agreements on market access and domestic support.

Avian influenza and other animal diseases may impact the oilseed sector

Avian influenza and other animal diseases are sources of uncertainty in these projections. The possible consequences of these diseases for the oilseed sector are numerous. Since the guiding principle for this baseline is to maintain current conditions, no further incidence of these diseases is specifically considered. Avian flu and other animal diseases tend to have a demand and supply dimension. Epidemic disease outbreaks typically result in large culling campaigns that can eliminate the affected commercial livestock of entire regions. Depending on the reactions of consumers, demand will fall more or less than supply in the area. Consumption for the specific meat could also fall drastically, even in regions where no commercial operations have been affected by the disease, thereby causing oversupply and price pressure. Total meat demand may decrease, or a shift between different kinds of meats could occur. Any widespread animal disease will depress livestock production and feed demand, and thereby oilseed meal prices, yet the actual impact on meal demand and price will depend on the relative magnitudes of all market forces.

Another uncertainty comes from soybean rust. Although, it seems to be under control in South America, the occurrence of cases in the US in 2005 raises the possibility that rust prevention procedures should be adopted on a wider scale. This would increase the marginal costs of soybean production and thus have a likely impact on farmers' planting decisions and on oilseed and oilseed products prices.

Future of biofuel demand uncertain

In recent years, rising oil prices, subsidisation and technological advances have raised the profile of ethanol and biodiesel as alternatives to gasoline and diesel. At present, biofuels are mainly produced from sugar crops, starch and vegetable oils. They represent a significant and growing source of demand for agricultural commodities (see Box 2.1). Vegetable oil-based biofuel is currently not commercially viable without some form of subsidisation. Therefore, the biodiesel market is directly dependent on political decisions.

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Future development of this market is difficult to predict because of the complex interdependencies of external variables such as crude oil price, environmental policies and technological improvements. Several major vegetable oil producing countries – among them the United States, the European Union, Canada and Brazil – are considering shifting resources into alternative non-food uses such as biofuel. However, if such shifts were to occur on a larger scale, possibly in response to stringent national or global biodiesel utilization mandates, the vegetable oil sector could be expected to undergo some reorientation process.

Growing importance of China and India

It is expected that the OECD region will remain an important and stable player in the oilseed sector. However, most of the expected supply and demand growth for oilseeds and oilseed products is assumed to be in developing countries. The key players on the supply side are Argentina, Brazil and Paraguay. The expected production growth is mainly driven by assumptions about yield improvements, and area and crushing capacity expansion, which are based on recent trends and anticipated developments. Unforeseen leaps in technology, renewed financial difficulties in the region or political shifts would alter the Outlook.

The major uncertainties on the demand side of the present Outlook are future developments in China and India. These countries represent a large and growing share of the world's global population and income, and thus play a crucial role in global demand for oilseeds and oilseed products. While medium-term population projections are relatively certain, macroeconomic and policy variables are subject to a higher degree of uncertainty. For India and China, political choices concerning agricultural production, farmer incomes, increasing import dependencies, and domestic value addition in particular could affect international markets for oilseeds and oilseed products. Palm oil, soybean and soybean oil demand in these two major import markets will be especially crucial for the key producing countries in Asia and South America.

A possible Doha round outcome is not considered

Agricultural support and trade policies continue to play an important role in many countries. The present Outlook assumes unchanged policy settings, except where reforms have already been announced. Although this Outlook does not take into account any possible Doha round outcome that might eventually be agreed to, it is clear that an agreement would almost certainly have an impact on oilseeds and oilseed products markets.

Note

1. All dates are on a marketing year basis (as defined in the glossary) unless stated otherwise. A description of the model underlying these projections is available elsewhere, but it is important to note that this discussion focuses on the following aggregates: oilseeds are rapeseed, soybean and sunflower; oilseed meals are rapeseed meal, soybean meal and sunflower meal; and vegetable oils are rapeseed oil, soybean oil, sunflower oil and palm oil.

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Chapter 4

Sugar

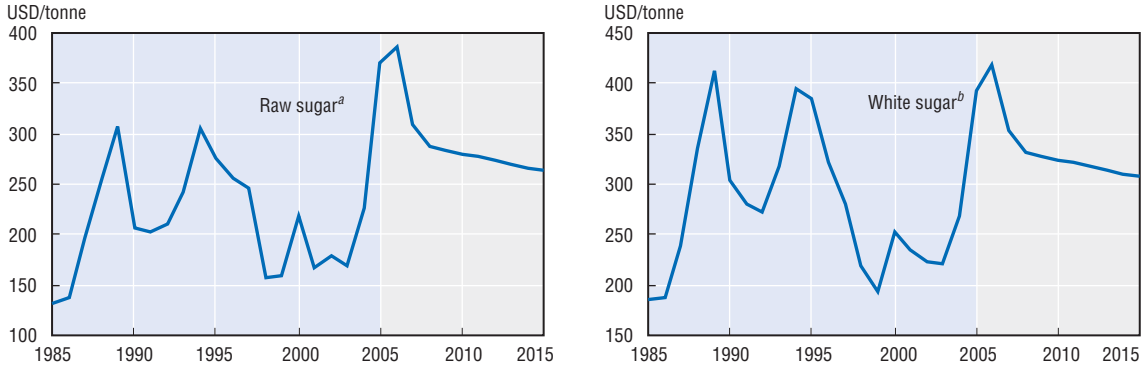
World market trends and prospects

World market indicator prices for sugar have surged to their highest levels in a quarter century during the 2005/06 marketing year, with raw sugar prices rising to over USD 19 cents/lb (USD 418.9/t) and white sugar prices to nearly USD 21 cents/lb (USD 463/t) in February 2006, after trading below USD 10 cents/lb for much of the last decade.

The strong surge in sugar prices prior to the start of the Outlook builds on a progressive increase since 2003/04 and reflects a combination of different market fundamentals: dry weather in Brazil and Thailand and hurricane damage in the US that have reduced national sugarcane crops and contributed to a declining global stocks-to use ratio; high oil and energy prices and increased diversion of cane for ethanol production in Brazil; as well as increased speculative fund activity for sugar and commodities in general. World prices are projected to increase further in 2006/07 as global consumption exceeds production for a fourth year in a row leading to a further decline in global sugar stocks. Beyond 2006, sugar prices are expected to decline as global sugar production increases in response to the period of high prices. While world prices, on average, will remain higher over the outlook period than during the previous decade, in real terms they will generally be trending downwards from the peak level of 2006/07. World indicator prices for raw and white sugar are expected to reach around USD 12 cents/lb (USD 263.5/t) and USD 14 cents/lb (USD 307.5/t), respectively, in 2015/16 (Figures 4.1 and 4.2).

These global price trends assume increasing sugar production capacity in some major producing countries such as Brazil and India that more than cover underinvestment in production capacity in a number of other exporting countries over the last decade, lower production and subsidised exports from the European Union and increasing demand for ethanol, particularly in Brazil and the United States.

Figure 4.1. **World sugar prices to average higher**



a) Raw sugar world price NY No. 11 f.o.b. bulk spot price August/September.
b) Refined sugar price, London No. 5, f.o.b. Europe, spot price, September/August.
Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/108701617204*

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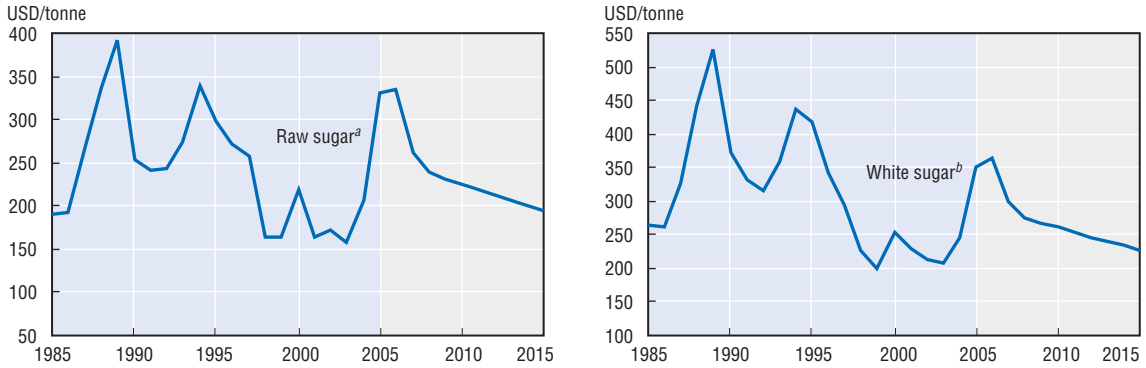
Figure 4.2. **Real world sugar prices to trend down**



a) Raw sugar world price, New York No. 11, f.o.b., bulk spot price, September/August.
b) Refined sugar price, London No. 5, f.o.b. Europe, spot price, September/August.
c) Prices deflated by USA GDP deflator with 2000 = 1.

Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/108701617204*

Main market developments

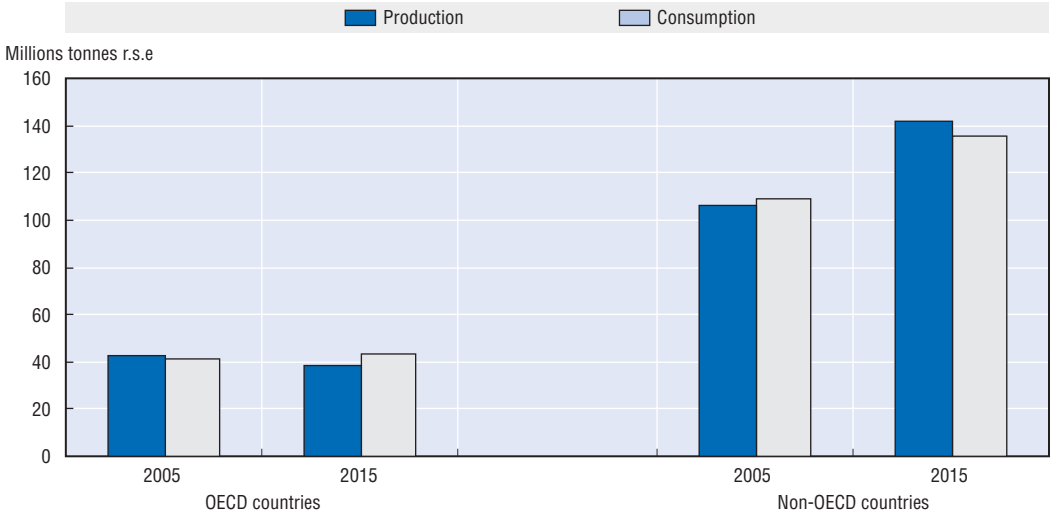
Global picture

The harvested area of sugar cane and beet crops is projected to increase by 14.5% between 2005/06 and 2015/16, compared to a relatively stable area harvested over the last decade. The area harvested of sugarcane is expected to account for all of the increase and grows by over 20% to 2015/16, while world sugar beet harvested area declines by 5% during the same period. Brazil accounts for the bulk of the sugarcane area expansion, and is followed at a distance by India and a group of smaller producing countries. The decline in the global sugar beet area is due mainly to a reduction in the EU resulting from the reform of the Common Market Organisation (CMO) for sugar, as agreed in November 2005, which calls for a cut in the administered price of sugar.

Global sugar production is estimated to have grown by nearly 3% in 2005/06 from last season's level, following a recovery in production in India and China, a rebound in output in the EU and Eastern Europe, but (exceptionally) no increase in Brazil due to unfavourable weather and strong growth in demand for ethanol. World sugar production is projected to reach 179.7 million tonnes in 2015/16, some 34 million tonnes or 23% above the average level for 2003-05. Countries outside the OECD area account for all of the increase in global production and their share of output rises from nearly 71% to over 79% over the projection period.

A key feature of the world sugar economy is steady, year-on-year consumption growth. Over the past three years, the growth of world sugar consumption has been higher than the longer term average of about 1.9%, but with growth trends differing widely across regions of the world. These patterns reflect different growth trends of population, income and domestic prices as well as cultural and other factors, including dietary practices and the availability of alternative sweeteners. Global sugar consumption is expected to grow less rapidly in the future than in past years, and to average 1.8% per year for the world as a whole between 2006/07 and 2015/16. Faster growth of 2.3% per year, on average, is projected for the non-OECD region in the same period. The developing countries should consolidate their position as the largest sugar consumers, with those in Asia, Latin America and Africa expected to experience the fastest consumption growth. Within these regional groups, Asia

Figure 4.3. **Developing countries are leaders in sugar production and consumption**



Source: OECD and FAO Secretariats.

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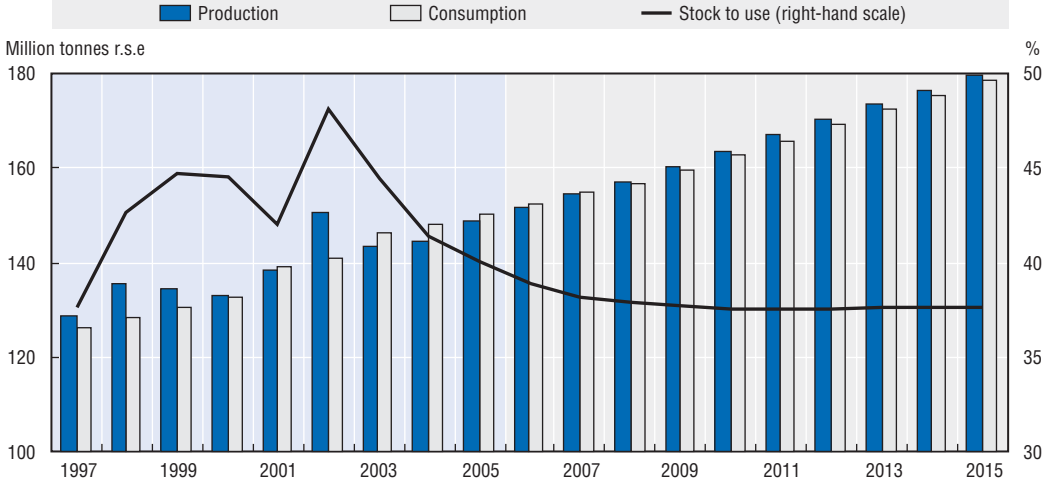
has been the main driver of growth in world sugar consumption since the late 1980s and is the main sugar deficit area. If Asian countries follow the lead of Brazil and decide to use sugarcane as the main feedstock for future biofuel production, the supply gap will widen and the region will face a major challenge to satisfy future sugar demand. In contrast to the situation of developing countries, total sugar use is projected to grow only slowly, or even to decline, in the more mature sugar markets of OECD countries, in line with falling population growth and other factors such as increasing health and diet awareness (Figure 4.3).

An important influence on the level and movements in world sugar prices is the situation of global sugar stocks in relation to consumption. After three successive seasons with a global production shortfall against consumption (Figure 4.4), the large accumulation of sugar stocks that was built up and carried in from the last decade, has now been finally

Figure 4.4. **Global sugar stocks-to-use ratio to fall**



Source: OECD and FAO Secretariats.

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absorbed. The resulting market tightening, as reflected in a global stocks-to-use ratio declining from 48% in 2002/03 to around 40% in 2005/06, has contributed to the rise in world prices. World sugar stocks are expected to decline further to 2007/08 and then start to build slowly over the projection period to reach 67.1 million tonnes in 2015/16, or some 11% above the level for 2005/06, as world sugar production expands. Despite the increase in world sugar stocks, the global stocks-to-use ratio is estimated to fall to around 38% in 2008/09 and to remain around this level to the close of the Outlook (Figure 4.4).

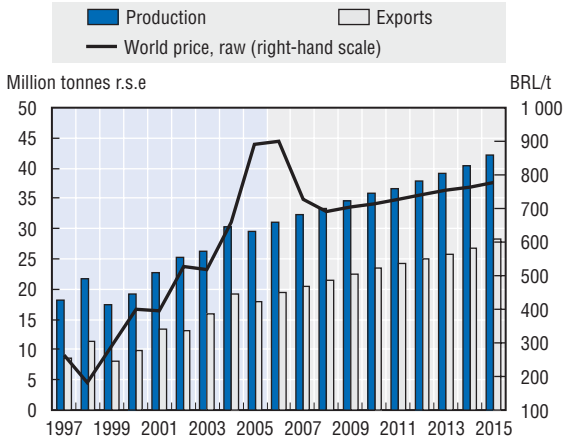
Main exporters

Brazil is the leading world sugar producer and exporter. The dominant role of Brazil in the world sugar economy implies that the size of its sugar crop affects the global sugar market balance and this has become a leading indicator of world sugar market price movements and prospects. Brazilian sugar production showed no growth in 2005/06, after consecutive years of rapid annual expansion, due to a concurrence of unfavourable weather and exceptional growth in ethanol demand. A trend of rising sugar prices in national currency terms over the outlook period is expected to encourage further expansion in the area under sugar cane and along with higher yields from the introduction of improved varieties, should lead to rising Brazilian production. In addition to expanding cane production, considerable investment in new mill processing capacity, either under construction or planned to come on stream over the outlook period, is expected to allow further growth in sugar output. Sugar production in Brazil is projected to increase by over 3.3% per year, on average, to 2015/16 which is slower than the growth recorded in the last decade (Figure 4.5).

Although ample arable land is available to easily allow a doubling of the area under sugar cane in Brazil, considerable investment will be required in sugarcane production, mill processing capacity and transport infrastructure to enable the projected expansion in sugar output to occur over coming years. In addition, there are a number of other factors which would to a certain extent mitigate the potential expansion of sugar production. For example, in the past few years relative prices of sugar and ethanol have favoured more sugarcane being diverted to ethanol production rather than sugar. If current high oil prices are sustained over coming years this can be expected to increase demand for ethanol, both domestically and internationally, with the share of sugarcane used in ethanol production likely to continue to rise steadily. The need to divert larger shares of Brazil's sugarcane crop to ethanol production may adversely affect the growth in sugar output (Figure 4.6). In addition, the perceived strength in world sugar prices would probably trigger increased interest from other low-cost sugar producing countries, which could benefit from their geographical proximity to fast-growing consuming countries, such as those in Asia. Finally, changes in the relative strength of the Real with respect to other currencies, could affect the overall profitability of sugar exports, as compared to ethanol or other competing commodities.

Over the medium term, the Brazilian sugarcane projections imply a nearly 47% increase in sugar production to 42 million tonnes by 2015/16, when compared to the average level for the 2003-05 period. The projected expansion in Brazilian sugar output is sufficient to cover rising domestic demand and to support a large increase of sugar exports to around 28 million tonnes by 2015/16. Brazil currently accounts for around 40% of world sugar trade and the projected growth in exports will increase the country's dominance of the world sugar economy. Higher exports by Brazil will also be an important moderating influence on future world sugar price prospects.

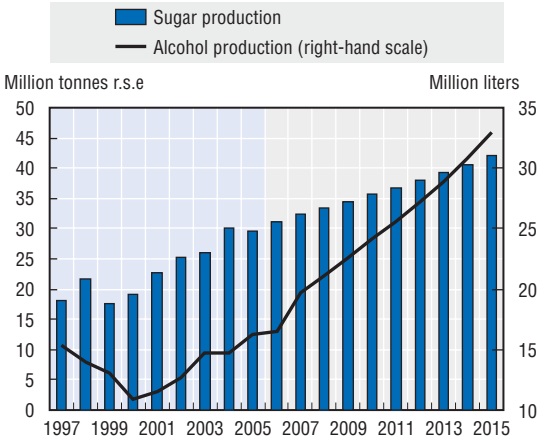
Figure 4.5. **Higher prices boost Brazil's sugar production**



Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/108701617204*

Figure 4.6. **Rising alcohol production in Brazil**



Source: OECD and FAO Secretariats.

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In terms of the other traditional sugar exporters, a switch in trade status is expected for the European Union with the implementation of reforms to the CMO for sugar agreed in November 2005. In addition, a WTO dispute panel finding, confirmed on appeal, requires the European Union to limit its subsidised sugar exports to the volume and value limits agreed in the WTO/URAA, from 22 May 2006. The sugar policy reforms and a voluntary restructuring scheme, the details of which are outlined in Box 4.1, are expected to lead to a contraction of supported sugar production in the European Union as less competitive sugar producers (growers and factories) are encouraged to leave the industry and production declines in a number of member states. Sugar production in the European Union is projected to decline by around 6 million tonnes to just under 15 million tonnes by 2015/16. Subsidised sugar exports also decline, from an average of around 5 million tonnes in recent years, to the lower WTO/URAA agreed subsidy limit of 1.4 million tonnes in 2006/07 (Figure 4.7). These exports are projected to contract even further in later years as EU sugar production declines. In addition, imports are projected to rise strongly, particularly from the Least Developed Countries (LDCs) from 2009/10 onwards, under the "Every But Arms" (EBA) Initiative, while imports from a number of ACP countries, not classified as LDCs, are likely to be reduced considerably. With these changes, the EU is expected to be transformed from a large, and relatively stable, white sugar exporter (accounting for about 9% of world trade) to a growing sugar importer over the outlook period.

In the case of Australia, another traditional sugar exporter, the area sown to sugar cane has declined in recent years as producers have diversified into other crops during an extended period of low world prices. New investment by the industry to enhance production capacity and efficiency will likely depend on grower perceptions of the sustainability of higher sugar prices in what has been a volatile world sugar market. Over the medium term, higher cane yields and sugar content rather than area planted, are expected to lead to some increase in sugar production to reach 5.7 million tonnes and this will result in some growth in exports to 2015/16. Sugar production in Thailand, which peaked in 2002/03 at around 7.6 million tonnes, has declined in recent years due to drought conditions and changes in cropping patterns. The Government has recently taken

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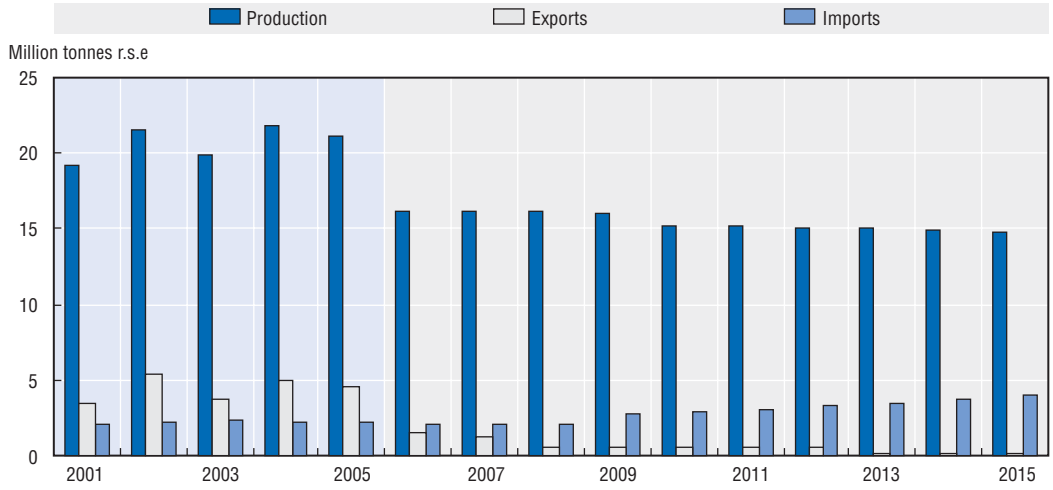
Figure 4.7. **EU sugar reform leads to lower production and exports**



Note: Data are in raw sugar equivalent.
Source: OECD and FAO Secretariats.

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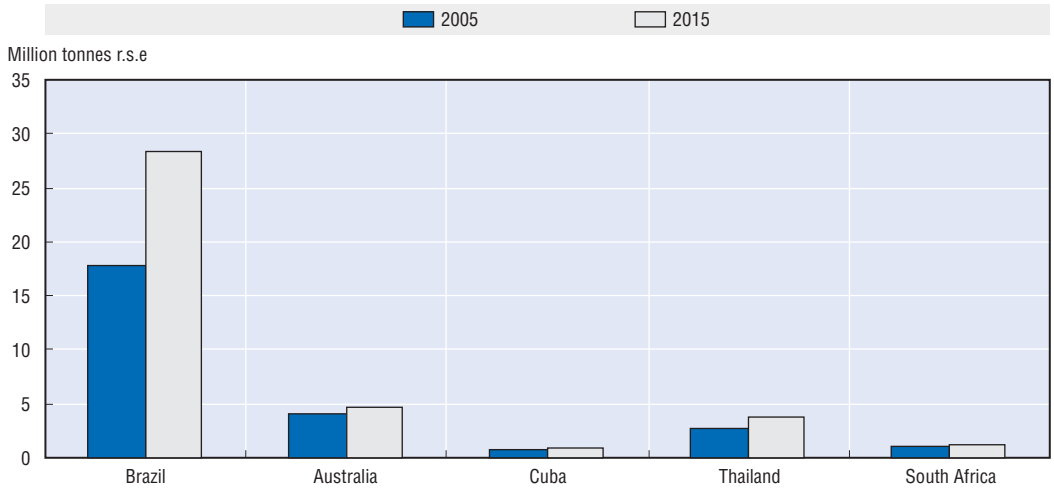
initiatives to increase investment in bio-fuel production and these are expected to limit the growth in sugar production over the medium term as sugarcane is diverted to ethanol production. Nevertheless, sugar production is projected to increase from around 5 million tonnes in the current season to 6.6 million tonnes by 2015/16. As a consequence of higher production and export returns, sugar exports build over the period to 2015/16 (Figure 4.8).

Increased sugar production is expected in India in 2006/07, following a 5 million tonnes rebound in the current season, and should exceed consumption for the first time in three years. Continuing production growth is expected in response to an expansion in sugarcane area and an increase in mill crushing capacity. Sugar mills have an obligation to export around 2 million tonnes of sugar under the Advance License Scheme and this will allow them to benefit from high world sugar prices. This Government scheme permitted

Figure 4.8. **Brazil leads the group of sugar exporters**



Source: OECD and FAO Secretariats.

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sugar mills to import raw sugar from the world market during the last Indian drought, but with an obligation to export a similar amount within 24 months. With sugar production expected to increase to 27 million tonnes in 2015/16 and to be sufficient to meet or exceed rising consumption in most years, India is expected to return to being a sugar exporter during this period. Cuba's sugar industry has been in decline for a number of years with production falling and with numerous mills closing. Other policy measures have been implemented including diversification of sugar cane production into non-citrus fruit. As a result, about 1.6 million hectares have been earmarked for diversification into tropical fruits, roots and tubers, forestry and livestock production. Within the sugar sector, some diversification of sugarcane into ethanol and other by-products has also been initiated. As a result of higher projected sugar prices and with continuing industry restructuring improving productivity, a small turnaround in production and exports is expected over the medium term.

Sugar production in South Africa is forecast to increase by over 19% above the average for 2003-05 to reach around 2.8 million tonnes in 2015/16, mainly through expansion in area harvested of sugarcane. Within the African, Caribbean and Pacific (ACP) group of countries, Zambia and Zimbabwe are forecast to raise production by 13% and 7%, respectively, to 2015/16, when compared with the average level for 2003-05.

Main importers

Russia has traditionally been the leading importer of sugar having switched the bulk of its imports from white to raw sugar for domestic refining in the 1990s. Increased investment in domestic beet production and processing, stimulated by higher and more stable prices which are supported by import tariffs, is expected to lead to sugar production rising to 3.1 million tonnes by 2015/16, more than 31% higher than the average level in 2003-05. The higher domestic production leads to increased import replacement in consumption, and slower growth in total sugar imports that reach over 4.3 million tonnes in 2015/16.

Hurricane damage reduced US sugarcane crops in Florida and Louisiana in 2005/06 and contributed to lower production and higher imports at the start of the Outlook. Sugar imports into the United States are restricted by tariff-rate quotas (TRQ) which are an integral part of the sugar producer price support system. To compensate for the fall in domestic production, the US government increased the TRQ in late 2005 by 450 000 short tons raw value (408 237 metric tonne raw value). In addition, the US determined Mexico to be a "net surplus sugar producer" under the terms of a side letter to the NAFTA agreement and increased Mexico's TRQ import allocation to 250 384 tonnes raw value for the 2006 fiscal year. In turn, Mexico granted access to the US for 250 000 tonnes of high fructose corn syrup (HFCS). Sugar production in the United States is expected to recover in the near term and to exceed consumption growth over the outlook period.

The established over-quota tariff on Mexican sugar exports to the US under NAFTA falls to zero in 2008, at which time the two countries will essentially become a single market with a floor to internal prices provided by the US loan rate for sugar. In 2006, Mexico is expected to ship around 230 000 short tonnes, raw value to the US at the over quota tariff rate. Over the projection period, sugar prices in the United States are higher than corresponding world prices and are attractive to Mexican exporters. Increased exports from Mexico are expected to put some downward pressure on US domestic prices causing government controlled CCC stocks to build slightly. But, a 20% consumption tax that is applied by Mexico on the production of beverages that use HFCS as a sweetener (the subject of a trade dispute in the WTO that was brought by the US and which has been finally

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decided in its favour), has the effect of encouraging the substitution of sugar for HFCS in these end uses, increasing Mexican sugar consumption and thereby reducing the quantity of sugar available for export to the US. High US prices also encourage additional Canadian raw sugar imports and their re-export as processed products containing sugar to the US.

Within Asia, China represents a sugar market that is expected to increase in importance. Rising incomes and changing patterns of food consumption with rapid economic growth are leading to increased sugar use in food processing and soft drinks as well as for table use, in preference to artificial sweeteners. These developments result in rising per person consumption which is at present well below the world average. Sugar disappearance is projected to reach over 16 million tonnes in 2015/16, or nearly 31% above the average level in 2003-05, and to exceed production. Domestic sugar production in China is set to increase over the outlook period, with expansion limited by a shortage of suitable land. As a consequence, imports of raw sugar are estimated to have exceeded the TRQ amount (1.95 million tonnes) in 2005/06 and to reach over 4 million tonnes by the close of the outlook period, making China the third largest importer, after Russia and the EU. Japan and Korea remain significant importers of mainly raw sugar for domestic processing and consumption over the outlook period. Korean sugar imports are projected to increase by some 27% to around 2 million tonnes in 2015/16, whereas imports by Japan increase less strongly in line with slowing per capita consumption. The other major sugar importer in the region is Indonesia, where imports continue to grow strongly, driven by rapid consumption growth. Despite efforts by the Indonesian government to stimulate production, the domestic industry continues to face problems with production inefficiencies and lack of investment in production infrastructure. As a result, consumption continues to grow more rapidly than production and Indonesian imports are projected to increase to nearly 2.3 million tonnes in 2015/16.

Key issues and uncertainties

Changing origins of EU sugar imports

The group of African, Caribbean and Pacific (ACP) countries, that have preferential trade arrangements with the EU and US, benefit from the high domestic prices in these markets to the extent of their export quota allocations under the sugar TRQs in these two country/trading blocks. Some ACP countries will be substantially affected by the EU sugar policy reforms and lower internal prices. In particular, high cost ACP sugar producers within the Caribbean and Pacific region are expected to experience substantial cuts in exports following the fall in EU sugar prices. However, due to the expected expansion in production of some low cost LDC members, total exports of the ACP group are projected to fall less strongly to 2015/16. The LDCs as a group are expected to increase their exports to the EU following the implementation of the EBA Initiative, which provides for duty-free access by 2009/10. This is the case of a number of African countries, such as Zambia, Malawi and Mozambique. However, there remains considerable uncertainty about the capacity of EBA countries to export significant amounts of sugar to the EU with estimates of potential exports ranging from 0.7 million tonnes up to 2.5 million tonnes. Lower estimates reflect expectations of a slow pace of increase in local sugar production, continuing high natural trade costs in many of these countries due to inadequate infrastructure and other inefficiencies as well as the effect of the EU internal price reduction.

Higher export estimates reflect the fact that EBA members would be able, in principle, to import sugar at world prices and export locally produced sugar to the EU due to the

SWAP provision of the EBA Initiative. Existing production of these countries would be sufficient to cover a large increase in exports should this option prove economically viable. In addition, there is considerable investment underway in sugar production in some EBA countries by European investors and others to take advantage of the opportunity to increase sugar exports to the EU from 2009 onwards.

Ethanol is part of the sugar price equation in Brazil

The market specificity in the case of Brazil is the importance of the ethanol sector, which uses slightly more than half of annual sugar cane production. Ethanol production is projected to increase by nearly 7% per year over the outlook period to reach in excess of 33 billion litres by 2015/16. As Brazil produces both sugar and alcohol from sugarcane, the question that arises is how the larger cane crop will be split between these two end uses which are each responding to rising demand in their own right. The outcome of this annual decision by mills over sugarcane use will be a major factor in determining sugar price movements and prospects. The rise in oil prices over the last two years has made ethanol more competitive as either a substitute for, or an extender of, oil-based fuels. In addition, the rapid growth in sales of flex-fuel vehicles in Brazil that can run on either pure hydrous ethanol or anhydrous ethanol blends with gasoline has boosted domestic demand for ethanol. To meet this demand slightly more than half the sugar cane crop was devoted to ethanol production in 2005/06. The government announced in February 2006 a cut in the mandated blending ratio of anhydrous ethanol in gasoline from 25% down to 20%. If this is extended over the outlook period, lower domestic demand for ethanol may increase ethanol supplies for export as well as sugar cane availability for sugar production.

Box 4.1. **Reform of the EU sugar policy**

Introduction

The Council of Agricultural Ministers of the European Union (EU25) reached political agreement on 24 November 2005 to a wide ranging reform of the Common Market Organization (CMO) arrangements for sugar and this was formerly adopted with legislative proposals on 20 February 2006. The reform of the EU sugar regime has been the subject of discussion for many years, dating from the time the CMO was first established in 1968. However, it is only recently that a number of factors have emerged that made continuation of the regime, which has made sugar on of the most profitable cropping and processing activities in the EU, untenable. The main factors and events that played a role in sugar reform are as follows. Firstly, the need to bring the sugar sector into conformity with the Common Agricultural Policy reforms in other commodity sectors that provided for administered price cuts, with revenue losses partially compensated by payments based on area and animal numbers (1992 and 2000 reforms). These payments were later on mainly incorporated into a single farm payment (2003 and 2004 CAP reforms). Secondly, to allow a smooth implementation of the "Everything But Arms" (EBA) Initiative which was implemented in 2001 to phase out tariffs and restrictions on raw sugar imports by 2009 from the Least Developed Countries. Thirdly, to bring total EU sugar exports into conformity with a WTO panel finding, confirmed on appeal, that the EU has been exceeding its export subsidy commitments. Fourthly, to be consistent with the EU's negotiating position for the Doha Development Agenda of multilateral trade negotiations. And, finally, to provide a long term policy framework to facilitate planning and investment in the sugar sector.

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Box 4.1. **Reform of the EU sugar policy** *(cont.)*

Main elements of the reform to the CMO for sugar agreed in November 2005

- 36% cut in the sugar administered price over four years beginning in 2006/07 with a cumulative reduction of 20% in year one, 27.5% in year two, 35% in year three and 36% in year four.
- Compensation to sugar beet growers at an average of 64.2% of the price cut in the form of a decoupled payment to be included in the Single Farm Payment Scheme, for which conditions exist for compliance with environmental and land management standards.
- For countries giving up at least 50% of their sugar production quota under a restructuring scheme, the possibility of an additional coupled payment of 30% of the income loss for a maximum of five years, plus possible limited national aid.
- Extension of the sugar quota system, until 2014/15, with no specific mid term review.
- Merging of A and B quotas into a single production quota. Quota reduction will result from sales of quota into a voluntary restructuring, quota purchase scheme with the possibility for the Commission to decide a withdrawal of sugar quota each year (*i.e.* a cut in the sugar production quota).
- Abolition of the intervention system after a four-year phase-out period and replacement of the intervention price by a reference price. During the transition, the intervention price will be 80% of the reference price of the following year. Intervention purchases are limited to 600 000 tonnes each year.
- Introduction of a private storage system as a safety net in case the market price falls below the reference price.
- A voluntary restructuring scheme lasting 4 years for EU sugar factories, and isoglucose and inulin syrup producers, consisting of a payment, of EUR 730/t in first two years, falling to EUR 625/t in year three, and EUR 520/t in the final year, to encourage factory closure and the renunciation of quota. There is the possibility to use some of this fund to compensate beet producers affected by the closure of factories.
- An additional amount of quota of 1.1 million tonnes will be made available, comprising 1 million tonnes for traditional C-sugar producing EU countries and 10 kt for the other 10 sugar producing EU countries, respectively, against a one-off payment by producers of EUR 730/t, corresponding to the amount of restructuring aid per tonne in the first year.
- An additional diversification fund for those Member States where quota retirement is larger than expected.
- These payments will be financed by a levy on holders of quota, lasting three years. The levy is set at EUR 126.4/t in year one; EUR 173.8/t in year two; and ERU 113.0/t in year three. The isoglucose levy is fixed at 50% of these rates.
- Sugar beet, when grown as a non-food crop, qualifies for set-aside payments and is also eligible for the energy crop aid of EUR 45/hectare.
- Sugar for the chemical and pharmaceutical industries and for the production of bio-ethanol will be excluded from production quotas.
- An increase of the Isoglucose quota by 300 000 tonnes for the existing producer companies phased in over three years with an increase of 100 000 tonnes each year.
- Possibility to purchase extra isoglucose quota in Italy (60 000 tonnes), Sweden (35 000 tonnes) and Lithuania (8 000 tonnes) at the restructuring aid price.

Box 4.1. **Reform of the EU sugar policy** *(cont.)*

Table 4.1. **EU administered sugar prices, 2006-2009**

	2006/07	2007/08	2008/09	2009/10
Reference price for producers[a]	505.5	458.1	410.7	404.4
Reduction in reference price (%)[b]	20.0	27.5	35.0	36.0
Reference price for consumers (EUR/t)	631.9	631.9	524.0	404.4
Reduction in consumer price (%)[b]	0.0	0.0	17.1	36.0
Restructuring payment (EUR/t)	126.4	173.8	113.3	0.0
Reference price [ACP raw sugar (EUR/t)]	496.8	496.8	448.8	335.2
Reduction in raw sugar price (%)[b]	5.0	5.0	17.1	36.0
Minimum sugar beet price (EUR/t)	32.9	29.8	27.8	26.3

a) Net of restructuring amount.
b) Cumulative reduction.
Source: International Sugar Journal, 2006.

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Chapter 5

Meat

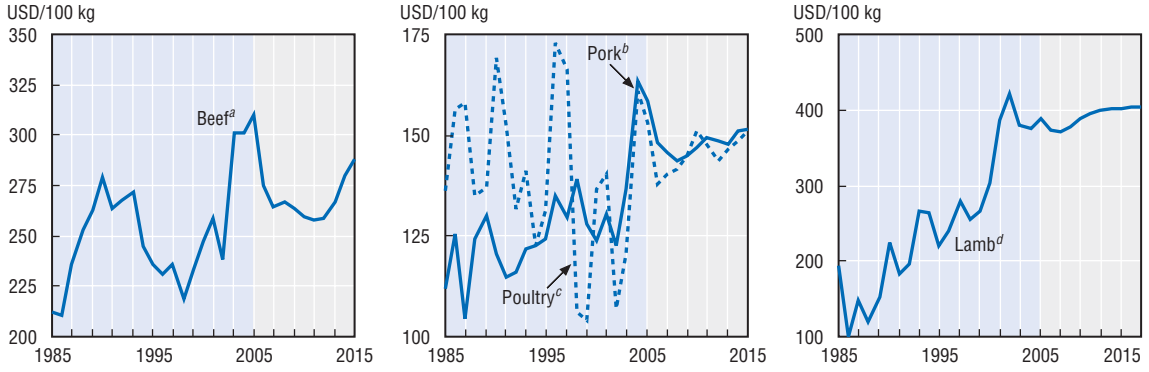
World market trends and prospects

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 (Figure 5.1), and impose ripple effects which go beyond the livestock sector. In particular, these effects mean higher costs for input industries and the broader economy. 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 and urbanisation as well as consumer's perceptions on meat safety, will be increasingly important drivers of meat consumption. While this is particularly visible in developed countries, it also more and more the case in

Figure 5.1. **Cyclical movement in nominal world prices for meat**



a) Choice steers, USA, dress weight Nebraska.
b) Barrows and gilts, No. 1-3 Iowa/South Minnesota, USA dress weight.
c) Wholesale weighted average broiler price, ready to cook, 12 cities, US.
d) New Zealand lamb schedule price all grade average, dressed weight.

Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/405315160145*

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developing countries where, over the past decade three-quarters of the growth in global meat production and consumption has taken place.

This market outlook is conditioned by various assumptions, such as a continuation of current domestic and trade policies. While consumer and retail requirements in terms of standards and certification are evolving, it is assumed that the relative competitive position of livestock industries in developed and developing countries does not change as a result of national regulatory reforms, such as those for animal health and food safety, the environment or for social issues like animal welfare. In addition, an unchanging policy environment assumes only minimal growth in market access for meat. No major changes in food safety regulations, such as changing rules on antibiotics, decontaminants, or hormones are assumed. The implementation of bilateral or regional free trade agreements, such as the Central American Free Trade Agreement (CAFTA), are expected to support trade growth, at least for the members to such agreements.

Market uncertainties related to the recent impact of animal disease outbreaks, have not been incorporated in the Outlook. This relates in particular to Foot and Mouth disease (FMD) in Brazil and Argentina and early 2006 consumer-related shocks in Europe, the Middle East and Africa due to the progressive spread of Avian Influenza (AI) outbreaks from Asia westward. These developments and the evolving nature of their impacts will be evaluated at a later date.[1] However, an easing of the various Asian trade bans on North American beef, in place over the past two years as a result of Bovine Spongiform Encephalopathy (BSE) reports, is expected.

Changing life styles and technological changes, both in the transformation and marketing of meat products, will increasingly determine how and in what form consumers include meat in their diets. While trends in demand in terms of specific meat cuts, the appearance of the product and the nature of meat consumption (*e.g.* in fast food outlets or at home) may differ by country, the Outlook projects continued strong, albeit slower, growth in meat consumption over the projection period.

Main market developments

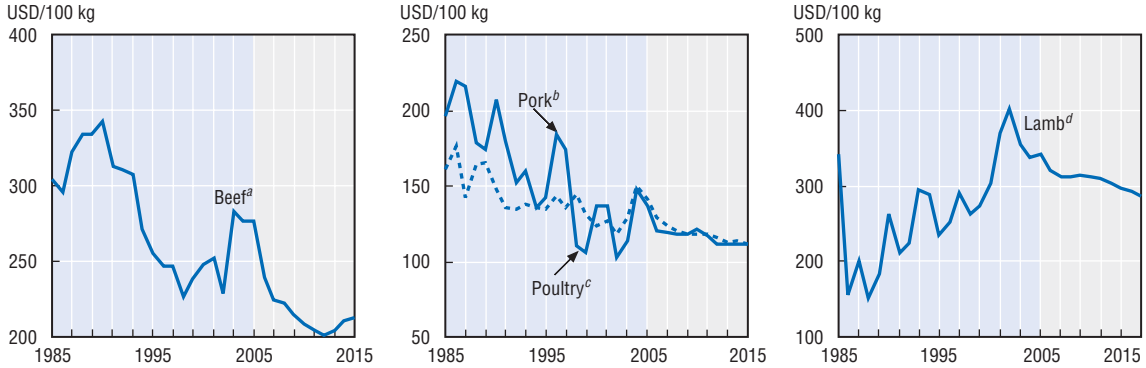
Prices to stabilise after animal disease induced price shocks between 2003 and 2005

The medium term outlook for meat markets and prices is set against a background of major market instability in recent years. An important element in this is the frequent and pervasive outbreaks of animal diseases such as FMD in Europe and South America (2001-2002) as well as reports of BSE in North America (2003-2004), a region which supplies nearly one-quarter of global meat exports. Meanwhile, the onset of Avian Influenza (AI) outbreaks in late 2003 and early 2004 have reduced consumption in Asia, resulted in the loss of export markets for regional suppliers and led, in 2004, to an unprecedented 8% decline in poultry trade and a 2% drop in total meat trade.

Over the 2003-2005 period, these disease outbreaks have led to major meat price rises reflecting reduced global exportable supplies of meat 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. Pigmeat prices increased by 50% in 2004, but this growth was reversed in 2005 as consumers moved back to poultry and beef consumption, despite higher prices. Poultry prices in international markets rose by 43% when compared to the year 2002.

In the current 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 prices for meat decline until 2015 by 23% for beef, 21% for poultry and 18% for pork (Figure 5.2). This is consistent with a situation of projected real price declines in feed inputs and productivity gains, particularly in the poultry sector. Given a rather steady international demand, lamb prices are not expected to strengthen significantly over the outlook period. Nevertheless, the sheep meat sector continues to maintain its international competitiveness, with leading trading countries investing in research to reduce costs and to increase efficiency.

Figure 5.2. **Real world prices for meat to decline**



a) Choice steers, US, dress weight Nebraska. Prices deflated by USA GDP deflator 2000 = 1.
b) Barrows and gilts, No. 1-3 Iowa/South Minnesota, US dress weight. Prices deflated by US GDP deflator 2000 = 1.
c) Wholesale weighted average broiler price, ready to cook, 12 cities, USA. Prices deflated by USA GDP deflator 2000 = 1.
d) New Zealand lamb schedule price all grade average, dressed weight. Prices deflated by NZ GDP deflator 2000 = 1.

Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/405315160145*

Meat consumption continues to grow in developing countries

Despite a near stagnation of meat consumption in many developed countries, global meat consumption is projected to expand by 2% annually to 316 million tonnes in 2015. This is similar to trends over the past decade and represents a 23% increase over the projection period. As consumers in non-OECD countries diversify their diets away from grains and adopt more western diets and consumption practices, nearly four-fifths of the growth in meat consumption will occur in these regions. Meanwhile, OECD countries are set to account for less and less of a share of global meat consumption, falling from 43% in 1996 to 38% in 2005 and a projected 35% in 2015.

While the outlook for growth in consumption is positive, there are stark regional variations. Developing countries in Asia, benefiting from expectations of stronger economic growth and rising supplies due to investment in more integrated, vertically coordinated livestock operations, are expected to account for nearly 60% of the global growth in 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. As a result, China's per capita meat consumption will be up 23% from 2005 to reach 55 kg/capita retail weight in 2015. Meanwhile, Least Developed Countries (LDCs) will account for 4% of the increase in global meat consumption, even though they are expected to expand meat consumption, particularly poultry in Africa.

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By contrast, the projected increase in consumption in developed countries is slowing and some 43% of this increase occurs in North America. This will push per capita meat consumption in North America past the mark of 100 kg/capita rtw by 2015, nearly three times higher than the global average.

Globally, poultry and pig meat will account for almost three-quarters of growth in consumption, as prices for these meats remain low relative to those for beef and sheep meat, reflecting continued specialisation and advances in meat production management and processing technologies. In OECD countries, most of the growth in meat consumption will be in the form of poultry which will account for 56% of the total. Meanwhile, in developing countries, where beef accounts for less than one-quarter of total meat consumption, the composition of the growth in per capita meat consumption will be spread more evenly with pigmeat taking 38% of the total increase, compared to 31% for poultry and 25% for beef.

Location of growth in meat production mirrors that of consumption

Structural changes in the livestock industries, including improved genetics, animal housing, and enhanced management, are expected to allow growth in meat production to keep pace with income-driven consumption gains. This is particularly true in non-OECD countries where output is projected to expand by nearly 47 million tonnes to 204 million tonnes. This growth in non-OECD countries is facilitated in part by increased cross-border movements of finance, knowledge and technology which continue to stimulate concentration and integration of livestock operations.

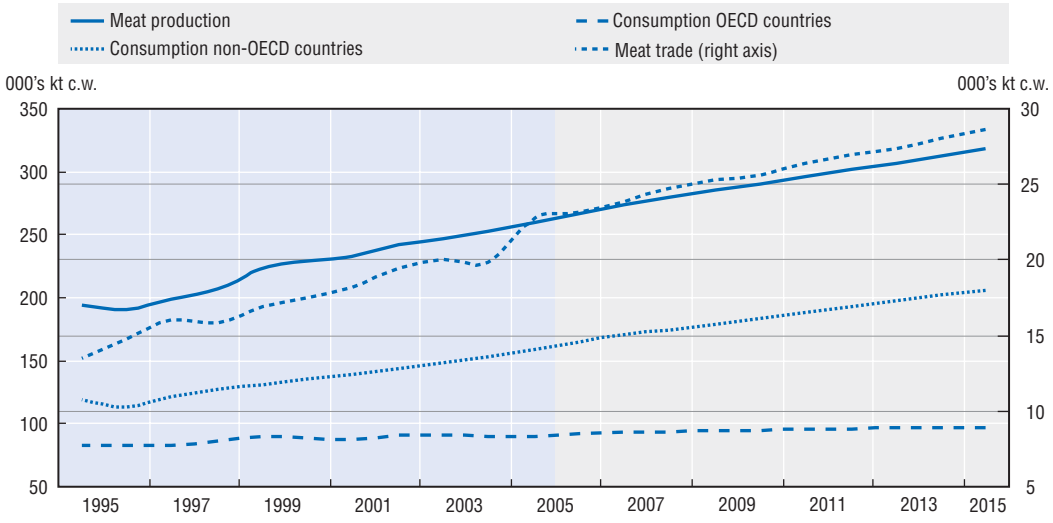
In Asia, where nearly 60% of growth in consumption is expected to take place, an additional 31 million tonnes of meat are expected to be produced. This is raising questions about the sustainability of livestock operations in these countries. In particular, the environmental pressures created by large industrialised livestock operations which in many cases are located in peri-urban areas, are considerable. These pressures are particularly acute as 75% of production gains come from mono-gastric animals, mainly chicken and pigs, which consume mostly concentrate feeds and are easily adapted to large-scale industrial production systems.

In OECD countries, meat production is set to rise less than one per cent annually, increasing by 11.5 million tonnes to reach 114 million tonnes by 2015. Accounting for only 20%of the global growth in meat production over the project period, more than half of this increase is expected to come from higher poultry output. Increased farrowing and a rising number of pigs per litter are driving pig meat production growth in North America to nearly double that of other developed countries. As BSE-concerns abate and as cattle cycles move through a rebuilding stage, slow growth in beef production is expected in developed countries, reversing the decline in output witnessed over the past decade.

Developing countries expand their share of global meat exports…

Global meat trade is expected to grow by 2.2% annually over the projection period. While still slightly exceeding the increase in consumption, this is a slow-down to half the rate of growth witnessed over the previous decade (Figure 5.3). Expanding by nearly 6 million tonnes to 30 million tonnes by 2015, global meat exports are projected to grow by 25% compared to the beginning of the outlook period.

Figure 5.3. **World meat production, consumption and trade**



Source: OECD and FAO Secretariats.

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Successfully challenging the role of beef, which in the mid-1990s dominated meat trade, growth in poultry and pork exports will account for two-thirds of the total increase in meat exports over the projection period. In particular, rising poultry meat trade, accounting for over 40% of total meat trade growth, will dominate the Outlook. Over the projection period, poultry's share of global meat trade is projected to move up from 34% in the mid-1990s to 39% by 2015, surpassing that of beef, which is expected to plummet from 42% to 35% over the same time period.

While the degree of concentration in the world meat market remains high, with 5 major exporting countries accounting for nearly three-quarters of global exports, the share of meat trade being provided by developing countries is expected to increase further. In 1996, meat exports from developed countries accounted for more than 71% of global trade; sliding to 54% in 2005, this share is expected to drop to 51% by 2015.

Developing countries, as a group, are projected to develop a net export position over the projection period and are set to capture 61% of global export growth over the period. However, nearly three quarters of this will be sourced by competitively positioned South American meat industries, mainly Brazil, Argentina, and Uruguay, as they maintain strong investments in the livestock sector and continue to diversify markets.

In addition to trade growth by some of the leading developing country exporters, investment in production and processing infrastructure in many of the middle-economy developing countries such as Mexico, Chile, the Philippines and Argentina (for chicken) is triggering larger exports from these countries as well, albeit from a small base. Supporting this development are the numerous bilateral and regional trading agreements which facilitate exports by these non-traditional meat trading countries.[2]

Exports by OECD countries are expected to grow by less than 1 per cent annually, only one-fifth of the rate of increase expected for developing countries. Total OECD countries' meat exports will likely reach 15.3 million tonnes in 2015, up 2.4 million tonnes from the beginning of the projection period. Despite a drop in EU meat exports, this growth will be

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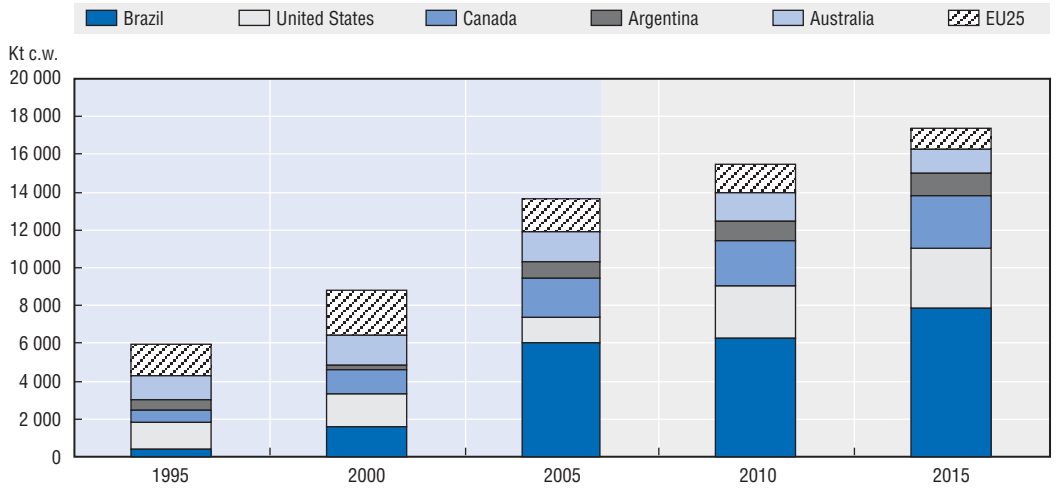
Figure 5.4. **Major meat net exporting countries**



Source: OECD and FAO Secretariats.

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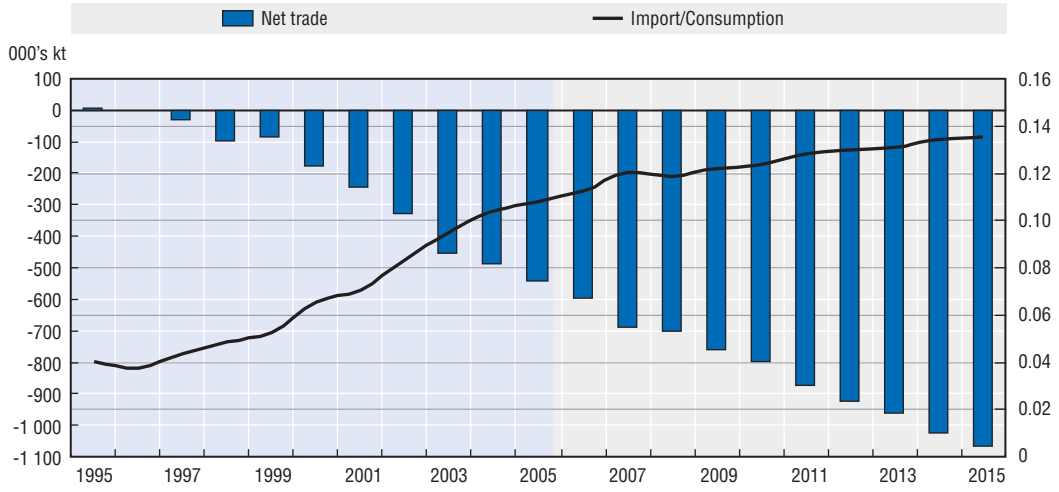
supported by strong performance in the United States and Canada (Figure 5.4) with exports set to expand by 2.7 million tonnes. In the EU25 the long-term effect of CAP reforms and policy driven production declines are expected to reduce net meat exports from 1.5 mt in 2005 to a projected 880, 000 in 2015. This includes growing net imports for beef of about 530 000 tonnes and an erosion of the net export position for poultry to some 200 000 tonnes, as the EU adjusts its tariff lines on frozen boneless chicken cuts to comply with a WTO panel ruling.

... and account for nearly two thirds of global import gains

The bulk of growth in meat imports will originate in developing countries, mainly in Asia. While strong consumption growth is maintaining trade expansion, the effect is muted as many countries are increasing production as well. Consequently, the global share of meat trade in consumption is likely to stay stable at 9%, with the shares for beef and poultry 12% and 11%, respectively, exceeding those for pork and sheep meat (5% and 8% respectively). Meat imports are set to grow in many traditionally meat importing countries, including the OECD countries. In particular, meat imports are projected to grow in Korea (up 62%), Mexico (54%), and Japan (34%).

Developing countries, in aggregate, are projected to become net meat exporters. However, this picture changes substantially when Brazil and Argentina are excluded from this group. Indeed, the remaining group of countries is showing a meat deficit, estimated at nearly 6 million tonnes in 2005, and projected to expand to 8.7 million tonnes in 2015; this is more than triple their 2.7 million tonnes deficit in 1996. Of special importance is the near doubling in the net trade deficit of least developed countries, particularly those in West and Southern Africa as well as in Central America and the Caribbean. Relatively strong consumption gains are supporting a rise in imports to 1.2 million tonnes by 2015. This pushes their import dependency to a projected 14% by 2015, which compares to 4% in 1996 and 10% in 2005 (Figure 5.5). In a context of declining real meat prices, the successful development of viable commercial livestock industries which provide local employment and contribute to economic growth is a particular challenge to these countries.

Figure 5.5. **LDCs lose ground on net trade position for meat products**



Source: OECD and FAO Secretariats.

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Key issues and uncertainties

Some issues and uncertainties cloud the long-term outlook for global meat markets. Russia's meat imports have been marked by uncertainty due to policy decisions. However, the possibility of WTO membership may promise a more orderly regime. In 2003, Russia adopted, for six years, meat import restrictions in the form of tariff rate quotas (TRQs) most of which are allocated to specific countries. Recently the Russian authorities announced that the quota administration should become simpler and more flexible in the process of reallocating quotas from country to country in the course of a year. The outcome of Russia's negotiations on WTO accession will likely influence the import regime after 2009. However, in this analysis, the current regime is assumed to remain in place throughout the projection period. WTO member country-specific tariffs remain stable as this outlook does not anticipate the results of an eventual outcome of ongoing negotiations in the context of the Doha Development Agenda.

Despite the early 2006 re-imposition of the Japanese ban on US beef in response to a BSE-related trade violation, the outlook assumes that the Asian market will reopen for North American beef exports from 2006. It is unclear, however, how market shares will evolve as North American suppliers will be challenged in their effort to recapture their old share – or to gain even more – by exporters from Australia and New Zealand. Trade disruptions related to animal diseases led to changes in suppliers; it is difficult to assess if those changes in trade flows will prove permanent or transitory, once the prohibitions are lifted.

In a recent policy change to attempt to lower domestic beef prices, the Argentine government first increased the existing export tax from 5% to 15%, introduced minimum slaughter weights on cattle, and finally suspended almost all beef exports[3] for at least 180 days from the date of announcement (March 2006). The short-term effects imply a movement of beef to domestic consumers at the expense of foreign buyers, leaving a gap in export supplies which to some extent Brazil is assumed to fill. In the baseline projections, it is not assumed that these restrictions will be extended beyond the 180-day period; the long term beef export prospects from Argentina are assumed to remain unaffected.

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Box 5.1. **Disease-related trade restrictions increasingly shape animal product markets**

Over the past five years, the resilience of international meat markets has frequently been tested by the increasingly frequent and pervasive impacts of animal disease outbreaks. While many animal diseases, particularly Foot and Mouth Disease (FMD) and most types of Avian Influenza (AI), are endemic in many parts of the developing world, only since 2001 have the severity of outbreaks of FMD (in Europe and Latin America) and more recently AI outbreaks in Asia, which have moved westward into Europe, had a significant impact on international meat markets.

The increasing complexity of global markets, the uncertain nature of consumer demand, and the often prolonged and unpredictable imposition of market access restrictions make it difficult to assess the duration and magnitude of a short term market shock. Animal health and food safety issues, as well as those related to product quality, are becoming a major factor influencing global developments in meat markets, shaping both consumption and trade patterns. This poses challenges to analyses of the impacts of animal disease outbreaks.

What puts global markets at risk from localised disease outbreaks?

The livestock sector is rapidly globalising as meat demand increases, structures of production change, and trade increases not only in absolute volume but also as share of global production. In addition, the segmentation of meat markets that previously characterised trading patterns is gradually being eroded by disease eradication, policies on zoning and technologies that allow exporters to ship product that minimises the risk of disease transmission (*e.g.* cooked product or beef aged to reduced FMD risk). Nevertheless, the experience in recent years shows that the impacts of localised animal disease outbreaks are quickly transposed into the global marketplace. This can lead to protective measures by importing countries that affect trade and consumption patterns, including substitution in demand between different types of meat, which in turn trigger price shocks in other markets for animal protein products. Some of the key factors which influence the overall duration and impact of animal diseases include:

- **The type of disease and consumer's response to potential human health issues.** The potential risks of transmission to humans of zoonotic diseases, such as the H5N1 avian influenza virus and BSE which is linked to variant Creutzfeld-Jakob-Disease (v-CJD), have had a more durable impact on global meat markets than has been the case with other animal diseases such as FMD or non-H5N1 AI outbreaks.
- **The location and duration of the disease outbreak and global export concentration.** In the context of the high degree of concentration in global meat markets (5 countries account for nearly three quarters of global meat exports), any market shocks, including those resulting from animal disease outbreaks, can have important impacts on international trade and prices.
- **Links to the international livestock markets.** The extent to which a country or region is impacted by a disease is dependent on their trade linkages – both for imports and exports – to international markets for livestock and meat products.
- **The structure of the industry and the degree to which the industry is linked to other sectors of the economy.** Livestock producers can be significant users of raw materials from upstream industries and are major providers of raw materials for downstream industries. Any shock to meat production and supply will have knock-on effects throughout the supply chain.

In addition to the direct market impact on meat industries, there is increased recognition that market disruptions due to animal diseases impose significant indirect costs on economies as a whole as well. Figure 5.6 and Table 5.1 show that these indirect costs can easily amount to 50% or more of total costs.* These financial and economic losses may have longer term implications for trading patterns, policy formulation, and investment in the sector.

Box 5.1. **Disease-related trade restrictions increasingly shape animal product markets** *(cont.)*

Figure 5.6. **Animal disease outbreaks can be expensive...**

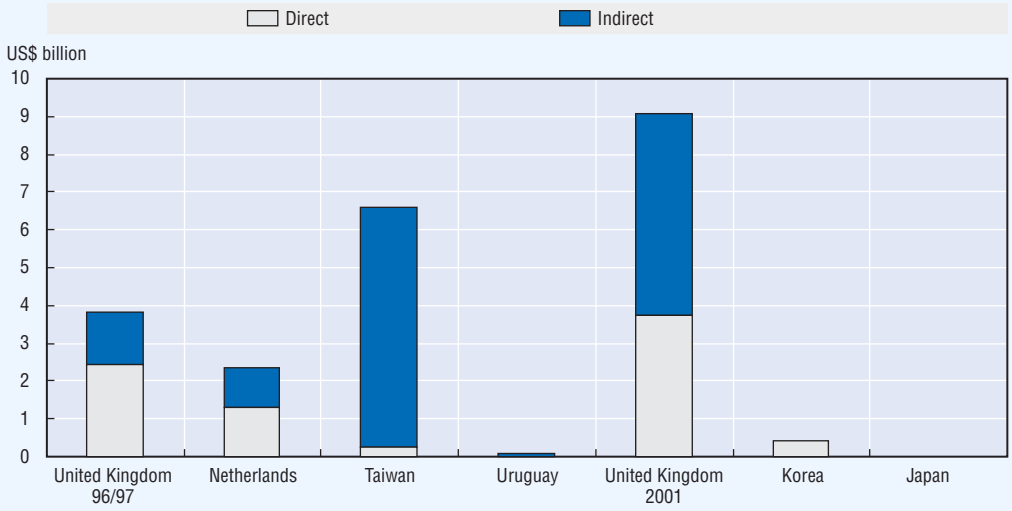

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Table 5.1. **Estimated cost of animal disease incidents**

Disease in 000 USD	BSE[c]	FMD	CSF	FMD	FMD	FMD	FMD
	United Kingdom	Chinese Province of Taiwan	Netherlands	Uruguay	United Kingdom	Republic of Korea	Japan
	1996/97	1997	1997/98	2000 and 2001	2001	2000	2000
Direct costs							
Compensation	2 433	188	1 183		2 375	377	0.5
Control measures		66	138	20	1 345	66	14.5
Sub-total	**2 433**	**254**	**1 321**	**20**	**3 720**	**433**	**15**
Indirect costs							
Agricultural sector		2,202	423		511		
Related industries		3,212	596	60	245		
Other		949			4 600		
Sub-total	**1 395**	**6 363**	**1 019**	**60**	**5 356**	**n.a.**	**n.a.**
Total costs	**3 828**	**6 617**	**2 340**	**80**	**9 076**	**433**	**15**
Impact on GDP	–0.3%[a]	–0.64%	–0.75%	n.a.	–0.2%[b]	n.a.	n.a.
Cost to public sector	63.5%	3.8%	43.5%	25.0%	41.0%		
Cost to private sector	36.5%	96.2%	56.5%	75.0%	59.0%	n.a.	n.a.

n.a.: not available.

a) –0.1 to –0.2% if the cost of compensation, which accounts for 64% of total costs, is excluded.

b) The impact on UK GDP is relatively low because the cancellation of tourism and leisure to the countryside (53% of total costs), was largely offset by increased consumer spending in other sectors of the UK economy (Thompson, 2001).

c) Draws upon the results of a study commissioned from DTZ/PIEDA consultants by UK Agriculture Departments and Her Majesty's Treasury.

Source: FAO document "Animal Diseases: Implications for International Meat Trade", August 2002. United Kingdom data have been revised following comments received from the UK Department for Environment, Food and Rural Affairs.

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Box 5.1. **Disease-related trade restrictions increasingly shape animal product markets** *(cont.)*

The changing face of poultry markets: the evolving impact of avian flu outbreaks

Unlike in 2004 and most of 2005 when the AI consumption impact was largely restricted to the Asian region, new AI detections in February 2006 in more than 12 poultry importing nations in Africa, the Near East and Europe have resulted in immediate and pronounced consumption declines, shifting patterns of trade, an increased number of trade bans and sharp reductions in poultry prices. At the onset of avian influenza outbreaks in 2004, supply adjustments in Asia and the closure of export markets led to an 8% decline in international trade. Over two years, as countries spared from the disease moved to fill the gap in supplies, poultry prices in international markets rose by over 30%.

Market uncertainty in late 2005 and early 2006 is being heightened by the potential impact of any extensive AI outbreak in the EU. Combined with reduced exportable beef supplies from Brazil and Argentina, which have reported FMD outbreaks, this would have immediate implications on global meat and feed markets in the year following the outbreak. Preliminary results of an analysis assuming an extensive AI outbreak in the EU, the imposition of trade bans on EU meat exports and limited consumer responses by European consumers indicates a large short term market impact. This market shock would imply higher prices for all meats on world markets (ranging from 9-11% for poultry and beef and 6% for pigmeat), lower global meat consumption, and a shift in trading patterns with some markets moving to fill the gap left by Europe (for chicken) and Brazil (for beef). In addition, spill over effects would be evident in the feed industry as lower meat production pushes down grain and protein meat consumption, resulting in prices to fall by 2 to 5% respectively.

The results presented above are conditioned by the underlying assumptions and reflect short term market impacts only. It was assumed that trade bans would result in significant export reductions for EU and Brazilian poultry and beef, without accounting for longer term adjustments, in particular the possibility that alternative exporters increase supplies to fill global market shortages. Furthermore, developments in 2006 are revealing that the assumption that European and other consumers would not reduce their consumption of poultry products is a critical market driver. Indeed, poultry consumption has fallen in both AI-affected and non-affected countries, and demand adjustments to animal disease outbreaks are a key determinant in shaping global markets and price movements for meat products over the longer term. The impacts on world prices resulting from this preliminary analysis above may therefore be indicative of an upper limit only.

* The methodologies adopted by the different studies vary and are therefore not directly comparable.

There have been frequent animal disease outbreaks in the past five years, and their impact on trade has been very important. Animal health and food safety problems will likely continue to disrupt markets: new BSE cases have recently been detected and more cases will likely be discovered; FMD outbreaks have arisen in South America; and avian influenza is spreading to other areas. Each new incidence will influence meat markets and may affect trading patterns through part of, or the entire medium term outlook. In the context of growing international meat markets, the trade restrictions imposed in response to animal health and food safety concerns will have increasingly broader and more costly effects. Contagious diseases, with a high mortality, have implications for productivity and market access and lead to serious economic losses for producers. While these losses can be financially compensated by richer economies, this may not be possible in many developing countries which lack the resources for doing so.

The implementation of traceability in the animal industry is becoming essential to re-assure consumers and to allow animal health officials to trace individual animals to their source, with increased rapidity and accuracy in the event of a disease outbreak or other incidents that affect animal health. For major meat trading countries, the recurring apparition of animal diseases led an increasing number of domestic and international traders to request source and age verification of the livestock and meat they purchase. Despite public and private measures taken to prevent and detect disease outbreaks, and notwithstanding contingency plans and regulations to control and eradicate them, the eventuality of an outbreak remains a clear possibility and creates uncertainties for all agents in the livestock industry, both in domestic and international markets. With growing international meat trade, it is important that appropriate regulatory and veterinary frameworks are established in all trading countries as a means to facilitate the international management of animal disease outbreaks and to minimize the related costs.

Notes

1. The ongoing evolution of the short and medium term implication of these market impacts are not included in the current outlook, but will be evaluated in a separate analysis based on the current baseline.
2. Free trade agreements include that between Mexico and Japan. Meanwhile, increasing market access will be facilitated by sanitary agreements, particularly with Japan, which allow Chile and Poland to export pigmeat to that market, while India and the Philippines have benefited from increased access for poultry.
3. The ban excludes the sales of high-quality beef to Europe and other exports guaranteed in bilateral agreements.

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Chapter 6

Dairy

World market trends and prospects

Key market drivers

As prices of dairy products in world trade descend from their historical peak in 2005, the key questions are how far will they fall, and whether a higher price plateau will be sustained over the medium term. The answers to these questions lie in the changing nature of key forces evolving in the dairy market, as it becomes ever larger and more global in scope. One driver is clearly the rising demand for dairy products world-wide, stemming from assumed solid income growth particularly in Eastern Asia, the Middle East and North Africa. But urbanisation and globalisation continue to affect the demand for storable and tradable dairy products which meet consumer demands for fats and proteins. In many developing countries, improved processing facilities are being established through technology transfer from foreign direct investment by established developed country firms using locally supplied raw milk. In urban markets, retail chains are providing standardised quality products which meet changing consumers' needs. In many developing countries demand for milk products is growing more rapidly than is milk supply. In this respect, the developments in India, the world's largest milk producer, and in China, the world's fastest growing milk producer and consumer, are key to the evolution of world dairy markets.

Against the backdrop of rising demand in developing countries, the future of world dairy markets is affected by the limited anticipated growth of exports from traditional suppliers in Oceania and in Europe. In the former case, both environmental and water supply limits, as well as greater competition for land, are expected to encroach on the growth of supply capacity. It is also true that exchange rate appreciation of recent years has eroded a cost advantage experienced in the previous ten years when depreciation spurred export oriented growth. In Europe, milk quota and the reduction in price support will limit supplies in excess to domestic market requirements. Exports to the low return markets of milk powders are expected to stagnate or decline.

There is potential for emerging suppliers to increase market share over the outlook horizon, as they respond to higher world prices that have been evident since 2002. These suppliers include Argentina and the Ukraine. For example, exports of whole milk powder from Argentina are projected to more than double from current levels, although policy changes that include higher export taxes may limit this growth. There are also other countries, such as Brazil, which have previously been milk product importers, and who now are meeting a greater share of their own consumption. However, whether increased supplies are destined for exports or for the domestic market, the critical question is how world market prices are transmitted to domestic markets, as affected by exchange rates and trade policies. An equally important question is how the domestic price evolution compares with domestic input cost developments. In this context, the macro economic setting will be important in determining the significance of supplies from emerging dairy exporters.[1]

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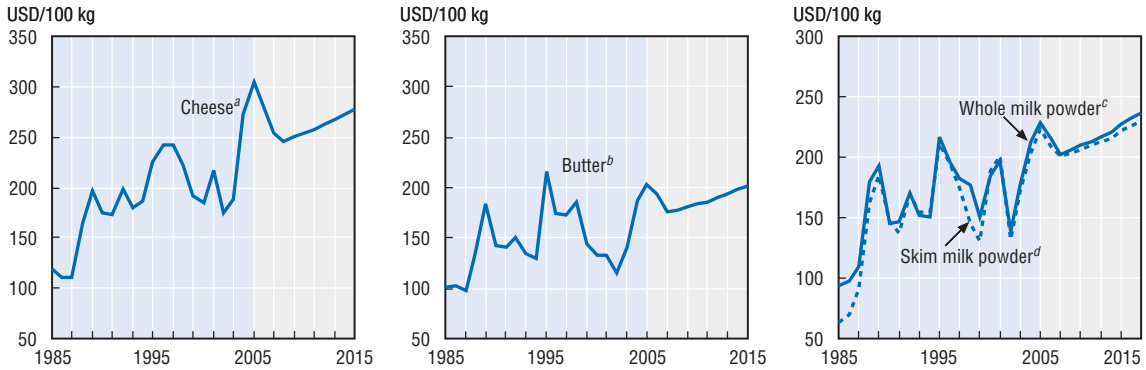
Main market developments

After falling from record high levels, world dairy prices increase slowly in nominal terms

From low levels in 2002, world dairy prices increased by a staggering 70-80%, reaching a peak in 2005. World market conditions became less tight towards the end of 2005, as high prices cooled the growth in demand. This trend is expected to continue in the next few years as expanding milk production continues to outstrip demand. The decline in USD denominated prices could be further magnified by an appreciation of the US dollar. The biggest price decline is expected for cheese, prices for which are currently at an unusually high level compared to those for other traded dairy products. For example, the ratio of cheese to WMP prices was over 1.3 in 2005, but should return to its longer term trend value of 1.2 over the next several years.

World prices are expected to resume an increasing trend pattern in nominal terms after 2008, eventually reaching similar levels attained in 2005 by the end of the projection period (Figure 6.1). Cheese may be an exception to this, with prices expected to be nearly 10% lower when compared to 2005. A steady growth in import demand, primarily from developing countries, is expected to keep the upward pressure on dairy prices. Another driver behind the price strength is the substantial reduction of butter and SMP exports from the European Union and slower production growth in other main exporting regions compared to previous years. The slowdown is most notable in New Zealand. Nevertheless, the country remains the most significant exporter and with more than 40% of all dairy trade it continues to bear a considerable influence on world prices. Indeed, the 15% fall of New Zealand exports in 2005 played a principal role in the historical price climb. For the reasons above, world dairy prices are expected to average at higher levels over the entire projection period than those seen in the last decade. In real terms, the well-established declining trend should abate somewhat with world prices remaining relatively flat after 2008. Again, this is a reflection of earlier mentioned relatively strong market conditions over the projection period compared with previous decades.

Figure 6.1. **After falling from record high levels world dairy prices strengthen again in nominal terms**

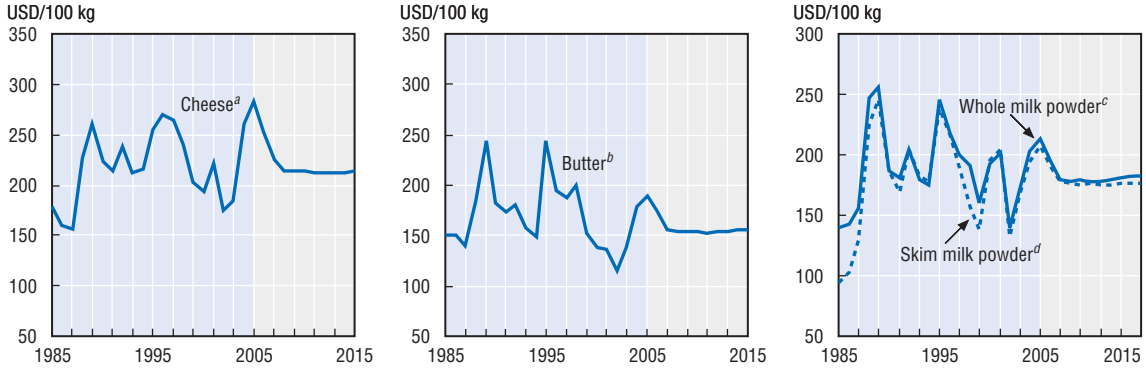


a) F.O.B. export price, cheddar cheese, 40 lb blocks, Northern Europe.
b) F.O.B. export price, butter 82% butterfat, Northern Europe.
c) F.O.B. export price, WMP 26%, Northern Europe.
d) F.O.B. export price, not fat dry milk, extra grade, Northern Europe.

Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/522075847743*

Figure 6.2. **In real terms, world dairy prices to remain relatively flat**



a) F.O.B. export price, cheddar cheese, 40 lb blocks, Northern Europe.
b) F.O.B. export price, butter 82% butterfat, Northern Europe.
c) F.O.B. export price, WMP 26%, Northern Europe.
d) F.O.B. export price, not fat dry milk, extra grade, Northern Europe.
All prices deflated by the USA GDP deflator with 2000 = 1.

Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/522075847743*

Steady growth in milk output with considerable regional differences.

World milk production is expected to increase by 103 million tonnes or 16% between 2005 and 2015 with the average annual growth rate projected at 1.5%. Per capita milk output is projected to expand by almost 0.4% per year, but by over 1% per year in developing countries. However, in Least Developed Countries (LDCs) per capita milk output is expected to continue to fall. In all areas, increases in output will largely result from growth in milk yields. Globally, milk cow numbers will become marginally larger as increases in developing countries are offset by declines in most developed countries.

The highest increases in milk production are projected for non-OECD countries and in that part of the OECD area not subject to production quotas. The share of developing countries in global milk production will continue to rise as their output is expected to grow by more than 24% over the outlook period. However, the location of future growth in production depends very much on the market and policy context in various producing countries. In this respect, developed countries can be categorized as either low cost producer with open markets; higher cost producers with largely closed markets within a policy context of high tariffs and supply quotas; or higher cost markets which may export milk products only with the use of export subsidies. For most developed countries, domestic markets are not growing much in volume terms – maybe with the exception of specialty niche products – and trade is the main source of demand growth. Countries can benefit from this if they are competitive in regional or global markets.

For developing countries a similar typology applies, but growth of the domestic market is an important source of increasing demand. Some countries such as Argentina and Uruguay are increasing their production to meet growing domestic and world markets, by competing at world market prices. Others such as India and Pakistan are growing, but largely to meet growing demand in domestic markets, which remain quite insulated from international developments.

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Oceania's milk production growth to slow down over the Outlook

Despite the recent tumble in milk production resulting from adverse weather, New Zealand can still be considered as having one of the most dynamic, expanding dairy industries of the world (Figure 6.3). Assuming normal weather patterns, its production is expected to grow by 1.7% annually over the projection period, which is much lower, however, than that seen in the 1990s. This reduction is primarily due to greater competition for pasture land from other pastoral enterprises and urbanisation, a stronger NZ currency which considerably holds down the payouts to farmers and increased environmental concerns over the impact of dairy farming. Water availability is also increasingly becoming a limiting factor for the expansion of the dairy industry.

Milk production in Australia, after several years of decline following the drought, has started to pick up, primarily thanks to improved pasture conditions and more plentiful rainfall. Following the Dairy Policy Reform of 2000 there have been significant structural changes, accelerated by adverse weather conditions. A more efficient dairy industry emerging from this episode is expected to contribute to annual production growth of 1.6% over the outlook period. As in New Zealand, this growth is significantly lower than seen in 1990's and will be sensitive to water availability over the projection period.

Moderate growth in US milk production after a strong increase in 2005

In the United States, a favourable milk to feed cost price ratio in 2005 has pushed milk production up by more than 3%. After years of decline, milk cow inventories went up as a result of farm expansion and relatively few farms exits. The increased availability of Bovine Somatotropin (BST) hormones helped to raise cow productivity with yields jumping by 3% from the previous year. The resulting rapid production growth started to outpace steady demand growth, putting downward pressure on prices. Milk production over the projection period is expected to return to a long run trend and to increase annually by 1.1%. The output growth is to be realised by productivity gains as the number of milk cows is expected to resume its longer term declining trend.

EU milk production to follow quota reference quantities

Milk production in the European Union is expected to follow broadly the evolution of the milk quota. These reference quantities will be increased, as agreed under the CAP 2003 reform, over 2006-2008. Improved genetics and feeding are expected to continue yield improvements, allowing the production of the reference quantity with fewer cows. Thus, despite the quota increases, dairy cow numbers are expected to continue their long term decline which has already resulted in a 40% reduction in the EU dairy herd over the last 20 years. In the new Member states of the EU, milk quotas will increasingly become a binding instrument while on farm use of milk is expected to decline gradually over the Outlook, more than offsetting the milk quota increases granted to these countries. The fat content of milk in the EU is expected to stabilise as farmers are increasingly rewarded for the non-fat solids content. Most milk is expected to be channelled to cheese production, substantially constraining production and exports of SMP and butter which are becoming less attractive products following the CAP reform price support cuts.

Strong milk production growth expected in much Latin America

In Argentina, the strong revival of milk production continued in 2005. Very good milk returns increased profitability of dairying and as a result, beef cattle and crop area have

been often converted to dairy production. Although herd expansion will be increasingly constrained by high land values, strong productivity gains due to improved genetics and feeding are expected to be sufficient to drive milk production growth. Under the assumption of stable economic environment, milk output in Argentina is expected to grow by 3.4% annually. Recent inflationary pressures are of a concern; the Government of Argentina is attempting to impose price controls and discourage exports using export taxes, with the intention to place more products on the domestic market.

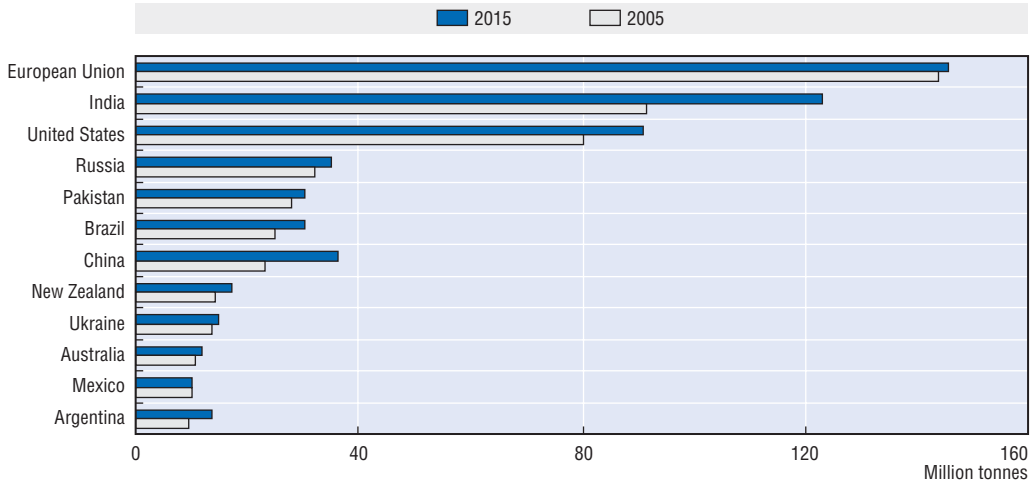
Brazil's milk production is projected to grow by 2% annually, primarily due to increased productivity as is the case in Argentina. The production and productivity is increasing mainly for producers integrated with large multinational dairy companies operating in the region. These producers continue to benefit from large dairy companies' financing programs aimed at improved genetics, milk quality and more efficient management. The milk production gains are, however, expected to be matched by growing domestic demand stimulated by government sponsored feeding programmes.

In other Latin American countries, milk output is expected to increase, although at lower rates than those of Argentina and Brazil. Growth has been largely stagnant in Uruguay and Paraguay since the macroeconomic problems since 2000 appear to have put growth of their dairy sectors on hold. Output growth for these countries is projected to remain relatively slow. For Columbia and Chile, output growth is expected to be somewhat higher but these counties will remain small net exporters of milk products. In Central America and the Caribbean, dual-purpose low yielding cows predominate among small-holders and diversified producers. Along with other South American countries, they are set to increase their dependence on imported milk products, particularly milk powders.

In Asia, strong growth will continue although at a lower pace

China's phenomenal growth in milk production of recent years is expected to slow as higher production costs, increasing environmental constraints and limited feed supplies restrain herd expansion – the main vehicle behind milk production growth in China. Nevertheless, milk production is expected to grow by nearly 4.4% per year. A relatively rapid

Figure 6.3. **Milk production growth over the period 2005-2015**



Source: OECD and FAO Secretariats.

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dairy sector development continues to be fuelled by the expansion of urban markets and large retail chains, increased shelf life of dairy products and inter-regional transportation enabling movement of milk from surplus to deficient areas. Adoption of advanced feeding and management practices, genetics and government programmes contribute to the output growth. The main uncertainty remains whether China will meet growing consumption needs by expanding imports of feed or by increasing imports of dairy products. In other developing country areas of East Asia, milk output growth is lagging behind demand growth.

Even though India is already the second largest milk producing country in the world, output in South Asia is projected to continue to grow 3% annually over the next 10 years. Roughly half of India's milk (in volume terms) comes from its buffalo herd, whose milk has about twice the fat content of cow milk. Largely insulated from world markets, higher production is stimulated by increasing demand largely as a result of population growth, urbanisation and income growth. It is not anticipated that there will be much supply for export markets under existing policy structures. However, whether India will remain closed to world market developments is a major question for the outlook period. In Pakistan, the world's fifth largest milk producer, output is expected to grow more slowly in the next ten years compared to the previous decade. The dairy sector accounts for some 40% of the value of Pakistan's agricultural output and the population there depends heavily on milk for a large percentage of calorie and protein intake. In Bangladesh, where milk yields are extremely low, output is anticipated to grow modestly from a small base, and by less than growth in demand.

Large differences in dairy production developments across products and regions

Most of the additional milk production over the outlook period is expected to be processed into dairy products, as fluid milk consumption should rise only modestly. World production of WMP, cheese and butter is expected to grow by 21%, 17% and 17%, respectively, while world SMP production is projected to fall by 3% between 2005 and 2015.

In OECD countries, the majority of milk is expected to be channelled to the production of cheese and WMP away from butter and SMP. Cheese and WMP production are projected to increase by 15% and 7% over the outlook period, while butter and SMP production will fall by more than 12% and 3%. The tendency to shift manufacturing towards production of value-added products is expected to intensify, particularly in countries where support systems for bulk dairy commodities are in place. For example, butter production in the EU is expected to fall by 12% by the end of the projection period. In the case of the SMP, production in the EU and the US is projected to fall by 20% and 30% respectively. Despite the significant outflow of non-fat solids away from the SMP production, the US, with world prices considerably above domestic support levels over the Outlook, can still be expected to step up its SMP exports if SMP prices grow stronger.

In developing countries, fresh fluid milk and fluid milk products will retain by far their dominant shares of domestic milk markets. Nevertheless, the large milk production gains in non-OECD area will also be partly translated into expansion of product processing, reflecting investment into processing capacity. Butter and cheese production is expected to grow by 32% and 22%, while SMP and, in particular, WMP production is to go up by 32% and 37% respectively over the outlook period. The main driving force for whole milk powder production is its use for reconstitution in milk production deficit areas and in low-production seasons. The recent gradual shift away from reconstitution of SMP in large plants towards more decentralised use of WMP is expected to continue to fuel WMP production and trade. This shift has been supported primarily by greater reconstitution flexibility of WMP and

improvements in packaging technology that enables WMP to retain better its flavour. Consequently, WMP is increasingly exported in small packages for retail distribution.

Cheese is expected to keep its dominant position accounting of about 40% of milk processed worldwide. Cheese producers are continuously innovating, offering increased variety and seeking to secure traditional brands. Meanwhile, production of generic brands is expanding for use as an ingredient in food products such as pizzas, hamburgers, sandwiches and ready-to-eat-meals.

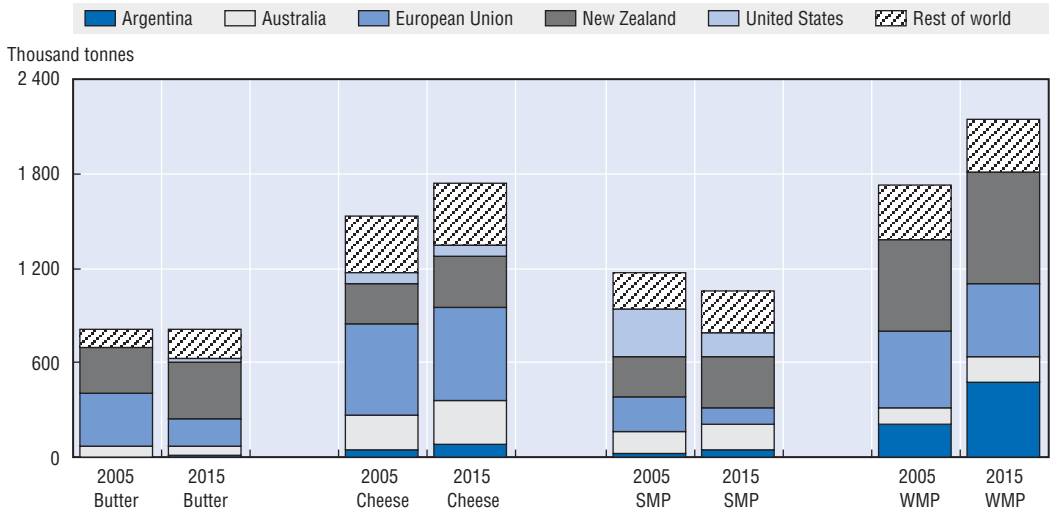
From supply-led trade in bulk commodities to demand-driven trade in high value products

The gains in dairy production are not expected to translate in proportionate increases in trade as most of the production growth will be used to satisfy rising local demand. Trade is expected to increase for cheese and WMP, to stagnate for butter and to decrease for SMP over the outlook period. World exports market will continue to be dominated by few players although the EU and US butter and SMP world market shares are expected to decline considerably. New Zealand and Australia will partly capture these shares. However, other countries, exclusively from the non-OECD area, will increase their presence on the world markets (Figure 6.4).

Certain Latin American countries are expected to increase rapidly their exports of WMP and to some extent cheese. Argentina is expected to more than double its exports of WMP and will gradually become an important player on the world market, capturing nearly one-quarter of global WMP exports by 2015. The rapidly growing exports from Ukraine are mainly destined to the Russian market with the rest shipped to other East European countries. After considerable reduction in New Zealand dairy exports, due to lower domestic milk supplies and stock management to meet future export obligations, exports are expected to increase over the Ooutlook, although at a slower pace compared to the 1990s.

While the five largest exporters retain more than 80% of the world market, import markets will remain more fragmented. The six largest importers of dairy products cover

Figure 6.4. **Expanding cheese and WMP trade**



Source: OECD and FAO Secretariats.

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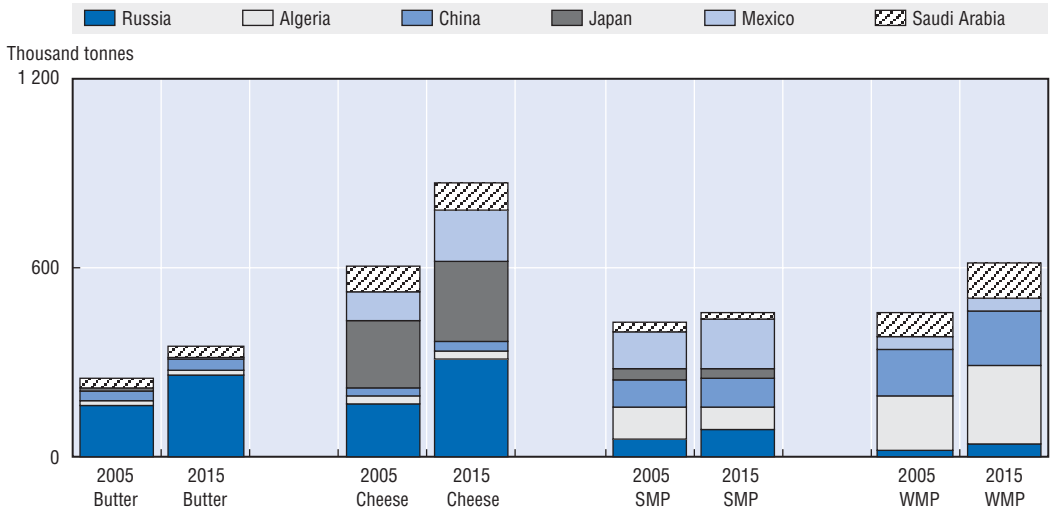
Figure 6.5. **Major dairy product importers**



Source: OECD and FAO Secretariats.

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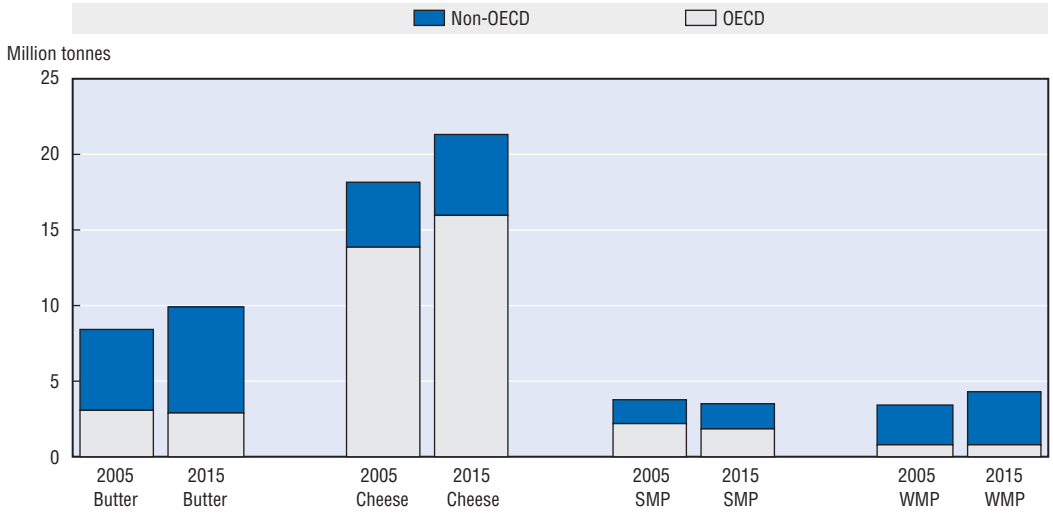
less than 50% of the world market and less than 30% in the case of WMP (Figure 6.5). The import side of the market is to a large extent affected by income profiles. Developing countries account for 95% of world imports of WMP, and 88% of SMP, but only for 53% of butter and 42% of cheese imports. Russia remains one of the most important importing countries especially for butter and cheese. Japan and the US will continue to be important cheese importers. Mexico will increase substantially its SMP imports, and the Middle East and North Africa are to remain key importers of powders. Milk powder imports by China are expected to stagnate following the imposition of a new labelling regulation required for dairy products from reconstituted milk.

Apart from cheese all demand growth is realised in the non-OECD area

In the non-OECD area, demand growth is expected for all dairy products, with WMP consumption growing by 33% followed by butter, 31%, and income sensitive cheese with 22% growth. SMP consumption is expected to grow by 8%. This relatively modest growth is primarily due to increased use of whole milk powder for milk reconstitution and gradual reduction in filling skim milk with vegetable fats. The strong growth in demand for dairy products in the non-OECD area reflects not only population and income growth, but also the rising use in fast food, as well as changes in lifestyles and diets. Further expansion of multinational retail chains, cold storage facilities, improved product shelf life, transport and product distribution are other factors contributing to the greater availability and consumption of dairy products.

In the majority of OECD countries, per capita consumption is already high and concerns with availability of food have been largely replaced by those for food quality. In the OECD area, only cheese consumption is expected to increase. By the end of the Ooutlook, this is projected to increase by 15% and the OECD area is expected to maintain its 75% share of global cheese consumption. OECD butter consumption has declined recently, although the rate of fall has slowed down and butter has enjoyed a renewed interest recently. The primary reason for this is the reduction in consumption of margarine and the introduction of

Figure 6.6. **Outlook for dairy products consumption**



Source: OECD and FAO Secretariats.

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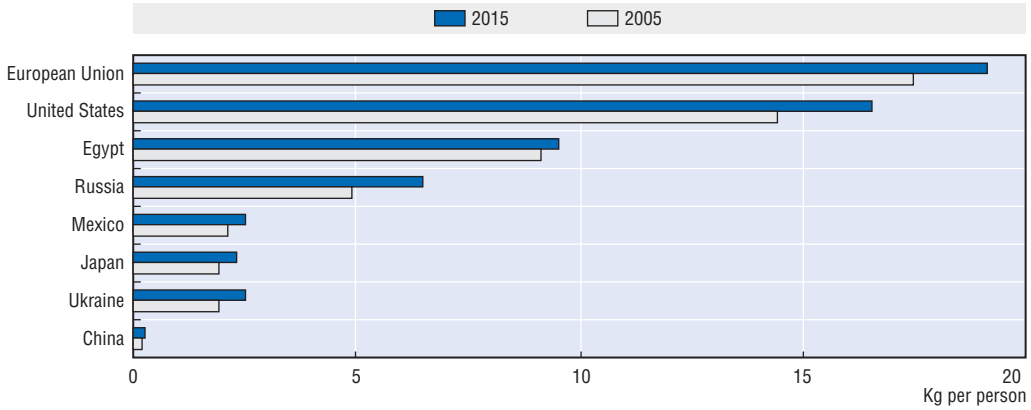
spreadable butter which gives butter the convenience of other spreads while retaining its taste. OECD SMP consumption is expected to decline by 17% partly due to the reduction in feed use and partly due to the fact that other "new" dairy products are increasingly being used as a source of non-fat milk solids. OECD WMP powder consumption is expected to decline by more than 3% already from a relatively low base (Figure 6.6).

While total consumption of dairy products in the non-OECD area grows substantially with population increases, the rise in per capita consumption is less striking. The exceptions are Russia and the Ukraine, where per capita consumption is expected to rebound with increasing disposable income, and China, where recent strong growth in dairy product consumption is expected to continue. For example, cheese consumption in China is projected to increase by nearly 50%, albeit from a very low base. Per capita cheese consumption is expected to continue to expand also in most OECD countries. The 10% growth in the European Union is primarily due to increased cheese consumption in the

Figure 6.7. **Steady per capita cheese consumption growth**



Source: OECD and FAO Secretariats.

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new Mmember states. Per capita consumption of cheese in the US is projected to increase by 14% while that in Japan is expected to grow by 18% (Figure 6.7).

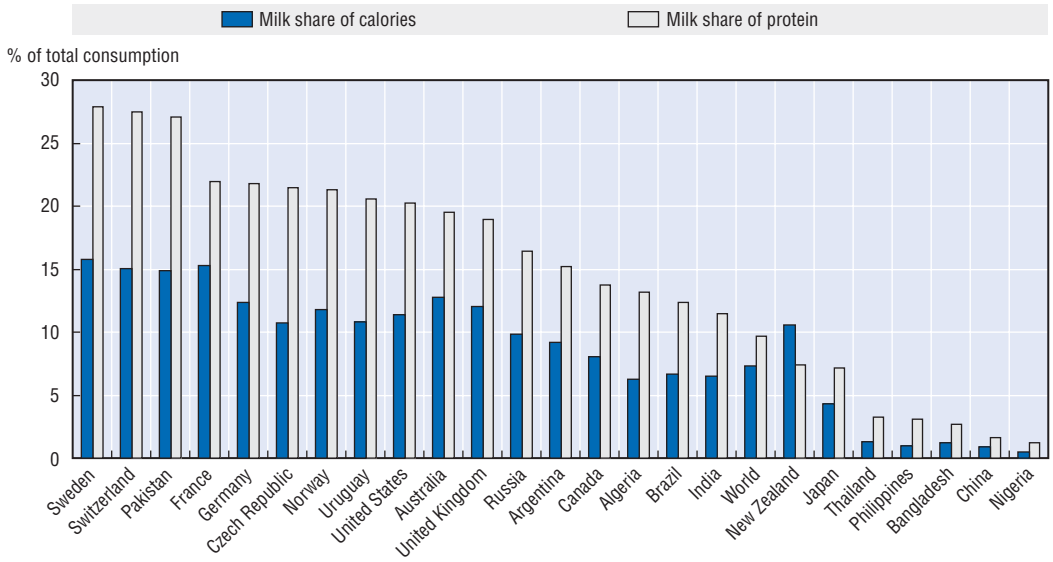
Key issues and uncertainties

Weather conditions remain among the main uncertainties for the projection period. Weather-related uncertainty affects in particular the export performance of Oceania, where a recurrence of adverse weather conditions would have a major impact on markets, spurring prices to higher levels. Macroeconomic developments are another uncertainty, and this projection has assumed reasonably strong economic growth in the developing world, particularly in East Asia. Macroeconomic stability is of particular importance in South American countries, as this may affect their ability to expand production. Finally, the dairy trade landscape may be influenced by policy induced changes. In this context, a key uncertainty for the Outlook is the outcome of the Doha Development Agenda negotiations. Another policy issue that affects the outlook for dairy markets is China's choice between milk production expansion to meet rising demand or increased imports of dairy products. Finally, the extent to which India's market becomes open to trade is an important issue in the Outlook.

New developments in the global dairy industry will speed the process of convergence

It appears from the projections that the dairy industry is becoming more global in scope. The processes of economic growth, urbanisation, and technology transfer will further change the nature of the dairy industry worldwide. A convergence in consumption patterns, though occurring slowly, will have a considerable impact on both domestic and international markets. Figure 6.7 illustrates the importance of milk in diets and shows the considerable variations that exist across countries.

Figure 6.8. **Milk share of calorie and protein consumption**



Source: OECD and FAO Secretariats.

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Globalisation will continue to reshape the dairy markets in the future. Competition among dairy firms in well-established developed markets is set to intensify with the focus turning to health and convenience and increased penetration of foodservice, catering and restaurant sectors. The consolidation of the industry will continue and many firms will likely try to enter growing but less established markets in developing countries. Mergers, strategic alliances, joint-ventures with foreign partners, foreign direct investment and acquisitions will be the main vehicles of the structural change. Acquisitions remain the dominant form, although alliances are partnerships that are becoming increasingly popular. A typical partnership model is, for example, followed by the New Zealand Co-operative group Fonterra which has established joint ventures with the largest US dairy co-operative, Dairy Farmers of America, with Nestlé in South America, with Arla Foods in the UK and with Britannia Industries in India. The international companies are thus increasingly repositioning themselves to source milk and dairy products from multiple locations while the original domestic market is becoming less relevant. Nestlé, for example, operates in more than 80 countries and the original domestic market represents only a very small proportion of overall earnings.

An important development for dairy markets is the rapid expansion of supermarkets in developing countries, where the share of people purchasing food via large retail chains is rapidly increasing. The arrival of supermarkets contributed to the weakening of the position of local dairy firms and helped to spread international brands. For international dairy companies this means that a branded product can be promoted in several markets, although perpetuation of local products and catering for local tastes and preferences remain important. As large multinational dairy companies have typically established commercial ties with multinational retail chains, globalisation of the dairy industry goes hand in hand with the expansion of supermarkets. On the other hand, the growing power of retailers, and in particular the developments of retailers' private labels, will increasingly represent a challenge for established brands of dairy companies, forcing these firms to continuous innovation.

The need for product innovation can be expected to be particularly fierce in established markets. Recent years have already been marked by a myriad of product developments such as new functional foods, cosmeceutical, nutriceutical and pharmaceutical products and new beverages such as omega 3 and calcium fortified milk.[2] Flavoured milk has one of the highest retail penetrations and retailers are already replacing branded products with products under their private labels. It can be expected that the period between the launch of a new innovative product and mass adoption and production is likely to be shorter in the future. A promising recent development is also the introduction of a new lactose-free dairy drink produced by a special filtration process that removes half of the milk lactose. A lactase enzyme is then added to the milk to break down the remaining milk sugars into simpler forms that the body can absorb. The ability to remove lactose from milk and milk products could capture the non-trivial market share of people who are lactose intolerant. Lactose-free milk could be an important factor, driving higher milk consumption, particularly in Asia, where more than half of the population is believed to have some form of lactose intolerance.

The emergence of a sophisticated ultra-filtration process and expanding markets for milk ingredients diminishes, to some extent, the importance of increasingly dated dairy support policies based on protection of bulk products such as butter and SMP. These might be further undermined as food processors look more and more into ways to replace milk

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with ultra-concentrated milk products. Thus, it seems that ongoing developments of phenomenal technological progress and globalisation could affect the dairy sector as much as changes in traditional dairy policies. It follows that dairy sectors in highly protected countries will be forced to take a more proactive role to adapt to the new environment and the new ways of doing business.

Notes

1. In this respect, given the high income sensitivity of dairy products, the developments in crude oil prices can be expected to alter dairy market balances, particularly in regions that significantly export or import crude oil.
2. These developments are mainly, although not entirely, pioneered by large multinational firms operating on global scale.

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Methodology

This section provides information on the methodological aspects of the generation of the present *Agricultural Outlook*. It discusses the main aspects in the following order: First, a general description of the agricultural baseline projections and the Outlook report is given. Second, the compilation of a consistent set of the assumptions on macroeconomic projections is discussed in more detail. A third part presents an important model element that has been improved for this Outlook, *i.e.* the representation of production costs in the model's supply equations.

The generation of the *OECD-FAO Agricultural Outlook*

The projections presented and analysed in this document are the result of a process that brings together information from a large number of sources. The use of a model jointly developed by the OECD and FAO Secretariats, based on the OECD's Aglink model and extended by FAO's Cosimo model, facilitates consistency in this process. A large amount of expert judgement, however, is applied at various stages of the Outlook process. The Agricultural Outlook presents a single, unified assessment, judged by the OECD and FAO Secretariats to be plausible given the underlying assumptions, the procedure of information exchange outlined below and the information to which they had access to as of mid-April 2006.

The starting point of the Outlook process is the reply by OECD member countries (and some non-member economies) to an annual questionnaire circulated at mid-year. Through these questionnaires, the OECD Secretariat obtains information from these countries on future commodity market developments and on the evolution of their agricultural policies. This information is supplemented by the FAO Secretariat for its members which are not part of the OECD. External sources, such as the World Bank and the UN, are also used to complete the view of the main economic forces determining market developments. This part of the process is aimed at creating a first insight into possible market developments and at establishing the key assumptions which condition the Outlook. The main economic and policy assumptions are summarised in the Overview chapter and in specific commodity tables of the present report. The main macroeconomic variables assumed for the outlook period are based on the November 2005 medium term projections of the OECD's Economics Department for OECD member countries, and on the Global Economic Prospects 2006 of the World Bank for other countries. While sometimes different from the macroeconomic assumptions provided through the questionnaire replies, it has been judged preferable to use just two consistent sources for these variables. The sources and assumptions for the macroeconomic projections are discussed in more detail further below.

As a next step, the modelling framework jointly developed by the OECD and FAO Secretariats is used to facilitate a consistent integration of this information and to derive an initial set of global market projections (baseline). In addition to quantities produced, consumed and traded, the baseline also includes projections for nominal prices (in local

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currency units) for the commodities concerned. Unless otherwise stated, prices referred to in the text are also in nominal terms. The data series for the projections is drawn from OECD and FAO databases. For the most part information in these databases has been taken from national statistical sources. For further details on particular series, enquiries should be directed to the OECD and FAO Secretariats.

The model provides a comprehensive dynamic economic and policy specific representation of major world producing and trading countries for the main temperate-zone commodities as well as rice and vegetable oils. A revised standalone sugar model has also been developed to produce a set of long term baseline projections for world and OECD sugar markets, covering raw and white (or refined) sugar. The modules are all developed by the OECD and FAO Secretariats in conjunction with country experts and, in some cases, with assistance from other national administrations. The initial baseline results are compared with those obtained from the questionnaire replies and issues arising are discussed in bilateral exchanges with country experts. On the basis of these discussions and of updated information, a second baseline is produced. The information generated is used to prepare market assessments for cereals, oilseeds, meats, dairy products and sugar over the course of the outlook period, which are discussed at the annual meetings of the *Working Group on Meat and Dairy Products* and the *Working Group on Cereals, Animal Feeds and Sugar* of the OECD *Committee for Agriculture*. Following the receipt of comments and final data revisions, a last revision is made to the baseline projections. The revised projections form the basis of a draft of the present *Agricultural Outlook* publication, which is discussed by the *Working Party on Agricultural Policies and Markets of the Committee for Agriculture*, in April 2006, prior to publication. In addition, the Outlook will be used as a basis for analysis presented to the FAO's *Committee on Commodity Problems* and its various *Intergovernmental Commodity Groups*.

The Outlook process implies that the baseline projections presented in this report are conditioned by those developed by OECD countries and other participating economies. It also reconciles inconsistencies between individual country projections through the use of a formal modelling framework. The review process ensures that judgement of country experts is brought to bear on the projections and related analyses. However, the final responsibility for the projections and their interpretation rests with the OECD and FAO Secretariats.

Sources and assumptions for the macroeconomic projections

Population estimates from the 2004 Revision of the United Nations Population Prospects database provide the population data used for all countries and regional aggregates in the Outlook. For the projection period, the medium variant set of estimates was selected for use from the four alternative projection variants (low, medium, high and constant fertility). The UN Population Prospects database was chosen because it represents a comprehensive source of reliable estimates which includes data for non-OECD developing countries. For consistency reasons, the same source is used for both the historical population estimates and the projection data.

The other macroeconomic series used in the Aglink-Cosimo model are real GDP, the GDP deflator, the private consumption expenditure (PCE) deflator, the Brent crude oil price (in US dollars per barrel) and exchange rates expressed as the local currency value of 1 US dollar. Historical data for these series in OECD countries are consistent with those

published in the *OECD Economic Outlook* No. 78, December 2005 and in the *OECD Main Economic Indicators*. Assumptions made about the future paths of all these variables apart from exchange rates, are based on the recent (November 2005) medium-term macroeconomic projections of the OECD Economics Department and extended from 2012 by holding the 2011 to 2012 annual growth rate constant for the remaining years to 2015. Exchange rates for OECD countries were extended to 2015 from the 2006 projections of the *Economic Outlook* No. 78 using the simple assumption of constant rates in real terms.

For non-member economies, historical and projection data for these macroeconomic series were obtained from the World Bank 2006 Global Economic Prospects of November 2005. The real GDP, PCE deflator and GDP deflator projections were extended from 2007 to 2015 by holding the 2006 to 2007 annual growth rate constant. For reasons of consistency and comprehensive coverage, in some non-member economies the PCE deflator was the only inflation indicator used and therefore the GDPD index series in these countries was set equal to the index derived from PCE deflator series. Similar to the simple assumption used for OECD countries, exchange rates were extended from 2007 by holding them constant in real terms to 2015.

The model uses indices for real GDP, consumer prices (PCE deflator) and producer prices (GDP deflator) which are constructed with the base year 2000 value being equal to 1. The assumption of constant real exchange rates implies that a country with higher (lower) inflation relative to the United States (as measured by the US GDP deflator) will have a depreciating (appreciating) currency and therefore an increasing (decreasing) exchange rate over the projection period, since the exchange rate is measured as the local currency value of 1 US dollar.

The representation of production costs in Aglink-Cosimo

Changes in production costs are an important variable for farmers' decisions on crop and livestock production quantities, in addition to output returns and, if applicable, policy measures.

While supply in Aglink-Cosimo is largely determined by gross returns, production costs are represented in the model in the form of a cost index used to deflate gross production revenues. In other words, supply equations in the model in most cases depend on gross returns per unit of activity (such as returns per hectare or the meat price) relative to the overall production cost level as expressed by the index. Consequently, equations for harvested areas in crop production and for livestock production quantities take the following general forms:

$$AH = f\left(\frac{RH}{CPCI}\right); \qquad QP = f\left(\frac{PP}{CPCI}\right)$$

with: AH area harvested (crop production)

RH returns per hectare (crop production)

CPCI commodity production cost index

QP production quantity (livestock production)

PP producer price (livestock production)

Among others, energy prices, increased by rising crude oil prices, have fostered attention to agricultural production costs in agricultural commodity models. Energy prices

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can significantly impact on international markets for agricultural products as production costs for both crops and livestock products are highly dependent on energy costs. Fuels for tractors and other machinery, as well as heating and other forms of energy are directly used in the production process. In addition, other inputs such as fertilisers and pesticides, have a high energy content, and costs for these inputs are driven to a significant extent by energy prices. It is therefore important to explicitly consider energy prices in the representation of production costs.

The production cost indices employed in Aglink/Cosimo – one each for crops and for livestock products, respectively, to account for the different shares of input groups in total production costs – is constructed from three sub-indices representing non-tradable inputs, energy inputs, and other tradable inputs, respectively. While the non-tradable sub-index is approximated by the domestic GDP deflator, the energy sub-index is affected by changes in the world crude oil price and the country's exchange rate. Finally, the tradable sub-index is linked to global inflation (approximated by the US GDP deflator) and the country's exchange rate. This relationship is shown in the following equation:

$$\begin{aligned} CPCI^{I}_{r,t} &= CPCS^{NT,I}_{r,t} * GDPD_{r,t} \\ &+ CPCS^{EN,I}_{r,t} * \left(XP^{OIL}_{t} * XR_{r,t}\right) / \left(XP^{OIL}_{bas} * XR_{r,bas}\right) \\ &+ \left(1 - CPCS^{NT,I}_{r,t} - CPCS^{EN,I}_{r,t}\right) * XR_{r,t} / XR_{r,bas} * GDPD_{USA,t} \end{aligned}$$

with: $CPCI^{I}$ commodity production cost index for commodity group I

$CPCS^{NT,I}$ share of non-tradable input in total base commodity production costs for commodity group I

$CPCS^{EN,I}$ share of energy in total base commodity production costs for commodity group I

GDPD deflator for the gross domestic product

XP^{OIL} world crude oil price

XR nominal exchange rate with respect to the US Dollar

I commodity group (crops, livestock products)

r, t region and time index, respectively

bas base year (2000) value

Detailed data on the composition of production costs are available to the OECD Secretariat for Argentina, New Zealand and the United States. These data, available from the Secretariat on request, suggest non-tradable and energy shares in crop production costs as shown in the table below. Given that detailed data on other countries are not available, the respective crop production cost shares for Argentina are applied for all non-OECD countries, those for New Zealand are applied also for Australia, and the shares found for the US are applied for all other OECD countries/regions. As no data on livestock production shares are available for Argentina, the shares found for the US are applied to all countries/regions with the exception of New Zealand and Australia.

Production cost shares for:		Argentina	New Zealand	United States
Crop production	**Non-tradable**	47%	66%	67%
	Energy	43%	27%	25%
	Other tradable	10%	7%	8%
	Applied for:	*All non-OECD countries/regions*	*New Zealand, Australia*	*All other OECD countries/regions*
Livestock production	**Non-tradable**	n.a.	77%	97%
	Energy	n.a.	23%	3%
	Other tradable*	n.a.	1%	0%
	Applied for:	---	*New Zealand, Australia*	*All other countries/regions*

n.a.: not available.

* Excludes tradeable feed.

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ANNEX A

Statistical Tables

Table A.1. **Economic assumptions**

Calendar year[a]		Average 2000-04	2005 est.	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
REAL GDP[b]													
Australia	%	3.3	2.6	3.2	3.6	3.4	3.3	3.2	3.1	3.0	3.0	3.0	3.0
Canada	%	3.0	3.0	3.2	3.1	3.3	2.9	2.8	2.7	2.7	2.7	2.7	2.7
EU15	%	2.0	1.5	2.2	2.3	2.2	2.1	2.1	2.1	2.0	2.0	2.1	2.1
Japan	%	1.3	2.4	2.0	2.0	1.8	0.7	0.5	0.4	0.2	0.2	0.2	0.2
Korea	%	5.4	3.9	5.1	5.2	5.0	3.7	3.6	3.4	3.3	3.3	3.3	3.3
Mexico	%	2.6	3.0	3.9	3.5	3.8	4.2	4.2	4.3	4.3	4.3	4.3	4.3
New Zealand	%	3.7	2.7	2.6	2.4	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Norway	%	2.0	2.4	2.2	1.8	2.4	2.7	2.6	2.4	2.4	2.4	2.4	2.4
Switzerland	%	1.4	1.2	1.7	1.8	1.6	1.5	1.5	1.4	1.4	1.4	1.4	1.4
Turkey	%	4.5	5.8	6.0	6.4	7.5	7.5	7.5	7.5	7.3	7.3	7.3	7.3
United States	%	2.6	3.6	3.5	3.3	3.3	3.3	3.3	3.3	3.2	3.2	3.2	3.2
Argentina	%	0.4	7.5	4.0	3.6	3.5	3.5	3.4	3.4	3.4	3.4	3.4	3.4
Brazil	%	2.6	3.8	3.6	3.5	3.8	3.7	3.6	3.6	3.6	3.6	3.5	3.5
China	%	8.5	9.3	8.7	8.2	6.8	6.7	6.6	6.6	6.5	6.5	6.5	6.5
India	%	5.7	7.0	6.5	6.4	5.8	5.6	5.5	5.5	5.4	5.4	5.4	5.3
Russia	%	6.9	6.0	5.4	5.0	3.9	3.3	2.7	2.7	2.7	2.7	2.7	2.7
South Africa	%	3.4	4.2	3.8	3.7	3.3	3.3	3.3	3.3	3.4	3.4	3.4	3.4
OECD[c, d]	%	2.3	2.6	2.9	2.9	2.8	2.6	2.6	2.5	2.5	2.5	2.5	2.5
Developing	%	4.0	5.2	5.1	5.0	4.6	4.5	4.4	4.4	4.4	4.3	4.3	4.3
Least Developed Countries (LDC)	%	4.9	5.5	5.6	5.3	4.7	4.7	4.5	4.6	4.5	4.5	4.5	4.5
Developing excluding LDC	%	3.8	5.1	5.0	4.9	4.5	4.5	4.4	4.4	4.4	4.3	4.3	4.2
PCE deflator[b]													
Australia	%	2.6	1.9	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Canada	%	3.0	1.6	1.5	1.4	1.5	1.6	1.6	1.6	1.7	1.7	1.7	1.7
EU15	%	2.1	1.9	2.1	1.7	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Japan	%	–0.9	–0.5	0.2	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Korea	%	3.9	2.6	3.4	3.5	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Mexico	%	6.9	4.5	3.7	3.3	3.5	3.6	3.6	3.6	3.6	3.6	3.6	3.6
New Zealand	%	1.6	1.9	2.9	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Norway	%	2.0	1.2	2.3	2.2	1.7	1.4	1.4	1.4	1.5	1.5	1.5	1.5
Switzerland	%	0.9	1.5	1.2	0.8	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.7
Turkey	%	35.8	5.5	4.6	3.9	4.3	4.5	4.5	4.5	4.5	4.5	4.5	4.5
United States	%	2.1	2.8	2.4	2.1	2.0	1.8	1.6	1.6	1.6	1.6	1.6	1.6
Argentina	%	9.3	13.2	9.4	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Brazil	%	10.4	6.0	5.5	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
China	%	1.5	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
India	%	3.7	4.4	5.1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Russia	%	6.9	12.9	10.8	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
South Africa	%	3.4	2.5	2.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
OECD[c, d]	%	2.4	2.0	2.0	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Developing	%	11.8	11.8	5.3	5.4	5.5	5.8	6.0	6.3	6.7	7.0	7.3	7.6
Least Developed Countries (LDC)	%	10.6	9.6	7.3	6.7	7.2	8.1	8.4	9.5	10.2	10.7	11.2	11.6
Developing excluding LDC	%	12.2	12.3	4.9	5.1	5.0	5.2	5.4	5.5	5.7	5.9	6.1	6.4

For notes, see end of the table.

Source: OECD and FAO Secretariats.

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Table A.1. **Economic assumptions** *(cont.)*

Calendar year[a]		2005 est. (million)	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
POPULATION												
Australia	%	20.2	1.05	1.03	1.01	1.01	0.99	0.98	0.98	0.97	0.97	0.96
Canada	%	32.3	0.92	0.88	0.85	0.83	0.82	0.82	0.80	0.80	0.79	0.79
EU25	%	459.4	0.22	0.18	0.15	0.13	0.12	0.11	0.09	0.08	0.07	0.06
Japan	%	128.1	0.10	0.08	0.06	0.03	0.01	–0.02	–0.05	–0.07	–0.10	–0.13
Korea	%	47.8	0.35	0.33	0.31	0.29	0.27	0.25	0.23	0.22	0.20	0.18
Mexico	%	107.0	1.21	1.17	1.13	1.10	1.08	1.06	1.04	1.02	1.00	0.98
New Zealand	%	4.0	0.87	0.74	0.66	0.63	0.63	0.62	0.62	0.64	0.61	0.58
Norway	%	4.6	0.50	0.47	0.47	0.45	0.47	0.47	0.46	0.46	0.46	0.48
Switzerland	%	7.3	0.17	0.15	0.12	0.12	0.11	0.10	0.10	0.08	0.08	0.10
Turkey	%	73.2	1.34	1.33	1.31	1.28	1.24	1.21	1.18	1.14	1.11	1.07
United States	%	298.2	0.94	0.94	0.93	0.91	0.90	0.88	0.86	0.85	0.83	0.82
Argentina	%	38.7	1.00	1.01	1.02	1.01	0.99	0.97	0.95	0.93	0.92	0.90
Brazil	%	186.4	1.33	1.30	1.27	1.23	1.19	1.15	1.11	1.07	1.04	1.01
China	%	1 293.0	0.60	0.59	0.58	0.58	0.58	0.58	0.58	0.58	0.56	0.53
India	%	1 103.4	1.47	1.44	1.41	1.38	1.35	1.33	1.30	1.27	1.24	1.21
Russia	%	143.2	–0.46	–0.45	–0.44	–0.44	–0.45	–0.46	–0.47	–0.48	–0.49	–0.50
South Africa	%	47.4	0.34	0.22	0.13	0.08	0.05	0.04	0.03	0.03	0.04	0.04
OECD[c]	%	1 182.0	0.59	0.57	0.55	0.53	0.51	0.50	0.48	0.47	0.45	0.44
Developing	%	5 126.3	1.39	1.38	1.36	1.35	1.34	1.32	1.31	1.29	1.26	1.24
Least Developed Countries (LDC)	%	758.0	2.37	2.34	2.32	2.30	2.29	2.27	2.25	2.23	2.21	2.19
Developing excluding LDC	%	4 368.3	1.22	1.21	1.19	1.18	1.16	1.15	1.13	1.11	1.08	1.06

Calendar year[a]		Average 2000-04	2005 est.	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
EXCHANGE RATE													
Australia	*AUD/USD*	1.68	1.31	1.37	1.37	1.38	1.39	1.41	1.42	1.44	1.45	1.47	1.48
Canada	*CAD/USD*	1.46	1.21	1.19	1.18	1.18	1.17	1.17	1.18	1.18	1.18	1.18	1.18
European Union	*EUR/USD*	0.99	0.81	0.85	0.85	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Japan	*JPY/USD*	115.73	110.01	118.00	116.02	114.40	112.92	111.59	110.26	108.97	107.70	106.45	105.21
Korea	*'000 KRW/USD*	1.20	1.03	1.04	1.04	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Mexico	*MXN/USD*	10.11	10.90	10.67	10.75	10.90	11.10	11.31	11.53	11.75	11.98	12.22	12.45
New Zealand	*NZD/USD*	2.00	1.42	1.46	1.45	1.45	1.45	1.46	1.47	1.47	1.48	1.49	1.50
Argentina	*ARS/USD*	2.18	2.90	2.99	2.95	3.02	3.09	3.18	3.26	3.35	3.44	3.54	3.63
Brazil	*BRL/USD*	2.62	2.41	2.34	2.35	2.41	2.48	2.55	2.63	2.71	2.79	2.87	2.95
China	*CNY/USD*	8.28	8.10	7.85	7.64	7.58	7.54	7.51	7.48	7.45	7.42	7.39	7.36
India	*INR/USD*	46.73	43.60	43.00	42.60	43.81	45.15	46.61	48.11	49.68	51.30	52.97	54.70
Russia	*RUR/USD*	29.63	28.10	28.30	28.50	29.16	29.90	30.70	31.53	32.38	33.27	34.17	35.10
South Africa	*ZAR/USD*	8.02	6.32	6.46	6.85	6.86	6.89	6.93	6.97	7.01	7.05	7.09	7.13
WORLD OIL PRICE													
Brent crude oil price	*USD/barrel*	28.98	54.52	56.00	52.80	50.45	48.66	46.93	45.26	43.66	42.10	40.61	39.17

a) Population data for the historical and projection period are from the United Nations Population Division: World Population Prospects Database, 2004 Revision (medium variant). For OECD member countries, historical data for real GDP, private consumption expenditure deflator and exchange rate were obtained from the *OECD Economic Outlook* No. 78, December 2005. For non-member economies, historical macroeconomic data were obtained from the World Bank, November 2005. Assumptions for the projection period draw on the recent medium term macroeconomic projections of the OECD Economics Department, projections of the World Bank and responses to a questionnaire sent to member country agricultural experts. Data for the European Union are for the euro area aggregates.

b) Annual per cent change. The price index used is the private consumption expenditure deflator.

c) Excludes Iceland.

d) Annual weighted average real GDP and PCE deflator growth rates in OECD countries are based on weights using 1995 GDP and purchasing power parity.

For a complete description of the technical assumptions made, please see the Methodology section.

est.: Estimate.

Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/233840101021*

Table A.2. **World prices**[a]

		Average 00/01-04/05	05/06 est.	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
WHEAT													
Price[b]	*USD/t*	142.4	158.7	157.1	156.5	162.3	163.0	159.0	157.5	157.3	157.4	157.2	155.4
COARSE GRAINS													
Price[c]	*USD/t*	100.1	91.0	98.5	106.3	115.1	117.7	116.2	115.0	114.7	114.8	114.3	112.5
RICE													
Price[d]	*USD/t*	214.9	289.6	298.6	318.8	319.8	314.5	310.8	312.8	316.3	317.6	316.1	314.1
OILSEEDS													
Price[e]	*USD/t*	252.8	258.4	244.2	251.6	260.6	265.9	263.7	270.1	270.7	268.3	269.6	271.5
OILSEED MEALS													
Price[f]	*USD/t*	196.9	184.9	167.6	170.2	173.5	173.8	170.4	175.2	174.9	172.3	172.4	173.4
VEGETABLE OILS													
Price[g]	*USD/t*	475.6	547.6	554.4	570.6	583.6	597.4	598.7	600.8	600.9	598.7	596.4	593.2
SUGAR													
Price, raw sugar[h]	*USD/t*	192.2	370.4	385.8	308.6	286.6	283.3	280.0	276.7	273.4	270.1	266.8	263.5
Price, refined sugar[i]	*USD/t*	240.2	392.4	418.9	352.7	330.7	327.4	324.1	320.8	317.5	314.2	310.9	307.5
BEEF AND VEAL													
Price, EU[j]	*EUR/100 kg dw*	241.6	247.1	244.6	247.2	251.0	253.7	256.1	260.2	260.5	261.5	262.4	262.2
Price, USA[k]	*USD/100 kg dw*	269.4	310.4	274.6	264.0	266.9	263.3	259.8	257.9	258.6	267.2	280.3	288.2
Price, Argentina[l]	*ARS/100 kg dw*	256.8	397.3	390.2	396.7	415.0	430.2	457.9	476.8	478.0	474.2	480.2	486.0
PIG MEAT													
Price, EU[m]	*EUR/100 kg dw*	134.0	133.9	136.8	139.7	144.6	147.9	150.1	147.3	145.5	149.2	152.9	154.9
Price, USA[n]	*USD/100 kg dw*	133.1	153.3	138.0	140.4	141.6	145.0	150.9	147.8	143.9	146.5	148.7	151.3
Price, Brazil[o]	*BRL/100 kg dw*	165.1	224.7	199.7	197.2	198.2	215.1	225.6	227.0	228.4	241.8	253.3	268.6
POULTRY MEAT													
Price, EU[p]	*EUR/100 kg rtc*	102.1	104.3	102.4	102.6	104.8	106.5	106.7	107.8	107.9	108.2	109.4	110.2
Price, USA[q]	*USD/100 kg rtc*	135.4	158.3	148.3	145.8	143.8	145.0	147.1	149.6	148.6	148.0	150.9	151.4
SHEEP MEAT													
Price, New Zealand[r]	*NZD/100 kg dw*	373.3	389.0	372.5	369.9	378.1	387.5	394.1	400.5	401.0	401.9	402.8	403.0
BUTTER													
Price[s]	*USD/100 kg*	141.7	203.6	192.9	176.9	178.2	181.6	183.6	185.8	190.7	194.3	198.8	201.6
CHEESE													
Price[t]	*USD/100 kg*	207.5	305.3	279.8	253.6	246.0	250.3	254.5	257.5	261.8	266.8	271.7	277.1
SKIM MILK POWDER													
Price[u]	*USD/100 kg*	179.5	222.7	208.8	200.7	203.7	206.1	210.0	212.7	215.9	221.5	225.4	229.9

For notes, see end of the table.

Source: OECD and FAO Secretariats.

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Table A.2. **World prices**[a] *(cont.)*

		Average 00/01-04/05	05/06 est.	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
WHOLE MILK POWDER													
Price[v]	*USD/100 kg*	182.0	228.9	214.8	201.9	205.6	210.2	213.2	216.9	221.1	226.9	232.7	236.3
WHEY POWDER													
Wholesale price, USA[w]	*USD/100 kg*	45.7	66.6	56.1	54.0	53.4	54.2	55.3	56.3	57.4	59.0	60.1	61.3
CASEIN													
Price[x]	*USD/100 kg*	424.2	479.9	497.3	441.7	418.9	434.5	440.4	448.5	456.9	468.0	477.6	483.1

a) This table is a compilation of price information presented in the detailed commodity tables further in this annex. Prices for crops are on marketing year basis and those for meat and dairy products on calendar year basis (*e.g.* 04/05 is calendar year 2004).
b) No. 2 hard red winter wheat, ordinary protein, USA f.o.b. Gulf Ports (June/May).
c) No. 2 yellow corn, US f.o.b. Gulf Ports (September/August).
d) Milled, 100%, grade b, Nominal Price Quote, NPQ, f.o.b. Bangkok (August/July).
e) Weighted average oilseed price, European port.
f) Weighted average meal price, European port.
g) Weighted average price of oilseed oils and palm oil, European port.
h) Raw sugar world price, New York, No. 11, f.o.b. stowed Caribbean port (including Brazil), bulk spot price.
i) Refined sugar price, London, No. 5, f.o.b. Europe, spot.
j) Producer price.
k) Choice steers, 1 100-1 300 lb lw, Nebraska – lw to dw conversion factor 0.63.
l) Buenos Aires wholesale price linier, young bulls.
m) Pig producer price.
n) Barrows and gilts, No. 1-3, 230-250 lb lw, Iowa/South Minnesota – lw to dw conversion factor 0.74.
o) Producer price.
p) Weighted average farm gate live chickens, first choice, lw to rtc conversion of 0.75, EU15 starting in 1995.
q) Wholesale weighted average broiler price 12 cities.
r) Lamb schedule price, all grade average.
s) F.o.b. export price, butter, 82% butterfat, northern Europe.
t) F.o.b. export price, cheddar cheese, 40 lb blocks, Northern Europe.
u) F.o.b. export price, non-fat dry milk, extra grade, Northern Europe.
v) F.o.b. export price, WMP 26% butterfat, Northern Europe.
w) Edible dry whey, Wisconsin, plant.
x) Export price, New Zealand.
est.: Estimate.
Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/233840101021*

Table A.3. **World trade projections**

IMPORTS			Average 2000-04	2005 est.	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Wheat	World trade	*kt*	106 935	108 471	111 545	113 362	113 913	116 296	118 591	119 807	121 879	123 540	125 333	127 576
	OECD	*kt*	24 292	23 534	23 412	23 842	24 025	24 121	24 318	24 590	24 899	25 167	25 423	25 645
	Developing	*kt*	82 689	85 913	89 057	90 778	91 182	93 484	95 557	96 622	98 497	100 048	101 720	103 834
	Least Developed Countries	*kt*	10 505	10 913	11 522	11 969	12 188	12 361	12 695	12 819	13 095	13 323	13 546	13 835
Coarse grains	World trade	*kt*	106 519	104 283	110 174	111 241	109 932	110 402	111 549	113 441	115 561	117 226	119 662	122 453
	OECD	*kt*	51 796	47 346	51 694	52 151	52 143	52 688	53 192	53 614	53 770	53 531	53 651	53 864
	Developing	*kt*	72 198	74 359	76 250	77 922	77 105	77 718	78 601	80 356	82 561	84 779	87 354	90 167
	Least Developed Countries	*kt*	2 568	3 492	3 196	3 222	2 762	2 895	2 973	3 064	3 279	3 552	3 860	4 296
Rice	World trade	*kt*	27 335	26 581	27 451	26 695	27 159	27 890	28 540	30 015	30 869	31 701	32 542	33 358
	OECD	*kt*	3 951	3 875	4 027	4 107	4 271	4 525	4 497	4 530	4 571	4 635	4 711	4 787
	Developing	*kt*	23 019	22 115	22 980	22 161	22 468	22 995	23 660	25 105	25 929	26 717	27 500	28 259
	Least Developed Countries	*kt*	5 641	5 646	5 771	5 339	5 590	5 795	5 860	6 705	7 012	7 323	7 627	7 870
Oilseeds	World trade	*kt*	65 884	79 355	84 006	84 859	85 477	88 217	91 727	94 616	97 290	100 066	102 785	106 135
	OECD	*kt*	34 637	36 418	37 872	36 783	35 877	36 300	36 948	37 761	37 524	37 351	37 288	37 675
	Developing	*kt*	38 398	50 739	54 563	56 715	58 273	60 671	63 776	65 960	69 079	72 275	75 233	78 355
	Least Developed Countries	*kt*	242	244	279	320	338	361	381	395	403	421	439	456
Oilseed meals	World trade	*kt*	46 720	52 746	56 197	58 068	59 335	60 381	62 313	62 449	63 689	65 466	66 666	68 106
	OECD	*kt*	29 596	32 535	34 882	36 040	36 906	37 881	38 973	39 131	39 604	40 413	41 036	41 701
	Developing	*kt*	17 986	20 884	21 749	22 812	23 565	23 884	24 816	25 008	25 887	26 930	27 635	28 547
	Least Developed Countries	*kt*	280	297	323	334	344	353	368	375	387	405	418	430
Vegetable oils	World trade	*kt*	32 371	37 842	39 588	40 576	41 425	42 460	43 449	44 458	45 498	46 522	47 514	48 427
	OECD	*kt*	7 627	8 771	8 673	8 635	8 665	8 696	8 739	8 795	8 868	8 967	9 084	9 194
	Developing	*kt*	24 287	28 718	30 481	31 558	32 410	33 439	34 379	35 354	36 316	37 243	38 142	38 964
	Least Developed Countries	*kt*	2 645	3 204	3 367	3 517	3 670	3 828	3 990	4 152	4 320	4 494	4 666	4 840
Beef	World trade	*kt*	6 760	7 372	7 577	7 986	8 240	8 319	8 337	8 554	8 817	8 896	9 056	9 240
	OECD	*kt*	4 174	3 843	4 081	4 200	4 436	4 456	4 442	4 510	4 690	4 707	4 753	4 841
	Developing	*kt*	2 382	2 863	3 079	3 333	3 386	3 460	3 529	3 660	3 775	3 840	3 928	4 031
	Least Developed Countries	*kt*	94	143	172	231	204	223	217	241	250	246	260	262
Pigmeat	World trade	*kt*	4 272	5 221	5 450	5 454	5 568	5 698	5 838	6 045	6 157	6 300	6 530	6 645
	OECD	*kt*	2 502	2 973	3 024	3 007	3 015	3 069	3 145	3 234	3 300	3 374	3 499	3 595
	Developing	*kt*	1 473	1 750	1 892	1 908	2 025	2 074	2 106	2 159	2 195	2 272	2 405	2 472
	Least Developed Countries	*kt*	33	47	55	57	67	70	73	77	74	79	91	94
Poultry	World trade	*kt*	7 455	8 289	8 240	8 563	8 997	9 332	9 551	9 832	10 061	10 276	10 546	10 796
	OECD	*kt*	1 803	1 858	1 898	2 091	2 165	2 223	2 290	2 347	2 417	2 486	2 559	2 644
	Developing	*kt*	4 249	4 879	4 743	4 843	5 125	5 385	5 574	5 820	6 014	6 186	6 423	6 631
	Least Developed Countries	*kt*	376	510	534	556	577	610	648	690	725	760	798	837
Butter	World trade	*kt*	687	704	744	782	790	812	829	834	836	837	846	860
	OECD	*kt*	146	132	134	131	126	128	129	129	129	128	127	127
	Developing	*kt*	382	378	394	424	426	435	435	436	434	432	434	437
	Least Developed Countries	*kt*	12	12	15	19	19	22	22	23	23	23	24	25
Cheese	World trade	*kt*	1 334	1 405	1 441	1 514	1 585	1 634	1 663	1 689	1 713	1 731	1 754	1 781
	OECD	*kt*	753	749	762	782	805	825	842	861	879	897	916	935
	Developing	*kt*	530	596	611	672	718	732	729	730	729	727	718	711
	Least Developed Countries	*kt*	14	17	12	16	21	23	25	26	28	29	30	31
Whole milk powder	World trade	*kt*	1 288	1 467	1 535	1 623	1 640	1 680	1 732	1 773	1 811	1 851	1 895	1 940
	OECD	*kt*	82	85	82	83	82	83	83	83	83	83	84	84
	Developing	*kt*	1 225	1 389	1 452	1 537	1 553	1 592	1 641	1 680	1 717	1 757	1 798	1 840
	Least Developed Countries	*kt*	97	117	122	128	134	139	145	151	157	164	171	177
Skim milk powder	World trade	*kt*	1 183	1 234	1 234	1 234	1 227	1 225	1 221	1 218	1 217	1 214	1 211	1 209
	OECD	*kt*	234	175	178	182	184	188	192	196	200	204	206	211
	Developing	*kt*	1 021	1 098	1 090	1 085	1 075	1 070	1 062	1 057	1 053	1 048	1 042	1 036
	Least Developed Countries	*kt*	74	83	87	90	92	95	97	100	102	104	107	110

For notes, see end of the table.

Source: OECD and FAO Secretariats.

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Table A.3. **World trade projections** *(cont.)*

EXPORTS			Average 2000-04	2005 est.	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Wheat	World trade	*kt*	106 935	108 471	111 545	113 362	113 913	116 296	118 591	119 807	121 879	123 540	125 333	127 576
	OECD	*kt*	72 714	73 214	75 449	74 915	75 088	76 770	78 520	79 433	80 683	81 450	82 272	83 586
	Developing	*kt*	19 502	14 858	16 257	16 992	17 098	17 175	17 137	17 182	17 245	17 424	17 607	17 726
	Least Developed Countries	*kt*	157	147	152	158	159	163	166	168	171	174	177	179
Coarse grains	World trade	*kt*	106 519	104 283	110 174	111 241	109 932	110 402	111 549	113 441	115 561	117 226	119 662	122 453
	OECD	*kt*	73 804	73 204	78 404	78 330	74 449	72 936	72 453	73 283	75 272	76 462	77 926	79 907
	Developing	*kt*	28 848	21 514	24 700	25 510	27 232	28 114	28 737	28 815	28 549	28 558	29 080	29 596
	Least Developed Countries	*kt*	1 465	1 891	2 150	2 144	2 252	2 317	2 369	2 484	2 575	2 658	2 733	2 773
Rice	World trade	*kt*	27 335	26 581	27 451	26 695	27 159	27 890	28 540	30 015	30 869	31 701	32 542	33 358
	OECD	*kt*	4 416	4 929	4 721	4 745	4 809	4 842	4 928	5 028	5 084	5 125	5 175	5 227
	Developing	*kt*	22 754	21 486	21 518	23 134	23 531	24 238	24 803	26 172	26 963	27 748	28 537	29 297
	Least Developed Countries	*kt*	568	291	303	316	329	342	355	1 131	1 259	1 363	1 512	1 658
Oilseeds	World trade	*kt*	65 884	79 355	84 006	84 859	85 477	88 217	91 727	94 616	97 290	100 066	102 785	106 135
	OECD	*kt*	35 068	33 398	37 210	39 842	38 156	36 728	36 214	36 471	35 803	34 841	34 069	33 510
	Developing	*kt*	27 623	34 678	35 653	33 881	35 992	40 175	44 117	46 647	49 677	53 137	56 358	59 925
	Least Developed Countries	*kt*	18	21	20	20	21	22	22	23	25	26	27	28
Oilseed meals	World trade	*kt*	46 720	52 746	56 197	58 068	59 335	60 381	62 313	62 449	63 689	65 466	66 666	68 106
	OECD	*kt*	8 057	8 610	8 148	8 331	8 783	9 042	8 939	8 899	9 337	9 899	10 274	10 696
	Developing	kt	38 561	45 522	49 466	51 162	51 949	52 722	54 736	54 886	55 665	56 854	57 652	58 645
	Least Developed Countries	*kt*	16	16	15	15	16	17	17	18	18	19	19	20
Vegetable oils	World trade	*kt*	32 371	37 842	39 588	40 576	41 425	42 460	43 449	44 458	45 498	46 522	47 514	48 427
	OECD	*kt*	3 225	3 370	3 555	3 140	3 018	3 063	2 909	2 791	2 771	2 739	2 642	2 462
	Developing	*kt*	30 045	37 670	39 259	40 628	41 591	42 590	43 730	44 844	45 898	46 946	48 027	49 115
	Least Developed Countries	*kt*	82	81	84	86	90	94	98	104	110	116	123	131
Beef	World trade	*kt*	6 760	7 372	7 577	7 986	8 240	8 319	8 337	8 554	8 817	8 896	9 056	9 240
	OECD	*kt*	4 751	4 036	4 394	4 675	4 779	4 741	4 619	4 590	4 710	4 633	4 670	4 715
	Developing	*kt*	2 730	4 438	4 283	4 442	4 598	4 713	4 852	5 112	5 264	5 432	5 568	5 709
	Least Developed Countries	*kt*	106	106	103	93	89	95	101	98	97	99	105	111
Pigmeat	World trade	*kt*	4 272	5 221	5 450	5 454	5 568	5 698	5 838	6 045	6 157	6 300	6 530	6 645
	OECD	*kt*	3 346	4 201	4 427	4 378	4 465	4 548	4 592	4 715	4 713	4 803	5 032	5 077
	Developing	*kt*	830	1 226	1 271	1 330	1 397	1 456	1 553	1 639	1 732	1 790	1 811	1 861
	Least Developed Countries	*kt*	1	1	1	3	1	1	1	1	1	1	1	1
Poultry	World trade	*kt*	7 455	8 289	8 240	8 563	8 997	9 332	9 551	9 832	10 061	10 276	10 546	10 796
	OECD	*kt*	3 765	3 853	4 267	4 385	4 585	4 638	4 694	4 666	4 667	4 689	4 659	4 652
	Developing	*kt*	3 570	5 038	4 572	4 775	5 002	5 288	5 453	5 764	5 996	6 187	6 490	6 752
	Least Developed Countries	*kt*	11	11	16	17	17	16	17	17	14	14	15	15
Butter	World trade	*kt*	687	704	744	782	790	812	829	834	836	837	846	860
	OECD	*kt*	734	698	732	723	680	662	655	644	638	629	623	618
	Developing	*kt*	47	51	65	82	63	52	67	75	73	75	82	93
	Least Developed Countries	*kt*	2	2	2	3	4	4	3	2	2	2	2	2
Cheese	World trade	*kt*	1 334	1 405	1 441	1 514	1 585	1 634	1 663	1 689	1 713	1 731	1 754	1 781
	OECD	*kt*	1 182	1 203	1 220	1 249	1 262	1 271	1 284	1 297	1 307	1 313	1 322	1 334
	Developing	*kt*	114	164	174	169	175	174	184	191	199	206	213	223
	Least Developed Countries	*kt*				2	3	2						
Whole milk powder	World trade	*kt*	1 288	1 467	1 535	1 623	1 640	1 680	1 732	1 773	1 811	1 851	1 895	1 940
	OECD	*kt*	1 173	1 190	1 234	1 253	1 253	1 270	1 288	1 301	1 313	1 324	1 334	1 347
	Developing	*kt*	349	502	530	557	572	595	627	654	678	706	737	768
	Least Developed Countries	*kt*	1	2	2	3	3	3	3	3	3	3	3	3
Skim milk powder	World trade	*kt*	1 183	1 234	1 234	1 234	1 227	1 225	1 221	1 218	1 217	1 214	1 211	1 209
	OECD	*kt*	1 003	950	867	840	829	824	814	805	799	789	781	772
	Developing	*kt*	115	119	122	127	129	130	134	139	142	146	150	155
	Least Developed Countries	*kt*	2	3	3	3	3	3	3	3	3	3	3	3

est.: Estimate.

Source: OECD and FAO Secretariats.

Table A.4. **Main policy assumptions for cereal markets**

Crop year[a]		Average 00/01-04/05	05/06 est.	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
ARGENTINA													
Crops export tax	%	12	20	20	20	20	20	20	20	20	20	20	20
Rice export tax	%	6	10	10	10	10	10	10	10	10	10	10	10
CANADA													
Tariff-quotas[b]													
wheat	*kt*	350	350	350	350	350	350	350	350	350	350	350	350
in-quota tariff	%	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
out-of-quota tariff	%	62	62	62	62	62	62	62	62	62	62	62	62
barley	*kt*	399	399	399	399	399	399	399	399	399	399	399	399
in-quota tariff	%	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
out-of-quota tariff	%	58	58	58	58	58	58	58	58	58	58	58	58
EUROPEAN UNION[c, d]													
Cereal support price[e]	*EUR/t*	103	101	101	101	101	101	101	101	101	101	101	101
Cereal compensation[f, g]	*EUR/ha*	289	142	31	31	31	31	31	31	31	31	31	31
Rice support price[h]	*EUR/t*	269	150	150	150	150	150	150	150	150	150	150	150
Compulsory set-aside rate	%	9	10	10	10	10	10	10	10	10	10	10	10
Set-aside payment[g]	*EUR/ha*	286	142	31	31	31	31	31	31	31	31	31	31
Direct payment for rice	*EUR/ha*	487	712	470	470	470	470	470	470	470	470	470	470
Wheat tariff-quota[b]	*kt*	1 991	3 780	3 780	3 780	3 780	3 780	3 780	3 780	3 780	3 780	3 780	3 780
Coarse grain tariff-quota[b]	*kt*	3 289	3 469	3 469	3 469	3 469	3 469	3 469	3 469	3 469	3 469	3 469	3 469
Subsidised export limits[b]													
wheat	*mt*	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6
coarse grains[i]	*mt*	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8
JAPAN													
Rice land diversion program	*'000 ha*	997	1 020	1 020	1 020	1 020	1 020	1 020	1 020	1 020	1 020	1 020	1 020
Wheat support price[j]	*'000 JPY/t*	114	120	120	120	120	120	120	120	120	120	120	120
Barley support price[k]	*'000 JPY/t*	57	71	71	71	71	71	71	71	71	71	71	71
Wheat tariff-quota	*kt*	5 740	5 740	5 740	5 740	5 740	5 740	5 740	5 740	5 740	5 740	5 740	5 740
in-quota tariff	*'000 JPY/t*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
out-of-quota tariff	*'000 JPY/t*	55	55	55	55	55	55	55	55	55	55	55	55
Barley tariff-quota	*kt*	1 369	1 369	1 369	1 369	1 369	1 369	1 369	1 369	1 369	1 369	1 369	1 369
in-quota tariff	*'000 JPY/t*	0	0	0	0	0	0	0	0	0	0	0	0
out-of-quota tariff	*'000 JPY/t*	39	39	39	39	39	39	39	39	39	39	39	39
Rice tariff-quota[l]	*kt*	682	682	682	682	682	682	682	682	682	682	682	682
in-quota tariff	*'000 JPY/t*	0	0	0	0	0	0	0	0	0	0	0	0
out-of-quota tariff	*'000 JPY/t*	341	341	341	341	341	341	341	341	341	341	341	341
KOREA													
Wheat tariff	%	7.2	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Maize tariff-quota	*kt*	6 102	6 102	6 102	6 102	6 102	6 102	6 102	6 102	6 102	6 102	6 102	6 102
in-quota tariff	%	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
out-of-quota tariff	%	413	404	404	404	404	404	404	404	404	404	404	404
Barley tariff-quota	*kt*	51	54	54	54	54	54	54	54	54	54	54	54
in-quota tariff	%	23	23	23	23	23	23	23	23	23	23	23	23
out-of-quota tariff	%	368	359	359	359	359	359	359	359	359	359	359	359
Rice quota[l]	*kt*	171	205	205	205	205	205	205	205	205	205	205	205
in-quota tariff	%	5	5	5	5	5	5	5	5	5	5	5	5

For notes, see end of the table.

Source: OECD and FAO Secretariats.

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Table A.4. **Main policy assumptions for cereal markets** *(cont.)*

Crop year[a]		Average 00/01-04/05	05/06 est.	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
MERCOSUR													
Wheat tariff	*%*	12	10	10	10	10	10	10	10	10	10	10	10
Coarse grain tariff	*%*	8	8	8	8	8	8	8	8	8	8	8	8
Rice tariff	*%*	12	10	10	10	10	10	10	10	10	10	10	10
MEXICO													
Cereal income payment[m]	*MXN/ha*	866	988	1 024	1 058	1 094	1 134	1 175	1 218	1 262	1 308	1 355	1 404
Wheat NAFTA tariff	*%*	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fidelist social program	*MXN mn*	684	0	0	0	0	0	0	0	0	0	0	0
Tortilla consumption subsidy	*MXN mn*	0	0	0	0	0	0	0	0	0	0	0	0
Maize tariff-quota	*kt*	2 501	2 501	2 501	2 501	2 501	2 501	2 501	2 501	2 501	2 501	2 501	2 501
in-quota tariff	*%*	50	50	50	50	50	50	50	50	50	50	50	50
out-of-quota tariff	*%*	198	194	194	194	194	194	194	194	194	194	194	194
Barley tariff-quota	*kt*	5	5	5	5	5	5	5	5	5	5	5	5
in-quota tariff	*%*	50	50	50	50	50	50	50	50	50	50	50	50
out-of-quota tariff	*%*	118	115	115	115	115	115	115	115	115	115	115	115
UNITED STATES													
Wheat loan rate	*USD/t*	99.3	101.0	101.0	101.0	101.0	101.0	101.0	101.0	101.0	101.0	101.0	101.0
Maize loan rate	*USD/t*	76.3	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8
Prod. flex. contract payment													
wheat	*USD/t*	18.0	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9
maize	*USD/t*	10.9	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
CRP areas[n]	*mha*	5.9	6.7	7.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	3.8
wheat	*mha*	2.8	3.4	3.5	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
coarse grains	*mha*	3.1	3.3	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	0.0
Subsidised export limits[b]													
wheat	*mt*	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
coarse grains	*mt*	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Wheat EEP payment[o]	*USD/t*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHINA													
Wheat support price	*CNY/t*	270	0	0	0	0	0	0	0	0	0	0	0
Coarse grains support price	*CNY/t*	232	0	0	0	0	0	0	0	0	0	0	0
Rice support price	*CNY/t*	880	0	0	0	0	0	0	0	0	0	0	0
Wheat tariff-quota	*kt*	7 008	9 636	9 636	9 636	9 636	9 636	9 636	9 636	9 636	9 636	9 636	9 636
in-quota tariff	*%*	1.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
out-of-quota tariff	*%*	64.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0
Coarse grains tariff	*%*	6	2	2	2	2	2	2	2	2	2	2	2
Maize tariff-quota	*kt*	4 950	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200	7 200
in-quota tariff	*%*	2.2	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
out-of-quota tariff	*%*	46.0	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7
Rice tariff-quota	*%*	3 458	5 320	5 320	5 320	5 320	5 320	5 320	5 320	5 320	5 320	5 320	5 320
in-quota tariff	*%*	1.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
out-of-quota tariff	*%*	53.4	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7

For notes, see end of the table.

Source: OECD and FAO Secretariats.

Table A.4. **Main policy assumptions for cereal markets** *(cont.)*

Crop year[a]		Average 00/01-04/05	05/06 est.	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
INDIA													
Input subsidy rate coarse grains[p]	*R/T*	1 595	1 473	1 473	1 473	1 473	1 473	1 473	1 473	1 473	1 473	1 473	1 473
Input subsidy rate rice[p]	*R/T*	768	719	719	719	719	719	719	719	719	719	719	719
Input subsidy rate wheat[p]	*R/T*	1 898	2 005	2 005	2 005	2 005	2 005	2 005	2 005	2 005	2 005	2 005	2 005
Minimum support price													
maize	*R/T*	4 890	5 400	5 400	5 400	5 400	5 400	5 400	5 400	5 400	5 400	5 400	5 400
rice	*R/T*	4 890	5 700	5 700	5 700	5 700	5 700	5 700	5 700	5 700	5 700	5 700	5 700
wheat	*R/T*	6 120	6 400	6 400	6 400	6 400	6 400	6 400	6 400	6 400	6 400	6 400	6 400
Rice export subsidy	*R/T*	2 595	3 133	3 133	3 133	3 133	3 133	3 133	3 133	3 133	3 133	3 133	3 133
Wheat export subsidy	*R/T*	1 587	1 941	1 941	1 941	1 941	1 941	1 941	1 941	1 941	1 941	1 941	1 941
Wheat tariff	%	88	88	88	88	88	88	88	88	88	88	88	88
Maize tariff	%	50	50	50	50	50	50	50	50	50	50	50	50
Rice tariff	%	30	30	30	30	30	30	30	30	30	30	30	30
Barley tariff	%	100	100	100	100	100	100	100	100	100	100	100	100

a) Beginning crop marketing year – see Glossary of Terms for definitions.
b) Year beginning 1 July.
c) Prices and payments in market Euro – see Glossary of Terms.
d) EU farmers also benefit from the Single Farm Payment (SFP) Scheme, which provides flat-rate payments independent from current production decisions and market developments. The total amount spent under the SFP scheme, before modulation, is assumed to increase from 26.9 billion euro in 2005 to 28.4 billion euro in 2008 for the total of the 15 former member States. The final number is equivalent to 233 euro per hectare of eligible farm land on average. For the accession countries, payments are phased in with the assumption of maximum top-ups from national budgets. Due to modulation, between 2.7% and 4.6% of the total SFP will go to rural development spending rather than directly to the farmers.
e) Common intervention price for soft wheat, barley, maize and sorghum.
f) Compensatory area payments.
g) Actual payments made per hectare based on program yields.
h) Subject to a purchase limit of 75 000 tonnes per year.
i) The export volume excludes 0.4 mt of exported potato starch. The original limit on subsidised exports is 11.2 mt.
j) Government purchase price, domestic wheat.
k) Government purchase price, barley, 2nd grade, 1st class.
l) Husked rice basis.
m) Applies to producers of wheat, maize and sorghum.
n) Includes wheat, barley, maize, oats and sorghum.
o) Average per tonne of total exports.
p) Indian input subsidies consist of those for electricty, fertiliser and irrigation.

Note: The source for tariffs and Tariff Rate Quotas is AMAD (Agricultural market access database). The tariff and TRQ data are based on Most Favoured Nation rates scheduled with the WTO and exclude those under preferential or regional agreements, which may be substantially different. Tariffs are simple averages of several product lines. Specific rates are converted to *ad valorem* rates using world prices in the Outlook. Import quotas are based on global commitments scheduled in the WTO rather than those allocated to preferential partners under regional or other agreements. For Mexico, the NAFTA in-quota tariff on maize and barley is zero, while the tariff-rate quota becomes unlimited in 2003 for barley and 2008 for maize.

est.: Estimate.

Source: OECD and FAO Secretariats.

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Table A.5. **World cereal projections**

Crop year[a]		Average 00/01-04/05	05/06 est.	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
WHEAT													
OECD[b]													
Production	*mt*	244.9	253.7	257.6	256.9	258.9	263.9	267.6	270.1	272.3	274.6	277.2	280.5
Consumption	*mt*	195.9	203.0	206.4	209.7	210.7	211.8	213.9	215.0	216.2	217.8	219.5	221.2
Closing stocks	*mt*	56.3	63.8	63.0	59.1	56.1	55.5	54.9	55.1	55.3	55.9	56.7	57.9
Non-OECD													
Production	*mt*	340.9	366.3	369.7	377.5	382.6	388.6	393.6	397.7	402.1	407.3	412.6	417.8
Consumption	*mt*	405.9	419.8	422.8	429.3	434.5	440.2	446.2	452.4	457.6	463.0	468.5	474.5
Closing stocks	*mt*	154.4	115.4	114.2	113.4	112.6	113.6	115.1	115.2	115.4	116.0	116.8	118.0
WORLD[c]													
Production	*mt*	585.8	620.0	627.3	634.4	641.5	652.5	661.2	667.8	674.4	681.9	689.8	698.3
Consumption	*mt*	601.8	622.8	629.2	639.0	645.2	652.0	660.1	667.4	673.8	680.8	688.0	695.8
Closing stocks	*mt*	210.6	179.2	177.2	172.5	168.7	169.0	170.0	170.3	170.8	171.8	173.5	175.9
Price[d]	*USD/t*	142.4	158.7	157.1	156.5	162.3	163.0	159.0	157.5	157.3	157.4	157.2	155.4
COARSE GRAINS													
OECD[b]													
Production	*mt*	488.7	511.4	515.1	521.4	529.8	541.0	548.9	556.6	562.2	567.8	574.2	580.8
Consumption	*mt*	461.5	482.1	496.8	507.8	517.1	524.1	530.3	536.9	541.0	545.2	549.9	554.3
Closing stocks	*mt*	97.7	126.8	118.3	105.8	96.1	92.7	91.9	91.9	91.5	91.0	91.0	91.5
Non-OECD													
Production	*mt*	434.4	456.7	475.7	486.5	496.1	507.0	517.5	526.1	533.2	540.7	548.8	556.9
Consumption	*mt*	465.4	495.8	502.9	508.8	516.8	523.0	532.6	543.1	552.6	561.3	570.5	580.2
Closing stocks	*mt*	121.9	86.0	83.9	86.2	86.3	89.0	91.6	92.7	93.3	94.1	95.2	96.4
WORLD[c]													
Production	*mt*	923.0	968.2	990.8	1 007.9	1 025.9	1 048.0	1 066.3	1 082.7	1 095.5	1 108.4	1 123.0	1 137.7
Consumption	*mt*	926.9	977.9	999.7	1 016.5	1 033.9	1 047.1	1 062.9	1 080.0	1 093.6	1 106.6	1 120.3	1 134.4
Closing stocks	*mt*	219.7	212.8	202.3	192.0	182.4	181.7	183.5	184.6	184.9	185.1	186.2	187.9
Price[e]	*USD/t*	100.1	91.0	98.5	106.3	115.1	117.7	116.2	115.0	114.7	114.8	114.3	112.5
RICE													
OECD[b]													
Production	*mt*	22.4	23.1	22.9	22.9	23.0	23.0	23.0	23.1	23.1	23.1	23.1	23.1
Consumption	*mt*	21.9	22.4	22.3	22.4	22.6	22.7	22.7	22.7	22.6	22.6	22.6	22.7
Closing stocks	*mt*	8.3	7.8	7.7	7.6	7.4	7.4	7.4	7.3	7.2	7.2	7.2	7.2
Non-OECD													
Production	*mt*	376.9	397.5	406.5	417.7	425.3	431.9	436.9	442.4	448.4	454.9	461.1	467.2
Consumption	*mt*	393.8	408.0	410.7	418.4	424.8	431.2	437.1	442.9	448.7	454.8	461.0	467.1
Closing stocks	*mt*	111.6	64.7	61.6	62.0	63.5	64.9	65.6	66.0	66.5	67.5	68.5	69.4
WORLD[c]													
Production	*mt*	399.3	420.6	429.4	440.6	448.3	454.9	460.0	465.5	471.5	478.0	484.2	490.3
Consumption	*mt*	415.6	430.4	433.0	440.8	447.4	453.9	459.8	465.6	471.3	477.5	483.6	489.8
Closing stocks	*mt*	119.9	72.6	69.3	69.6	70.9	72.3	72.9	73.2	73.7	74.7	75.7	76.7
Price[f]	*USD/t*	214.9	289.6	298.6	318.8	319.8	314.5	310.8	312.8	316.3	317.6	316.1	314.1

a) Beginning crop marketing year – see Glossary of Terms for definitions.
b) Excludes Iceland but includes the 6 EU members that are not members of the OECD.
c) Source of historic data is USDA.
d) No. 2 hard red winter wheat, ordinary protein, USA f.o.b. Gulf Ports (June/May).
e) No. 2 yellow corn, US f.o.b. Gulf Ports (September/August).
f) Milled, 100%, grade b, Nominal Price Quote, NPQ, f.o.b. Bangkok (August/July).
est.: Estimate.
Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/233840101021*

Table A.6. **Wheat projections**

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005	2006-15
WORLD	**601 279**	**698 278**	**0.86**	**1.20**	**107 691**	**127 576**	**0.17**	**1.51**	**108 047**	**127 707**	**0.29**	**1.51**
DEVELOPED	**325 611**	**377 316**	**1.30**	**1.16**	**23 619**	**23 743**	**–0.44**	**0.64**	**89 454**	**109 980**	**0.33**	**1.64**
NORTH AMERICA	**85 337**	**88 389**	**–1.84**	**0.55**	**1 997**	**3 238**	**–3.57**	**2.31**	**45 055**	**44 339**	**–1.20**	**0.18**
Canada	25 390	26 828	–1.46	0.17	14	57	–16.58	9.35	15 884	14 750	–2.99	–1.63
United States	59 948	61 561	–1.98	0.72	1 983	3 181	–3.39	2.25	29 172	29 589	–0.14	1.21
WESTERN EUROPE	**121 941**	**135 866**	**0.96**	**1.08**	**7 250**	**7 080**	**8.35**	**0.24**	**11 458**	**15 869**	**–7.41**	**4.98**
EU25	121 061	134 976	0.95	1.09	6 735	6 537	9.41	0.26	11 450	15 859	–7.41	4.98
Norway	280	290	0.45	0.37	196	200	–3.16	0.00	0	0	n.a.	n.a.
Switzerland	600	600	–0.46	0.00	280	300	12.20	0.00	9	10	4.07	0.00
Other Western Europe	*0*	*0*	*n.a.*	*n.a.*	*38*	*43*	*2.36*	*0.92*	*0*	*0*	*n.a.*	*n.a.*
EASTERN EUROPE	**12 373**	**15 702**	**1.72**	**1.10**	**2 069**	**1 466**	**4.01**	**0.60**	**959**	**2 438**	**–0.82**	**4.17**
Other Eastern Europe	*12 373*	*15 702*	*1.72*	*1.10*	*2 069*	*1 466*	*4.01*	*0.60*	*959*	*2 438*	*–0.82*	*4.17*
CIS	**79 611**	**105 517**	**3.24**	**1.57**	**5 388**	**4 964**	**–5.55**	**1.03**	**15 599**	**24 978**	**16.52**	**2.44**
Russian Federation	42 466	53 398	3.69	1.53	1 158	1 534	–13.28	2.17	7 074	7 089	37.44	–1.70
Ukraine	13 007	19 395	–3.13	0.25	1 277	124	22.41	0.04	3 208	6 652	3.16	1.01
Other CIS	*24 137*	*32 725*	*6.40*	*2.52*	*2 952*	*3 306*	*–4.43*	*0.57*	*5 316*	*11 237*	*8.21*	*7.67*
OCEANIA DEVELOPED	**23 794**	**29 014**	**–0.47**	**2.11**	**327**	**400**	**10.17**	**1.09**	**16 221**	**22 205**	**–2.19**	**1.68**
Australia	23 525	28 745	–0.46	2.13	0	0	n.a.	n.a.	16 221	22 205	–2.18	1.68
New Zealand	269	270	–2.13	0.40	327	400	10.17	1.09	0	0	4.14	0.00
OTHER DEVELOPED	**2 555**	**2 828**	**–1.04**	**0.70**	**6 588**	**6 595**	**0.21**	**0.02**	**161**	**150**	**–1.89**	**0.00**
Japan	865	928	7.17	0.65	5 489	5 381	–1.11	–0.07	0	0	n.a.	n.a.
South Africa	1 690	1 899	–3.63	0.73	1 099	1 214	10.28	0.43	161	150	–1.89	0.00
DEVELOPING	**275 668**	**320 962**	**–0.22**	**1.24**	**84 072**	**103 834**	**1.00**	**1.72**	**18 593**	**17 726**	**1.36**	**0.69**
AFRICA	**19 115**	**22 295**	**2.25**	**2.58**	**28 196**	**35 638**	**3.47**	**1.71**	**462**	**448**	**19.72**	**0.45**
NORTH AFRICA	**16 306**	**18 175**	**2.44**	**2.25**	**17 210**	**20 380**	**1.72**	**1.17**	**283**	**250**	**n.a.**	**0.00**
Algeria	2 391	2 843	3.92	5.59	4 921	5 609	4.04	0.48	0	0	n.a.	n.a.
Egypt	7 402	9 402	3.26	1.56	7 418	8 389	0.64	1.85	0	0	n.a.	n.a.
Other North Africa	*6 513*	*5 930*	*1.74*	*2.01*	*4 871*	*6 381*	*1.33*	*0.95*	*283*	*250*	*n.a.*	*0.00*
SUB-SAHARAN AFRICA	**2 809**	**4 120**	**1.58**	**4.19**	**10 986**	**15 258**	**6.89**	**2.47**	**178**	**198**	**9.54**	**1.05**
Ghana	0	0	n.a.	n.a.	271	357	2.55	2.92	0	0	n.a.	n.a.
Mozambique	1	1	n.a.	0.00	354	479	8.53	2.81	3	0	n.a.	n.a.
Nigeria	72	117	4.13	3.54	3 202	4 788	12.69	3.09	0	0	n.a.	n.a.
Tanzania	76	102	–3.52	3.06	324	525	17.61	2.88	20	20	n.a.	0.00
Zambia	119	151	8.76	1.54	49	72	–3.05	5.24	0	0	n.a.	n.a.
Other Sub-Saharan Africa	*2 542*	*3 749*	*1.50*	*4.37*	*6 785*	*9 038*	*4.83*	*2.09*	*155*	*178*	*6.57*	*1.18*
LATIN AMERICA and CARIBBEAN	**26 064**	**30 522**	**1.05**	**1.63**	**18 320**	**21 904**	**2.12**	**1.11**	**10 070**	**11 900**	**–0.60**	**1.28**
Argentina	14 497	17 443	–0.78	1.22	0	0	n.a.	n.a.	8 675	10 915	–1.71	1.39
Brazil	5 651	6 381	10.19	3.61	5 559	7 065	–0.68	0.92	524	200	131.28	0.00
Chile	1 857	2 183	3.97	1.49	340	223	–6.90	–4.90	0	0	n.a.	n.a.
Colombia	42	42	–3.35	0.59	1 158	1 534	2.42	2.15	0	0	n.a.	n.a.
Mexico	2 684	2 884	–2.94	0.16	3 526	4 077	7.78	1.24	446	431	11.65	–0.16
Paraguay	621	727	13.82	1.90	5	7	n.a.	2.39	164	132	n.a.	–0.27
Uruguay	416	416	–5.65	1.12	131	92	n.a.	–1.40	110	68	–8.34	1.12
Other Latin America	*297*	*446*	*–0.67*	*3.28*	*7 601*	*8 907*	*2.65*	*1.28*	*151*	*154*	*25.01*	*1.10*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.6. **Wheat projections** *(cont.)*

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005	2006-15
ASIA and PACIFIC	**230 489**	**268 145**	**–0.51**	**1.10**	**37 556**	**46 292**	**–1.05**	**2.03**	**8 062**	**5 379**	**3.12**	**–0.48**
Bangladesh	1 183	1 967	–3.49	4.34	2 070	2 472	7.24	1.63	27	44	n.a.	4.34
China[c]	91 207	95 581	–3.18	–0.19	4 430	4 829	10.04	8.65	1 686	615	8.54	–4.70
India	69 855	89 173	0.93	2.19	398	1 281	–28.22	0.91	2 677	1 280	45.40	–1.45
Indonesia	2	1	–5.82	0.00	4 672	5 425	2.53	1.08	27	30	3.97	0.00
Iran, Islamic Republic of	13 978	15 584	4.64	0.64	259	2 141	–35.86	10.86	17	0	n.a.	n.a.
Korea	12	12	5.60	0.09	3 681	4 459	–1.35	1.46	27	25	0.90	0.00
Malaysia	2	1	–5.82	0.00	1 371	1 695	1.98	1.96	150	150	2.89	0.00
Pakistan	19 928	23 832	1.95	1.52	716	667	–21.79	0.85	167	299	–13.58	4.14
Philippines	1	1	0.00	0.00	3 019	3 569	5.38	1.52	0	0	n.a.	n.a.
Saudi Arabia	1 766	2 080	1.70	0.95	55	482	2.50	7.73	0	0	n.a.	n.a.
Thailand	1	1	0.00	1.63	1 068	1 306	4.55	1.79	10	12	–7.60	1.63
Turkey	19 967	23 372	0.70	1.48	800	1 010	–11.33	6.33	1 433	716	–0.95	–2.58
Vietnam	1	1	0.18	1.58	927	1 124	12.04	1.96	0	0	n.a.	n.a.
Other Asia Pacific	*12 587*	*16 539*	*4.61*	*2.56*	*14 091*	*15 831*	*1.80*	*0.42*	*1 842*	*2 207*	*–0.15*	*1.97*
LEAST DEVELOPED COUNTRIES (LDC)	**8 855**	**13 325**	**2.50**	**3.76**	**10 991**	**13 835**	**4.08**	**1.92**	**157**	**179**	**–17.05**	**1.76**
DEVELOPING excluding LDC	**266 813**	**307 637**	**–0.31**	**1.15**	**73 080**	**89 999**	**0.60**	**1.69**	**18 436**	**17 547**	**1.74**	**0.68**
OECD	**254 599**	**280 466**	**0.39**	**1.03**	**23 070**	**25 645**	**2.03**	**0.98**	**74 641**	**83 586**	**–2.15**	**1.31**
NON-OECD	**346 680**	**417 812**	**0.56**	**1.31**	**84 621**	**101 931**	**0.79**	**1.64**	**33 407**	**44 121**	**7.01**	**1.90**

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.6. **Wheat projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		FOOD USE (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**610 754**	**695 754**	**0.93**	**1.10**	**441 456**	**503 413**	**1.04**	**1.25**	**69**	**70**	**–0.18**	**0.15**
DEVELOPED	**255 974**	**289 790**	**1.08**	**0.80**	**135 602**	**148 190**	**0.46**	**0.81**	**102**	**109**	**0.12**	**0.57**
NORTH AMERICA	***40 797***	***46 575***	***–1.03***	***0.79***	***27 613***	***28 750***	***0.13***	***0.49***	***84***	***80***	***–0.86***	***–0.38***
Canada	8 523	12 060	1.07	2.03	2 874	2 621	0.89	–0.56	90	75	–0.08	–1.37
United States	32 274	34 515	–1.54	0.39	24 739	26 129	0.05	0.60	84	80	–0.95	–0.27
WESTERN EUROPE	**115 600**	**126 712**	**1.45**	**0.47**	**57 387**	**63 564**	**1.28**	**0.84**	**122**	**133**	**0.99**	**0.73**
EU25	114 168	125 288	1.46	0.47	56 413	62 609	1.27	0.85	123	135	0.98	0.74
Norway	493	490	–0.40	0.22	395	393	–0.64	0.25	86	81	–1.21	–0.21
Switzerland	900	890	2.65	0.00	557	535	2.55	–0.19	77	73	2.20	–0.29
Other Western Europe	*38*	*43*	*2.27*	*0.92*	*22*	*26*	*0.95*	*1.57*	*76*	*85*	*–0.01*	*1.01*
EASTERN EUROPE	**13 375**	**14 658**	**1.03**	**0.60**	**7 849**	**8 250**	**–0.60**	**0.46**	**146**	**158**	**–0.42**	**0.73**
Other Eastern Europe	*13 375*	*14 658*	*1.03*	*0.60*	*7 849*	*8 250*	*–0.60*	*0.46*	*146*	*158*	*–0.42*	*0.73*
CIS	**71 281**	**85 368**	**0.31**	**1.35**	**32 739**	**37 250**	**0.55**	**1.20**	**118**	**137**	**0.80**	**1.38**
Russian Federation	37 264	47 815	0.14	2.17	15 000	17 922	0.40	1.79	104	131	0.77	2.26
Ukraine	11 740	12 840	–3.69	0.04	6 302	6 453	–0.03	0.03	134	154	1.06	1.08
Other CIS	*22 277*	*24 714*	*3.57*	*0.57*	*11 436*	*12 876*	*1.10*	*1.03*	*131*	*137*	*0.64*	*0.33*
OCEANIA DEVELOPED	**5 859**	**7 210**	**4.35**	**1.56**	**2 030**	**2 159**	**1.02**	**1.02**	**85**	**81**	**–0.11**	**0.09**
Australia	5 243	6 539	4.36	1.65	1 644	1 742	0.62	1.02	82	78	–0.53	0.04
New Zealand	616	670	4.36	0.79	387	417	2.95	1.00	97	97	1.96	0.36
OTHER DEVELOPED	**9 062**	**9 267**	**0.36**	**0.21**	**7 984**	**8 218**	**0.61**	**0.27**	**46**	**47**	**0.17**	**0.27**
Japan	6 301	6 304	–0.07	0.03	5 314	5 346	0.07	0.09	42	42	–0.13	0.11
South Africa	2 761	2 963	1.40	0.59	2 670	2 872	1.78	0.61	57	60	0.63	0.55
DEVELOPING	**354 780**	**405 963**	**1.18**	**1.32**	**305 853**	**355 222**	**1.41**	**1.45**	**61**	**61**	**–0.10**	**0.13**
AFRICA	**45 718**	**57 181**	**3.44**	**1.92**	**41 275**	**52 282**	**3.39**	**2.06**	**49**	**49**	**1.04**	**–0.14**
NORTH AFRICA	**31 985**	**38 076**	**2.37**	**1.47**	**28 128**	**33 825**	**2.21**	**1.61**	**185**	**187**	**0.50**	**0.03**
Algeria	7 125	8 393	2.89	1.43	6 575	7 836	2.81	1.53	203	206	1.30	0.04
Egypt	14 234	17 764	2.17	1.68	13 314	16 420	2.15	1.80	183	186	0.22	0.05
Other North Africa	*10 626*	*11 918*	*2.31*	*1.19*	*8 239*	*9 569*	*1.84*	*1.35*	*176*	*176*	*0.34*	*0.00*
SUB-SAHARAN AFRICA	**13 732**	**19 105**	**6.33**	**2.87**	**13 147**	**18 457**	**6.35**	**2.93**	**19**	**21**	**3.78**	**0.59**
Ghana	269	356	2.92	2.86	266	353	3.12	2.89	12	13	0.89	1.04
Mozambique	345	476	8.78	2.85	345	476	9.38	2.85	18	20	7.07	1.11
Nigeria	3 290	4 883	12.61	3.08	3 198	4 790	12.54	3.15	25	30	9.95	1.10
Tanzania	406	603	12.25	2.97	398	596	12.98	3.01	11	13	10.66	1.25
Zambia	168	223	4.47	2.44	163	219	4.94	2.49	14	16	2.93	0.74
Other Sub-Saharan Africa	*9 254*	*12 564*	*4.51*	*2.80*	*8 776*	*12 022*	*4.45*	*2.85*	*19*	*20*	*1.83*	*0.33*
LATIN AMERICA and CARIBBEAN	**34 146**	**40 433**	**1.90**	**1.47**	**29 793**	**34 604**	**1.65**	**1.28**	**54**	**55**	**0.16**	**0.07**
Argentina	5 761	6 514	1.21	1.02	4 493	4 927	1.63	0.66	117	115	0.58	–0.31
Brazil	10 529	13 222	1.94	2.13	9 611	11 752	1.42	1.91	52	56	–0.03	0.75
Chile	2 214	2 404	1.82	0.70	1 954	2 116	0.57	0.67	121	118	–0.63	–0.28
Colombia	1 225	1 574	2.02	2.13	1 166	1 503	1.89	2.19	26	29	0.21	0.86
Mexico	5 764	6 530	1.52	0.84	4 332	4 560	1.05	0.08	41	38	–0.38	–0.97
Paraguay	454	597	5.38	2.39	326	442	6.87	2.57	54	58	4.31	0.44
Uruguay	393	435	2.17	1.08	340	378	1.46	1.16	99	103	0.72	0.57
Other Latin America	*7 807*	*9 158*	*2.53*	*1.41*	*7 571*	*8 927*	*2.44*	*1.43*	*49*	*49*	*0.79*	*0.02*

For notes, see end of the table.

Source: OECD and FAO Secretariats.

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Table A.6. **Wheat projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		FOOD USE (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**274 916**	**308 349**	**0.76**	**1.19**	**234 786**	**268 337**	**1.07**	**1.35**	**64**	**65**	**–0.27**	**0.23**
Bangladesh	3 292	4 386	3.03	2.73	3 087	4 115	3.47	2.86	22	24	1.47	1.14
China[c]	102 520	99 709	–0.81	–0.04	88 433	88 463	–0.48	0.14	69	65	–1.21	–0.44
India	71 657	89 180	1.70	2.21	63 851	81 117	2.08	2.46	59	64	0.43	1.12
Indonesia	4 545	5 384	3.13	1.07	3 935	4 726	2.14	1.35	18	19	0.83	0.34
Iran, Islamic Republic of	15 051	17 503	0.49	1.44	11 549	13 498	1.17	1.45	168	169	0.14	0.00
Korea	3 699	4 447	–1.04	1.47	2 316	2 435	–0.74	0.54	49	50	–1.30	0.29
Malaysia	1 221	1 545	1.99	2.16	994	1 258	2.21	2.16	40	43	0.04	0.62
Pakistan	20 624	24 232	1.25	1.46	19 724	23 314	1.93	1.51	127	121	–0.30	–0.53
Philippines	3 052	3 567	5.33	1.52	2 168	2 618	1.68	1.70	27	27	–0.26	0.17
Saudi Arabia	2 035	2 549	2.94	1.94	1 902	2 385	3.21	1.99	79	77	0.40	–0.27
Thailand	1 035	1 290	5.11	1.76	801	982	5.09	1.79	13	14	4.11	1.06
Turkey	20 033	23 514	0.90	1.73	13 867	17 010	1.59	2.12	192	206	0.05	0.90
Vietnam	884	1 119	11.28	1.91	874	1 107	11.48	1.93	11	12	9.95	0.72
Other Asia Pacific	*25 269*	*29 923*	*3.46*	*1.41*	*21 285*	*25 308*	*3.03*	*1.48*	*69*	*67*	*0.98*	*–0.21*
LEAST DEVELOPED COUNTRIES (LDC)	**19 935**	**26 886**	**4.52**	**2.75**	**18 254**	**24 941**	**4.37**	**2.87**	**25**	**26**	**1.90**	**0.59**
DEVELOPING excluding LDC	**334 846**	**379 077**	**1.01**	**1.22**	**287 599**	**330 281**	**1.25**	**1.35**	**67**	**67**	**–0.11**	**0.20**
OECD	**198 054**	**221 293**	**0.78**	**0.71**	**112 859**	**123 823**	**0.70**	**0.86**	**96**	**100**	**0.04**	**0.36**
NON-OECD	**412 701**	**474 461**	**1.05**	**1.28**	**328 597**	**379 590**	**1.29**	**1.39**	**63**	**64**	**–0.11**	**0.15**

a) For EU25, World, Developed, OECD and Western Europe growth rate refers to 1999-2005.
b) Least-squares growth rate (see glossary).
c) Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Other Asia Pacific aggregate.
est.: Estimate.
n.a.: Not available.
Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/233840101021*

Table A.7. **Coarse grain projections**

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**975 835**	**1 137 681**	**2.26**	**1.55**	**104 966**	**122 453**	**–0.44**	**1.18**	**110 792**	**123 974**	**–0.24**	**1.16**
DEVELOPED	**569 696**	**640 092**	**2.23**	**1.40**	**32 449**	**32 287**	**–1.87**	**–0.41**	**83 298**	**94 378**	**–0.89**	**0.99**
NORTH AMERICA	**324 016**	**372 698**	**1.19**	**1.63**	**4 172**	**6 593**	**2.31**	**–0.56**	**56 836**	**61 440**	**–0.16**	**0.57**
Canada	26 258	34 348	–0.87	2.50	2 225	4 786	13.00	–0.98	4 411	7 873	–2.71	1.38
United States	297 758	338 351	1.39	1.55	1 947	1 807	–4.60	0.72	52 424	53 567	0.08	0.46
WESTERN EUROPE	**136 363**	**146 409**	**0.06**	**0.72**	**5 204**	**3 918**	**–1.09**	**0.48**	**9 536**	**8 870**	**–11.32**	**–3.62**
EU25	134 678	144 718	0.04	0.73	4 880	3 600	–0.99	0.54	9 535	8 870	–11.32	–3.62
Norway	1 061	1 061	0.18	0.00	83	82	–13.91	0.91	0	0	n.a.	n.a.
Switzerland	623	630	–0.43	0.00	198	194	7.20	–0.69	0	0	n.a.	n.a.
Other Western Europe	*0*	*0*	*n.a.*	*n.a.*	*43*	*42*	*1.49*	*0.00*	*1*	*0*	*0.00*	*n.a.*
EASTERN EUROPE	**25 374**	**30 341**	**1.10**	**1.91**	**698**	**766**	**17.78**	**0.79**	**2 266**	**5 317**	**24.46**	**8.31**
Other Eastern Europe	*25 374*	*30 341*	*1.10*	*1.91*	*698*	*766*	*17.78*	*0.79*	*2 266*	*5 317*	*24.46*	*8.31*
CIS	**59 038**	**61 691**	**2.03**	**1.28**	**1 355**	**1 419**	**1.73**	**–1.46**	**7 143**	**8 836**	**20.09**	**5.45**
Russian Federation	29 109	30 391	0.04	0.61	840	781	–0.36	–3.65	1 642	1 630	29.93	6.57
Ukraine	18 655	18 101	6.04	2.18	98	14	13.75	0.11	4 870	6 618	29.11	5.92
Other CIS	*11 274*	*13 198*	*2.23*	*1.70*	*417*	*625*	*4.66*	*2.77*	*631*	*589*	*–3.63*	*–0.71*
OCEANIA DEVELOPED	**13 550**	**15 048**	**1.57**	**1.25**	**26**	**65**	**6.76**	**1.08**	**6 201**	**7 582**	**3.88**	**1.57**
Australia	12 947	14 475	1.66	1.29	0	0	n.a.	n.a.	6 201	7 582	3.96	1.57
New Zealand	603	573	–0.52	0.22	26	65	10.02	1.08	0	0	–48.69	1.61
OTHER DEVELOPED	**11 355**	**13 906**	**1.54**	**2.48**	**20 993**	**19 526**	**–0.81**	**–0.46**	**1 316**	**2 332**	**0.02**	**7.79**
Japan	224	218	0.18	0.23	20 677	19 526	–0.82	–0.37	0	0	n.a.	n.a.
South Africa	11 131	13 687	1.57	2.52	316	0	n.a.	n.a.	1 316	2 332	0.02	7.79
DEVELOPING	**406 139**	**497 589**	**1.18**	**1.74**	**72 517**	**90 167**	**2.50**	**1.83**	**27 494**	**29 596**	**3.90**	**1.73**
AFRICA	**77 153**	**96 725**	**0.87**	**2.13**	**14 910**	**19 895**	**5.93**	**1.74**	**2 223**	**3 297**	**6.52**	**4.22**
NORTH AFRICA	**11 819**	**12 935**	**0.76**	**2.20**	**10 120**	**12 613**	**6.11**	**0.55**	**0**	**0**	**n.a.**	**n.a.**
Algeria	1 147	625	5.14	1.08	2 165	2 952	8.59	1.97	0	0	n.a.	n.a.
Egypt	7 588	8 504	2.03	1.46	4 675	5 725	5.86	0.18	0	0	n.a.	n.a.
Other North Africa	*3 084*	*3 806*	*–1.56*	*4.33*	*3 280*	*3 936*	*5.17*	*0.11*	*0*	*0*	*n.a.*	*n.a.*
SUB-SAHARAN AFRICA	**65 334**	**83 789**	**0.88**	**2.12**	**4 790**	**7 282**	**5.68**	**4.26**	**2 223**	**3 297**	**6.53**	**4.22**
Ghana	1 705	1 998	1.57	2.12	27	30	–3.99	–3.63	92	25	25.59	0.00
Mozambique	1 725	2 395	3.47	3.62	141	287	12.04	3.78	131	182	18.39	3.62
Nigeria	17 011	23 725	–1.23	2.14	73	70	–2.87	0.00	147	578	–1.22	11.61
Tanzania	4 117	5 192	3.09	2.07	130	60	27.87	0.00	216	404	3.69	4.53
Zambia	1 165	1 428	–0.93	3.20	185	282	14.85	–1.40	113	138	n.a.	3.20
Other Sub-Saharan Africa	*39 613*	*49 051*	*1.58*	*2.02*	*4 233*	*6 553*	*6.13*	*4.79*	*1 524*	*1 970*	*6.12*	*3.05*
LATIN AMERICA and CARIBBEAN	**109 272**	**129 912**	**2.72**	**1.85**	**19 430**	**23 200**	**2.28**	**1.39**	**16 683**	**21 188**	**3.33**	**3.56**
Argentina	21 263	29 886	0.36	2.97	0	0	n.a.	n.a.	12 298	17 253	0.44	3.56
Brazil	44 483	50 462	4.32	1.44	773	715	–2.80	–0.25	3 381	2 350	67.15	2.84
Chile	1 882	2 519	6.34	3.43	937	422	0.24	–7.09	105	140	7.65	3.43
Colombia	1 624	2 230	3.66	2.88	2 137	2 083	1.81	0.57	0	0	n.a.	n.a.
Mexico	28 940	31 007	2.06	1.02	9 376	12 473	3.59	1.90	12	70	–27.04	2.15
Paraguay	1 063	1 674	3.01	4.28	5	6	1.75	1.82	485	960	6.31	6.80
Uruguay	662	762	2.21	1.78	27	36	n.a.	2.78	93	39	–9.42	–8.09
Other Latin America	*9 355*	*11 371*	*3.07*	*2.50*	*6 173*	*7 465*	*2.24*	*1.71*	*309*	*377*	*–1.12*	*2.52*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.7. **Coarse grain projections** *(cont.)*

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**219 714**	**270 953**	**0.60**	**1.55**	**38 177**	**47 072**	**1.49**	**2.09**	**8 589**	**5 111**	**4.26**	**–4.40**
Bangladesh	69	102	0.38	3.93	150	185	n.a.	2.33	0	0	n.a.	n.a.
China[c]	132 161	166 274	0.03	1.49	1 899	5 578	–1.08	9.24	6 171	1 206	3.08	–15.25
India	34 572	40 687	0.46	1.49	111	81	–9.60	1.50	439	131	n.a.	0.90
Indonesia	11 375	13 180	2.75	1.03	1 043	1 157	6.87	4.32	100	100	–3.29	0.11
Iran, Islamic Republic of	4 526	5 088	3.69	1.26	2 635	4 039	4.19	2.70	0	0	n.a.	n.a.
Korea	351	373	–1.57	0.01	8 872	10 073	0.86	1.16	0	0	n.a.	n.a.
Malaysia	73	90	6.19	2.33	2 451	2 818	0.42	1.23	7	10	0.00	3.99
Pakistan	2 937	3 530	4.49	1.79	134	91	30.11	–3.69	0	0	n.a.	n.a.
Philippines	5 144	6 090	2.63	1.47	111	281	–18.72	10.89	67	20	n.a.	–14.92
Saudi Arabia	224	296	–12.16	3.52	7 940	8 838	3.82	1.21	0	0	n.a.	n.a.
Thailand	4 425	4 990	–0.26	1.17	69	76	–17.58	0.95	503	390	31.07	3.76
Turkey	11 978	15 078	1.33	2.03	777	1 216	–3.89	1.39	386	1 945	–4.89	8.57
Vietnam	3 163	3 347	9.76	1.18	200	184	22.14	–0.43	11	8	–22.31	0.00
Other Asia Pacific	*8 717*	*11 827*	*1.65*	*2.97*	*11 784*	*12 454*	*1.23*	*1.13*	*905*	*1 301*	*14.24*	*3.60*
LEAST DEVELOPED COUNTRIES (LDC)	**45 490**	**57 587**	**2.56**	**2.26**	**2 923**	**4 296**	**5.97**	**3.45**	**2 054**	**2 773**	**10.24**	**3.19**
DEVELOPING excluding LDC	**360 649**	**440 003**	**1.01**	**1.67**	**69 594**	**85 871**	**2.37**	**1.76**	**25 440**	**26 824**	**3.53**	**1.59**
OECD	**515 421**	**580 830**	**1.93**	**1.36**	**49 105**	**53 864**	**–1.61**	**0.47**	**72 971**	**79 907**	**–2.67**	**0.23**
NON-OECD	**460 414**	**556 851**	**1.18**	**1.75**	**55 861**	**68 589**	**2.79**	**1.79**	**37 821**	**44 067**	**6.79**	**3.07**

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.7. **Coarse grain projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		FEED USE (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**967 267**	**1 134 442**	**1.86**	**1.41**	**618 470**	**688 500**	**1.24**	**1.17**	**30.60**	**31.29**	**0.32**	**0.18**
DEVELOPED	**506 256**	**577 406**	**1.76**	**1.08**	**361 865**	**377 743**	**0.81**	**0.68**	**33.16**	**34.46**	**0.52**	**0.43**
NORTH AMERICA	***258 633***	***316 903***	***1.74***	***1.31***	***179 077***	***185 859***	***0.35***	***0.41***	***25.26***	***24.42***	***–0.14***	***–0.10***
Canada	23 323	30 710	0.70	1.75	19 886	25 377	0.44	1.80	76.00	70.63	1.12	–0.29
United States	235 310	286 193	1.85	1.27	159 191	160 482	0.34	0.20	19.77	19.45	–0.62	–0.01
WESTERN EUROPE	**131 524**	**142 156**	**0.74**	**1.07**	**102 683**	**110 327**	**0.62**	**1.21**	**49.37**	**52.61**	**1.23**	**0.49**
EU25	129 515	140 147	0.75	1.08	100 854	108 506	0.64	1.24	50.46	53.80	1.22	0.49
Norway	1 142	1 143	–1.98	0.06	1 023	1 010	–2.13	0.00	14.39	15.38	5.34	0.09
Switzerland	825	824	0.20	–0.17	764	769	0.70	–0.12	4.56	4.29	–4.95	–0.26
Other Western Europe	*42*	*42*	*1.53*	*0.00*	*42*	*42*	*1.53*	*0.00*	*0.00*	*0.00*	*n.a.*	*n.a.*
EASTERN EUROPE	**23 399**	**25 675**	**0.48**	**0.79**	**18 244**	**20 496**	**0.88**	**0.96**	**27.94**	**30.04**	**0.09**	**0.87**
Other Eastern Europe	*23 399*	*25 675*	*0.48*	*0.79*	*18 244*	*20 496*	*0.88*	*0.96*	*27.94*	*30.04*	*0.09*	*0.87*
CIS	**54 833**	**54 164**	**0.65**	**0.54**	**36 394**	**35 893**	**1.50**	**0.79**	**21.27**	**22.87**	**–1.55**	**1.15**
Russian Federation	30 038	29 533	–0.46	0.16	19 710	19 488	0.16	0.31	24.20	27.12	–2.41	1.40
Ukraine	13 662	11 440	1.69	0.11	9 189	7 126	2.32	0.23	30.75	30.22	0.99	0.84
Other CIS	*11 133*	*13 191*	*2.65*	*1.86*	*7 495*	*9 279*	*4.39*	*2.38*	*11.33*	*13.43*	*–0.80*	*1.76*
OCEANIA DEVELOPED	**7 029**	**7 499**	**0.83**	**0.93**	**5 607**	**5 803**	**0.56**	**0.72**	**9.25**	**9.12**	**–0.31**	**–0.07**
Australia	6 410	6 862	0.90	0.99	5 120	5 307	0.54	0.78	9.99	10.00	–0.44	0.09
New Zealand	619	637	0.02	0.28	487	496	0.78	0.17	5.54	4.55	0.76	–1.94
OTHER DEVELOPED	**30 839**	**31 010**	**0.15**	**0.11**	**19 860**	**19 366**	**–0.05**	**–0.07**	**28.13**	**28.87**	**0.64**	**0.46**
Japan	21 130	19 674	–0.42	–0.47	15 725	14 215	–0.53	–0.65	1.95	1.71	2.84	0.16
South Africa	9 709	11 336	1.50	1.20	4 135	5 151	1.96	1.72	99.08	101.46	–0.15	0.42
DEVELOPING	**461 011**	**557 036**	**1.90**	**1.76**	**256 605**	**310 756**	**2.17**	**1.80**	**29.93**	**30.55**	**–0.25**	**0.14**
AFRICA	**89 943**	**113 034**	**1.64**	**1.97**	**18 067**	**21 099**	**4.04**	**1.22**	**73.40**	**75.23**	**–1.21**	**0.15**
NORTH AFRICA	**22 101**	**25 478**	**3.69**	**1.25**	**15 095**	**17 372**	**5.11**	**1.22**	**39.02**	**39.05**	**0.03**	**–0.04**
Algeria	3 098	3 559	4.73	1.25	2 303	2 586	5.80	1.14	20.14	21.77	0.35	0.37
Egypt	12 656	14 204	3.90	0.99	8 568	9 529	5.19	0.90	48.75	46.78	–0.10	–0.42
Other North Africa	*6 347*	*7 715*	*2.90*	*1.75*	*4 223*	*5 256*	*4.71*	*1.86*	*36.98*	*38.63*	*0.00*	*0.45*
SUB-SAHARAN AFRICA	**67 841**	**87 556**	**1.03**	**2.19**	**2 972**	**3 727**	**–0.16**	**1.25**	**80.99**	**82.61**	**–1.41**	**0.10**
Ghana	1 664	1 939	0.80	1.59	95	90	1.58	0.27	60.10	60.28	–1.52	0.10
Mozambique	1 735	2 496	3.46	3.62	65	80	n.a.	1.83	69.34	71.32	–0.61	0.65
Nigeria	17 120	23 201	–1.14	1.99	1 377	2 069	5.66	1.18	101.56	113.06	–4.05	0.42
Tanzania	3 927	4 819	2.42	1.88	62	74	–0.22	2.15	91.81	94.72	0.36	0.33
Zambia	1 210	1 566	–1.45	2.35	35	44	–6.33	2.79	88.40	90.42	–3.55	0.29
Other Sub-Saharan Africa	*42 187*	*53 534*	*1.88*	*2.26*	*1 339*	*1 372*	*–4.89*	*1.31*	*75.74*	*74.97*	*–0.38*	*–0.03*
LATIN AMERICA and CARIBBEAN	**112 180**	**131 941**	**2.55**	**1.60**	**69 777**	**81 462**	**2.12**	**1.58**	**57.03**	**58.57**	**2.00**	**0.26**
Argentina	8 951	12 597	0.38	2.24	7 190	10 279	0.20	2.35	7.78	7.40	2.20	–0.04
Brazil	41 983	48 936	3.16	1.58	32 676	38 019	3.21	1.59	32.49	37.10	1.93	0.88
Chile	2 711	2 797	3.72	0.97	2 137	2 132	2.31	0.77	17.92	18.94	14.08	0.70
Colombia	3 758	4 308	2.44	1.69	1 732	1 923	2.54	1.65	38.93	40.50	3.17	0.63
Mexico	38 286	43 409	2.21	1.25	17 145	18 124	0.53	0.72	162.28	161.64	2.30	0.03
Paraguay	616	715	1.46	1.82	239	270	–0.12	2.01	45.71	45.02	0.79	0.14
Uruguay	575	755	5.08	2.78	226	280	–1.67	0.93	29.75	30.78	9.10	0.29
Other Latin America	*15 301*	*18 424*	*3.02*	*2.12*	*8 432*	*10 436*	*3.53*	*2.58*	*36.90*	*37.89*	*0.61*	*0.40*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.7. **Coarse grain projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		FEED USE (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**258 889**	**312 061**	**1.71**	**1.74**	**168 761**	**208 195**	**2.01**	**1.94**	**15.88**	**14.77**	**–0.98**	**–0.73**
Bangladesh	219	287	15.04	2.88	125	164	56.59	3.03	0.68	0.73	3.81	0.96
China[c]	138 341	170 064	1.88	1.98	100 151	123 758	2.09	1.92	13.73	11.36	–2.62	–1.48
India	33 990	40 669	0.36	1.50	7 641	12 697	1.02	4.71	22.28	20.79	–0.65	–0.97
Indonesia	12 231	14 216	3.17	1.26	3 593	4 247	4.93	1.56	28.31	30.07	0.97	0.54
Iran, Islamic Republic of	7 178	9 117	3.97	1.86	6 746	8 657	4.13	1.93	1.47	1.62	1.59	1.12
Korea	9 318	10 433	0.97	1.09	6 893	7 551	0.80	0.94	4.28	4.87	–1.30	1.28
Malaysia	2 516	2 886	0.57	1.15	2 351	2 710	1.43	1.18	1.81	1.90	–0.42	0.75
Pakistan	2 984	3 632	4.52	1.53	729	885	3.38	1.09	11.94	11.93	3.09	–0.02
Philippines	5 038	6 342	1.06	1.86	3 274	4 361	1.62	2.46	17.00	16.07	–1.17	–0.67
Saudi Arabia	7 893	9 189	1.82	1.23	7 681	8 971	2.07	1.25	4.00	3.30	–0.50	–1.72
Thailand	4 006	4 671	–2.03	0.95	3 485	4 119	–2.45	1.01	2.84	3.04	7.41	0.86
Turkey	12 308	14 240	2.39	1.39	9 806	11 526	2.70	1.54	16.43	16.92	0.05	0.30
Vietnam	3 326	3 517	11.17	1.09	2 584	2 669	12.36	1.10	6.83	7.03	5.58	0.16
Other Asia Pacific	*19 542*	*22 798*	*0.93*	*1.83*	*13 703*	*15 880*	*0.65*	*1.95*	*14.04*	*14.06*	*–0.84*	*0.03*
LEAST DEVELOPED COUNTRIES (LDC)	**46 147**	**58 956**	**2.41**	**2.29**	**2 518**	**3 037**	**1.64**	**2.08**	**50.61**	**50.97**	**–0.14**	**0.14**
DEVELOPING excluding LDC	**414 864**	**498 080**	**1.84**	**1.69**	**254 087**	**307 719**	**2.18**	**1.79**	**26.38**	**26.59**	**–0.42**	**–0.02**
OECD	**478 227**	**554 315**	**1.52**	**1.17**	**336 936**	**353 405**	**0.20**	**0.67**	**42.98**	**44.46**	**1.92**	**0.32**
NON-OECD	**489 040**	**580 128**	**1.64**	**1.64**	**281 535**	**335 095**	**2.10**	**1.72**	**27.81**	**28.55**	**–0.56**	**0.20**

a) For EU25, World, Developed, OECD and Western Europe growth rate refers to 1999-2005.
b) Least-squares growth rate (see glossary).
c) Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Other Asia Pacific aggregate.
est.: Estimate.
n.a.: Not available.
Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/233840101021*

Table A.8. **Rice projections**

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**409 171**	**490 271**	**0.28**	**1.40**	**28 002**	**33 358**	**1.75**	**2.62**	**26 808**	**34 469**	**2.37**	**3.04**
DEVELOPED	**17 748**	**19 348**	**–0.18**	**0.39**	**4 377**	**5 099**	**1.92**	**1.38**	**4 220**	**5 172**	**1.61**	**1.43**
NORTH AMERICA	**6 899**	**8 296**	**2.85**	**1.35**	**710**	**837**	**3.34**	**2.53**	**3 521**	**4 099**	**4.67**	**1.25**
Canada	0	0	n.a.	n.a.	271	299	1.15	1.72	0	0	n.a.	n.a.
United States	6 899	8 296	2.85	1.35	439	538	4.85	3.00	3 521	4 099	4.67	1.25
WESTERN EUROPE	**1 795**	**1 694**	**1.63**	**0.33**	**1 116**	**1 368**	**–1.46**	**1.15**	**228**	**246**	**–7.66**	**–0.30**
EU25	1 795	1 694	1.63	0.33	1 035	1 271	–2.19	0.98	228	246	–7.66	–0.30
Norway	0	0	n.a.	n.a.	0	0	n.a.	n.a.	0	0	n.a.	n.a.
Switzerland	0	0	n.a.	n.a.	80	97	8.27	3.70	0	0	n.a.	n.a.
Other Western Europe	*0*	*0*	*n.a.*	*n.a.*	*1*	*1*	*2.65*	*1.57*	*0*	*0*	*n.a.*	*n.a.*
EASTERN EUROPE	**30**	**29**	**–3.52**	**0.91**	**169**	**185**	**2.36**	**0.79**	**3**	**3**	**–16.32**	**0.91**
Other Eastern Europe	*30*	*29*	*–3.52*	*0.91*	*169*	*185*	*2.36*	*0.79*	*3*	*3*	*–16.32*	*0.91*
CIS	**835**	**1 024**	**0.54**	**1.54**	**645**	**659**	**3.62**	**0.79**	**24**	**6**	**–14.54**	**–0.03**
Russian Federation	334	436	4.50	0.36	351	414	1.70	3.28	15	0	n.a.	n.a.
Ukraine	55	67	1.67	1.80	103	100	8.21	–0.50	1	3	13.65	0.04
Other CIS	*446*	*521*	*–2.13*	*2.59*	*191*	*145*	*6.56*	*–3.52*	*8*	*3*	*–18.56*	*–0.11*
OCEANIA DEVELOPED	**447**	**985**	**–11.15**	**3.46**	**135**	**193**	**10.69**	**2.69**	**248**	**643**	**–14.52**	**4.10**
Australia	447	985	–11.15	3.46	98	150	13.47	3.09	248	643	–14.52	4.10
New Zealand	0	0	n.a.	n.a.	37	43	5.26	1.40	0	0	n.a.	n.a.
OTHER DEVELOPED	**7 742**	**7 320**	**–1.84**	**–1.03**	**1 602**	**1 857**	**4.30**	**1.25**	**196**	**175**	**15.98**	**0.00**
Japan	7 740	7 318	–1.84	–1.03	766	682	1.40	0.00	196	175	15.98	0.00
South Africa	2	2	0.00	0.00	837	1 175	7.39	2.05	0	0	n.a.	n.a.
DEVELOPING	**391 424**	**470 923**	**0.63**	**1.44**	**23 625**	**28 259**	**3.45**	**2.86**	**22 589**	**29 297**	**2.82**	**3.35**
AFRICA	**12 831**	**18 883**	**2.43**	**3.52**	**7 737**	**10 048**	**8.57**	**2.22**	**895**	**1 192**	**15.09**	**2.87**
NORTH AFRICA	**4 273**	**5 550**	**2.66**	**2.60**	**226**	**288**	**2.29**	**2.29**	**879**	**1 168**	**15.72**	**2.88**
Algeria	1	1	0.00	1.83	70	89	6.48	2.06	0	0	n.a.	n.a.
Egypt	4 262	5 536	2.72	2.60	1	1	–5.15	2.43	879	1 168	15.72	2.88
Other North Africa	*11*	*14*	*–8.85*	*1.79*	*155*	*198*	*1.11*	*2.39*	*0*	*0*	*n.a.*	*n.a.*
SUB-SAHARAN AFRICA	**8 558**	**13 332**	**2.33**	**3.93**	**7 510**	**9 761**	**8.81**	**2.22**	**15**	**24**	**–0.92**	**2.24**
Ghana	146	169	2.58	1.63	465	549	18.19	1.93	1	1	25.30	0.00
Mozambique	123	164	1.17	3.78	291	477	17.20	3.41	0	0	n.a.	n.a.
Nigeria	2 183	4 023	1.64	5.37	1 467	1 254	10.18	–1.98	1	3	n.a.	–0.02
Tanzania	650	916	3.72	3.28	163	205	7.77	3.98	5	7	n.a.	3.28
Zambia	8	13	–0.13	4.70	19	20	14.68	1.66	0	0	n.a.	n.a.
Other Sub-Saharan Africa	*5 449*	*8 047*	*2.50*	*3.41*	*5 105*	*7 255*	*7.66*	*3.06*	*8*	*13*	*–7.52*	*2.46*
LATIN AMERICA and CARIBBEAN	**16 689**	**20 711**	**3.40**	**2.08**	**3 585**	**4 232**	**4.09**	**2.56**	**1 372**	**2 344**	**–1.74**	**3.91**
Argentina	754	1 292	–2.92	4.44	16	15	6.65	0.00	227	538	–7.35	5.33
Brazil	8 304	9 708	5.23	1.65	927	825	6.16	5.38	119	228	18.50	7.42
Chile	85	73	1.46	–0.63	102	133	4.50	3.45	0	0	n.a.	–0.63
Colombia	1 571	1 954	5.28	2.17	86	95	–7.38	1.39	0	0	n.a.	n.a.
Mexico	188	231	–6.13	2.31	707	759	6.27	0.31	1	1	–13.84	0.80
Paraguay	83	126	2.62	3.38	3	4	17.64	2.38	12	28	5.67	9.27
Uruguay	789	1 090	1.23	2.73	2	1	n.a.	1.31	646	1 004	0.33	2.73
Other Latin America	*4 915*	*6 237*	*2.22*	*2.19*	*1 742*	*2 398*	*3.61*	*2.61*	*367*	*544*	*–4.12*	*3.52*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.8. **Rice projections** *(cont.)*

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**361 904**	**431 329**	**0.46**	**1.33**	**12 303**	**13 978**	**0.91**	**3.47**	**20 322**	**25 761**	**2.84**	**3.33**
Bangladesh	26 503	34 580	4.47	2.06	914	292	11.80	16.96	5	6	n.a.	0.00
China[c]	121 707	140 571	–1.76	0.42	744	949	12.48	2.92	764	511	–11.77	–0.67
India	86 886	103 658	0.21	1.79	33	50	13.00	0.00	3 644	3 533	6.11	2.27
Indonesia	33 645	36 582	0.70	0.50	1 463	2 408	–6.89	10.19	0	0	n.a.	n.a.
Iran, Islamic Republic of	1 960	3 097	2.89	3.74	845	324	1.60	–7.12	0	0	n.a.	n.a.
Korea	4 753	4 222	–1.41	–1.01	227	426	13.58	5.27	283	60	n.a.	–8.60
Malaysia	1 431	1 593	0.65	0.84	633	736	0.06	2.20	0	0	n.a.	n.a.
Pakistan	4 947	5 992	1.15	1.82	1	1	12.15	2.63	2 364	2 977	2.32	1.73
Philippines	9 484	12 879	4.35	2.59	1 332	565	2.98	–7.18	0	0	n.a.	n.a.
Saudi Arabia	0	0	n.a.	n.a.	867	1 085	1.60	2.27	0	0	n.a.	n.a.
Thailand	19 403	21 562	3.36	1.92	3	8	22.33	0.78	8 553	11 392	4.72	3.32
Turkey	277	362	6.72	1.67	245	522	–0.26	5.36	1	3	n.a.	0.16
Vietnam	23 676	26 983	3.55	1.20	9	6	n.a.	0.00	4 388	5 585	1.95	2.57
Other Asia Pacific	*27 231*	*39 248*	*3.40*	*3.39*	*4 987*	*6 607*	*3.98*	*4.27*	*319*	*1 695*	*12.12*	*24.60*
LEAST DEVELOPED COUNTRIES (LDC)	**54 408**	**75 951**	**4.12**	**2.95**	**5 860**	**7 870**	**5.84**	**4.55**	**286**	**1 658**	**21.37**	**26.22**
DEVELOPING excluding LDC	**337 016**	**394 972**	**0.15**	**1.18**	**17 765**	**20 388**	**2.87**	**2.27**	**22 303**	**27 639**	**2.69**	**2.73**
OECD	**22 100**	**23 108**	**–0.63**	**0.11**	**3 907**	**4 787**	**0.68**	**1.81**	**4 478**	**5 227**	**2.36**	**1.22**
NON-OECD	**387 072**	**467 162**	**0.66**	**1.47**	**24 095**	**28 571**	**3.48**	**2.76**	**22 331**	**29 242**	**2.60**	**3.40**

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.8. **Rice projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**425 257**	**489 766**	**1.12**	**1.35**	**66.61**	**67.91**	**–0.10**	**0.24**
DEVELOPED	**18 042**	**19 232**	**0.33**	**0.29**	**13.58**	**14.08**	**–0.02**	**0.05**
NORTH AMERICA	***4 094***	***5 007***	***1.77***	***1.53***	***12.50***	***13.88***	***0.76***	***0.65***
Canada	271	299	1.15	1.72	8.49	8.53	0.18	0.90
United States	3 823	4 708	1.81	1.52	12.94	14.45	0.80	0.64
WESTERN EUROPE	**2 604**	**2 847**	**0.79**	**0.85**	**5.54**	**5.96**	**0.50**	**0.74**
EU25	2 528	2 749	0.62	0.82	5.52	5.91	0.33	0.71
Norway	0	0	n.a.	n.a.	0.00	0.00	n.a.	n.a.
Switzerland	75	97	6.00	1.87	10.36	13.16	5.64	1.77
Other Western Europe	*1*	*1*	*2.65*	*1.57*	*3.42*	*3.76*	*1.68*	*1.01*
EASTERN EUROPE	**197**	**211**	**1.75**	**0.79**	**3.66**	**4.05**	**1.94**	**1.06**
Other Eastern Europe	*197*	*211*	*1.75*	*0.79*	*3.66*	*4.05*	*1.94*	*1.06*
CIS	**1 504**	**1 677**	**2.66**	**1.24**	**5.41**	**6.15**	**2.91**	**1.41**
Russian Federation	720	849	4.38	1.68	5.01	6.21	4.77	2.15
Ukraine	157	164	5.08	0.36	3.35	3.91	6.23	1.42
Other CIS	*627*	*663*	*0.49*	*0.91*	*7.17*	*7.05*	*0.03*	*0.21*
OCEANIA DEVELOPED	**417**	**526**	**2.83**	**2.48**	**17.42**	**19.81**	**1.67**	**1.54**
Australia	380	483	2.61	2.58	19.03	21.70	1.43	1.58
New Zealand	37	43	5.26	1.40	9.33	10.00	4.24	0.76
OTHER DEVELOPED	**9 227**	**8 965**	**–0.58**	**–0.78**	**52.69**	**50.97**	**–1.03**	**–0.78**
Japan	8 398	7 788	–1.16	–1.15	65.65	60.84	–1.36	–1.13
South Africa	829	1 177	7.45	2.05	17.56	24.57	6.23	1.98
DEVELOPING	**407 216**	**470 534**	**1.50**	**1.39**	**80.56**	**80.48**	**–0.01**	**0.07**
AFRICA	**19 857**	**27 679**	**4.57**	**3.05**	**23.66**	**25.95**	**2.19**	**0.84**
NORTH AFRICA	**3 738**	**4 645**	**1.69**	**2.42**	**24.64**	**25.73**	**–0.01**	**0.83**
Algeria	71	89	5.89	2.08	2.19	2.35	4.34	0.58
Egypt	3 507	4 344	1.70	2.43	48.29	49.27	–0.22	0.67
Other North Africa	*161*	*212*	*0.08*	*2.33*	*3.43*	*3.90*	*–1.40*	*0.97*
SUB-SAHARAN AFRICA	**16 119**	**23 034**	**5.34**	**3.19**	**23.44**	**25.99**	**2.80**	**0.84**
Ghana	609	715	12.64	1.83	28.13	26.93	10.20	0.00
Mozambique	412	638	10.14	3.49	21.20	27.13	7.82	1.74
Nigeria	3 683	5 267	4.96	3.09	28.61	32.73	2.54	1.04
Tanzania	798	1 114	4.06	3.39	21.22	24.43	1.92	1.61
Zambia	26	34	9.33	2.79	2.30	2.43	7.24	1.04
Other Sub-Saharan Africa	*10 591*	*15 266*	*5.09*	*3.27*	*22.60*	*24.79*	*2.45*	*0.73*
LATIN AMERICA and CARIBBEAN	**18 730**	**22 516**	**3.65**	**1.86**	**33.86**	**35.54**	**2.13**	**0.64**
Argentina	555	769	1.33	3.77	14.47	18.03	0.28	2.77
Brazil	8 971	10 260	4.24	1.46	48.78	49.00	2.75	0.30
Chile	186	206	2.49	1.80	11.52	11.48	1.26	0.84
Colombia	1 634	2 043	3.76	2.23	36.37	39.23	2.05	0.89
Mexico	875	988	2.88	1.10	8.28	8.29	1.42	0.04
Paraguay	75	101	1.93	2.38	12.52	13.20	–0.50	0.25
Uruguay	87	80	–0.21	1.31	25.26	21.89	–0.94	0.71
Other Latin America	*6 348*	*8 070*	*3.30*	*2.24*	*41.02*	*44.58*	*1.64*	*0.82*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.8. **Rice projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**368 628**	**420 338**	**1.26**	**1.27**	**100.64**	**101.38**	**–0.08**	**0.15**
Bangladesh	27 279	34 768	4.07	2.10	195.92	206.76	2.06	0.39
China[c]	135 446	140 837	0.30	0.41	105.39	102.84	–0.44	–0.16
India	84 351	100 060	0.82	1.76	77.60	79.39	–0.81	0.43
Indonesia	35 575	38 985	0.40	0.89	161.66	157.95	–0.89	–0.12
Iran, Islamic Republic of	2 804	3 411	1.43	1.94	40.74	42.68	0.40	0.48
Korea	4 772	4 619	–0.84	–0.46	100.16	94.10	–1.40	–0.71
Malaysia	2 064	2 329	0.66	1.25	82.95	78.80	–1.47	–0.26
Pakistan	2 607	3 008	0.81	1.90	16.85	15.55	–1.40	–0.15
Philippines	10 918	13 450	4.29	1.91	133.77	138.89	2.31	0.37
Saudi Arabia	863	1 085	0.64	2.29	36.05	35.20	–2.10	0.02
Thailand	10 543	11 679	2.71	0.52	165.49	169.10	1.75	–0.20
Turkey	522	882	3.29	3.73	7.21	10.67	1.72	2.49
Vietnam	19 297	21 327	4.01	0.87	232.16	224.43	2.58	–0.33
Other Asia Pacific	*31 587*	*43 898*	*3.25*	*3.15*	*101.78*	*117.02*	*1.19*	*1.43*
LEAST DEVELOPED COUNTRIES (LDC)	**59 561**	**81 786**	**4.13**	**2.89**	**80.44**	**86.13**	**1.66**	**0.60**
DEVELOPING excluding LDC	**347 654**	**388 748**	**1.11**	**1.10**	**80.57**	**79.38**	**–0.25**	**–0.04**
OECD	**21 680**	**22 656**	**–0.38**	**0.12**	**18.45**	**18.22**	**–1.03**	**–0.37**
NON-OECD	**403 577**	**467 110**	**1.54**	**1.41**	**77.48**	**78.26**	**0.14**	**0.17**

a) For EU25, World, Developed, OECD and Western Europe growth rate refers to 1999-2005.
b) Least-squares growth rate (see glossary).
c) Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Other Asia Pacific aggregate.
est.: Estimate.
n.a.: Not available.
Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/233840101021*

Table A.9. **Main policy assumptions for oilseed markets**

Crop year[a]		Average 00/01-04/05	05/06 est.	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
ARGENTINA													
Oilseed export tax	%	15.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
Oilseed meal export tax	%	12.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Oilseed oil export tax	%	12.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
AUSTRALIA													
Tariffs													
soybean oil	%	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
rapeseed oil	%	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
CANADA													
Tariffs													
rapeseed oil	%	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
EUROPEAN UNION[c, d]													
Oilseed compensation[e, f]	*EUR/ha*	289	142	31	31	31	31	31	31	31	31	31	31
Compulsory set-aside rate	%	9.0	10	10	10	10	10	10	10	10	10	10	10
Set-aside payment[f]	*EUR/ha*	286.1	142	31	31	31	31	31	31	31	31	31	31
Tariffs													
soybean oil	%	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
rapeseed oil	%	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
JAPAN													
New output payments													
soybeans	*bn. JPY*	21.9	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
Tariffs													
soybean oil	%	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9
rapeseed oil	%	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4
KOREA													
Soybean tariff-quota	*kt*	1 032	1 032	1 032	1 032	1 032	1 032	1 032	1 032	1 032	1 032	1 032	1 032
in-quota tariff	%	5	5	5	5	5	5	5	5	5	5	5	5
out-of-quota tariff	%	498	487	487	487	487	487	487	487	487	487	487	487
Soybean (for food) mark up	*'000 KRW/t*	186	124	117	115	115	114	112	111	110	108	107	106
MEXICO													
Soybeans income payment[g]	*MXN/ha*	866	988	1 024	1 058	1 094	1 134	1 175	1 218	1 262	1 308	1 355	1 404
Tariffs													
soybeans	%	33.7	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0
soybean meal	%	26.5	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8
soybean oil	%	46.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
UNITED STATES													
Soybeans loan rate	*USD/t*	187.5	183.7	183.7	183.7	183.7	183.7	183.7	183.7	183.7	183.7	183.7	183.7
CRP area													
soybeans	*mha*	2.0	2.2	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Tariffs													
rapeseed	%	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
soybean meal	%	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
rapeseed meal	%	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
soybean oil	%	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7
rapeseed oil	%	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Subsidised export limits[b]													
oilseed oils	*kt*	141	141	141	141	141	141	141	141	141	141	141	141

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.9. **Main policy assumptions for oilseed markets** *(cont.)*

Crop year[a]		Average 00/01-04/05	05/06 est.	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
CHINA													
Soybeans support price	*CNY/t*	246.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tariffs[b]													
soybeans	%	26.0	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
soybean meal	%	9.7	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
soybean oil in-quota tariff	%	5.4	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Vegetable oil tariff-quota	*kt*	4 827.1	7 998.1	7 998.1	7 998.1	7 998.1	7 998.1	7 998.1	7 998.1	7 998.1	7 998.1	7 998.1	7 998.1
INDIA													
Input subsidy rate, oilseeds[h]	*R/T*	3 610	3 512	3 512	3 512	3 512	3 512	3 512	3 512	3 512	3 512	3 512	3 512
Soybean tariff	%	100	100	100	100	100	100	100	100	100	100	100	100
Rapeseed tariff	%	100	100	100	100	100	100	100	100	100	100	100	100
Sunflower tariff	%	100	100	100	100	100	100	100	100	100	100	100	100
Oilseed tariff	%	100	100	100	100	100	100	100	100	100	100	100	100
Soybean meal tariff	%	125	125	125	125	125	125	125	125	125	125	125	125
Rapeseed meal tariff	%	100	100	100	100	100	100	100	100	100	100	100	100
Sunflower meal tariff	%	100	100	100	100	100	100	100	100	100	100	100	100
Soybean oil tariff	%	45	45	45	45	45	45	45	45	45	45	45	45
Rapeseed oil tariff	%	45	45	45	45	45	45	45	45	45	45	45	45
Sunflower oil tariff	%	300	300	300	300	300	300	300	300	300	300	300	300
Palm oil tariff	%	300	300	300	300	300	300	300	300	300	300	300	300
Vegetables oil tariff	%	198	198	198	198	198	198	198	198	198	198	198	198

a) Beginning crop marketing year – see Glossary of Terms for definitions.
b) Calendar year, except for China and subsidised export limit in USA, beginning 1 July.
c) Prices and payments in market Euro – see Glossary of Terms.
d) EU farmers also benefit from the Single Farm Payment (SFP) Scheme, which provides flat-rate payments independent from current production decisions and market developments. The total amount spent under the SFP scheme, before modulation, is assumed to increase from 26.9 billion euro in 2005 to 28.4 billion euro in 2008 for the total of the 15 former member States. The final number is equivalent to 233 euro per hectare of eligible farm land on average. For the accession countries, payments are phased in with the assumption of maximum top-ups from national budgets. Due to modulation, between 2.7% and 4.6% of the total SFP will go to rural development spending rather than directly to the farmers.
e) Compensatory area payments, before penalties.
f) Payments made per hectare based on regional yields.
g) Weighted average of autumn/winter and spring/summer.
h) Indian input subsidies consist of those for electricty, fertiliser and irrigation.
Note: The source for tariffs and Tariff Rate Quotas is AMAD (Agricultural market access database). The tariff and TRQ data are based on Most Favoured Nation rates scheduled with the WTO and exclude those under preferential or regional agreements, which may be substantially different. Tariffs are simple averages of several product lines. Specific rates are converted to *ad valorem* rates using world prices in the Outlook. Import quotas are based on global commitments scheduled in the WTO rather than those allocated to preferential partners under regional or other agreements. For Mexico, the NAFTA tariffs on soybeans, oil meals and soybean oil are zero after 2003.
est.: Estimate.
Source: OECD and FAO Secretariats.

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Table A.10. **World oilseed projections**

Marketing year[a]		Average 00/01-04/05	05/06 est.	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
OILSEEDS													
OECD[b]													
Production	*mt*	106.8	122.7	116.9	118.9	121.5	122.1	123.2	124.1	126.5	128.5	129.7	130.6
Consumption	*mt*	107.7	117.5	118.3	119.5	121.4	123.0	124.5	126.0	128.2	130.7	132.8	134.7
crush	*mt*	97.2	106.3	107.0	108.3	110.3	111.8	113.3	114.8	116.9	119.4	121.4	123.3
Closing stocks	*mt*	17.4	24.0	23.3	19.6	17.4	16.1	15.5	14.9	14.9	15.2	15.3	15.4
Non-OECD													
Production	*mt*	142.2	167.7	175.4	178.0	184.0	191.3	198.7	204.4	211.2	218.4	225.0	232.1
Consumption	*mt*	143.3	175.0	183.9	190.6	195.7	200.9	207.0	212.5	218.6	225.0	231.0	237.1
crush	*mt*	121.2	150.6	158.9	165.1	169.7	174.6	180.3	185.6	191.3	197.2	202.9	208.6
Closing stocks	*mt*	9.1	10.7	11.1	11.0	11.1	11.4	12.0	12.1	12.5	13.0	13.3	13.6
WORLD[c]													
Production	*mt*	249.0	290.4	292.3	296.8	305.6	313.3	321.9	328.5	337.7	346.9	354.7	362.7
Consumption	*mt*	251.1	292.4	302.2	310.2	317.2	323.9	331.4	338.5	346.8	355.7	363.8	371.8
crush	*mt*	218.4	256.9	265.9	273.4	279.9	286.4	293.5	300.4	308.2	316.6	324.3	331.9
Closing stocks	*mt*	26.6	34.7	34.4	30.6	28.5	27.5	27.4	26.9	27.4	28.1	28.6	29.0
Price[d]	*USD/t*	252.8	258.4	244.2	251.6	260.6	265.9	263.7	270.1	270.7	268.3	269.6	271.5
OILSEED MEALS													
OECD[b]													
Production	*mt*	70.8	75.3	75.7	76.6	78.1	79.2	80.1	81.1	82.5	84.2	85.7	86.9
Consumption	*mt*	92.3	99.3	102.3	104.3	106.1	107.9	110.0	111.3	112.7	114.7	116.4	117.9
Closing stocks	*mt*	2.8	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Non-OECD													
Production	*mt*	87.8	109.2	115.8	120.6	124.2	128.0	132.5	136.7	141.1	145.8	150.3	154.8
Consumption	*mt*	64.7	81.2	85.4	89.3	92.4	95.5	98.8	102.8	107.1	111.5	115.8	120.0
Closing stocks	*mt*	3.4	4.4	4.5	4.5	4.6	4.8	4.9	5.0	5.2	5.4	5.6	5.7
WORLD[c]													
Production	*mt*	158.6	184.5	191.5	197.3	202.2	207.2	212.6	217.8	223.7	230.0	235.9	241.7
Consumption	*mt*	157.1	180.6	187.8	193.7	198.6	203.4	208.8	214.1	219.8	226.2	232.2	237.9
Closing stocks	*mt*	6.2	7.1	7.2	7.2	7.3	7.5	7.6	7.7	7.9	8.1	8.3	8.5
Price[e]	*USD/t*	196.9	184.9	167.6	170.2	173.5	173.8	170.4	175.2	174.9	172.3	172.4	173.4
VEGETABLE OILS													
OECD[b]													
Production	*mt*	23.2	26.1	26.2	26.6	27.1	27.5	27.8	28.3	28.8	29.4	29.9	30.4
Consumption	*mt*	27.6	31.1	31.5	32.3	32.7	33.1	33.7	34.3	34.9	35.7	36.4	37.2
Closing stocks	*mt*	2.2	2.7	2.5	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1
Non-OECD													
Production	*mt*	56.5	70.2	72.6	75.0	77.0	79.2	81.5	83.8	86.2	88.7	91.2	93.7
Consumption	*mt*	50.1	60.1	62.7	64.8	66.8	68.9	71.0	73.2	75.5	77.8	80.1	82.2
Closing stocks	*mt*	5.2	5.7	5.9	5.9	5.9	5.9	6.0	6.0	6.1	6.2	6.2	6.3
WORLD[c]													
Production	*mt*	79.7	96.3	98.9	101.6	104.1	106.7	109.4	112.1	115.0	118.1	121.1	124.1
of which: palm oil	*mt*	28.3	35.3	36.1	37.1	38.1	39.2	40.2	41.3	42.4	43.6	44.7	45.9
Consumption	*mt*	77.8	91.3	94.2	97.1	99.5	102.0	104.7	107.5	110.4	113.5	116.5	119.4
Closing stocks	*mt*	7.4	8.4	8.4	8.2	8.2	8.2	8.2	8.2	8.3	8.3	8.3	8.4
Oil price[f]	*USD/t*	475.6	547.6	554.4	570.6	583.6	597.4	598.7	600.8	600.9	598.7	596.4	593.2

a) Beginning crop marketing year – see Glossary of Terms for definitions.
b) Excludes Iceland but includes the 6 EU members that are not members of the OECD.
c) Source of historic data is USDA.
d) Weighted average oilseed price, European port.
e) Weighted average meal price, European port.
f) Weighted average price of oilseed oils and palm oil, European port.
est.: Estimate.
Source: OECD and FAO Secretariats.

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Table A.11. **Oilseed projections**

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**275 650**	**362 693**	**4.59**	**2.50**	**71 782**	**106 135**	**4.44**	**2.80**	**68 848**	**96 525**	**4.02**	**3.12**
DEVELOPED	**127 311**	**148 987**	**2.23**	**1.37**	**26 658**	**27 780**	**–1.20**	**–0.28**	**36 170**	**36 600**	**–1.13**	**–1.03**
NORTH AMERICA	**91 533**	**100 068**	**1.80**	**0.66**	**1 159**	**1 300**	**4.01**	**1.05**	**32 108**	**32 374**	**2.08**	**–1.55**
Canada	10 974	12 957	2.26	2.58	592	769	6.52	1.92	5 085	5 885	3.38	1.40
United States	80 559	87 111	1.73	0.40	567	531	1.34	0.00	27 023	26 489	1.84	–2.10
WESTERN EUROPE	**18 974**	**27 708**	**1.84**	**3.61**	**18 014**	**19 522**	**–1.61**	**–0.06**	**1 180**	**426**	**–16.97**	**0.00**
EU25	18 900	27 629	1.82	3.63	17 491	18 899	–1.70	–0.10	1 180	426	–16.97	0.00
Norway	11	11	–1.02	1.00	448	547	4.76	1.50	0	0	n.a.	n.a.
Switzerland	62	68	2.66	0.00	74	76	–8.00	0.15	0	0	n.a.	n.a.
Other Western Europe	*0*	*0*	*n.a.*	*n.a.*	*0*	*0*	*1.38*	*0.00*	*0*	*0*	*n.a.*	*n.a.*
EASTERN EUROPE	**2 745**	**2 945**	**4.96**	**1.81**	**229**	**273**	**8.33**	**1.94**	**774**	**597**	**24.01**	**1.38**
Other Eastern Europe	*2 745*	*2 945*	*4.96*	*1.81*	*229*	*273*	*8.33*	*1.94*	*774*	*597*	*24.01*	*1.38*
CIS	**11 241**	**15 358**	**8.46**	**2.72**	**178**	**368**	**8.98**	**7.58**	**1 120**	**2 464**	**–12.07**	**10.17**
Russian Federation	5 719	7 388	7.31	1.98	10	10	–16.10	0.36	367	866	–17.46	5.21
Ukraine	4 541	6 421	9.17	3.21	13	11	10.43	1.35	583	1 365	–11.72	17.75
Other CIS	*980*	*1 548*	*12.53*	*4.49*	*155*	*347*	*19.37*	*8.17*	*171*	*233*	*7.90*	*4.49*
OCEANIA DEVELOPED	**1 673**	**1 459**	**3.07**	**–0.32**	**21**	**17**	**–13.04**	**0.00**	**987**	**703**	**5.63**	**–2.08**
Australia	1 669	1 455	3.09	–0.32	19	15	–15.02	0.00	986	702	5.63	–2.08
New Zealand	4	4	–1.10	0.00	2	2	5.80	0.00	0	0	0.04	0.00
OTHER DEVELOPED	**1 146**	**1 449**	**3.32**	**1.45**	**7 057**	**6 301**	**–0.14**	**–1.50**	**2**	**35**	**n.a.**	**8.31**
Japan	209	278	4.92	1.91	7 030	6 301	–0.09	–1.50	0	0	n.a.	n.a.
South Africa	936	1 171	3.02	1.34	27	0	–8.40	n.a.	2	35	n.a.	8.31
DEVELOPING	**148 339**	**213 706**	**6.48**	**3.36**	**45 125**	**78 355**	**12.88**	**4.17**	**32 678**	**59 925**	**15.73**	**6.81**
AFRICA	**1 303**	**1 697**	**2.20**	**2.70**	**1 107**	**1 591**	**11.67**	**2.45**	**55**	**95**	**3.49**	**4.00**
NORTH AFRICA	**247**	**328**	**–0.23**	**2.50**	**1 043**	**1 478**	**12.35**	**2.24**	**3**	**6**	**–1.88**	**5.13**
Algeria	100	100	0.00	0.04	4	11	108.17	8.16	0	0	n.a.	n.a.
Egypt	75	138	3.71	5.22	418	709	14.48	2.99	3	6	–1.95	5.22
Other North Africa	*72*	*90*	*–3.06*	*1.90*	*621*	*758*	*10.99*	*1.53*	*0*	*0*	*0.30*	*1.90*
SUB-SAHARAN AFRICA	**1 055**	**1 368**	**2.87**	**2.75**	**64**	**112**	**5.61**	**5.78**	**51**	**89**	**4.04**	**3.92**
Ghana	0	0	n.a.	n.a.	0	0	n.a.	n.a.	0	0	n.a.	n.a.
Mozambique	11	14	–3.70	3.40	0	1	–24.72	5.38	0	0	n.a.	n.a.
Nigeria	458	555	3.40	1.99	0	8	0.06	118.33	6	10	–6.26	8.74
Tanzania	30	33	–1.20	0.84	6	6	76.61	0.49	0	0	10.66	0.84
Zambia	12	19	–12.14	4.27	6	7	19.99	2.30	0	0	n.a.	n.a.
Other Sub-Saharan Africa	*544*	*747*	*3.71*	*3.41*	*51*	*90*	*5.30*	*5.47*	*44*	*79*	*13.66*	*3.40*
LATIN AMERICA and CARIBBEAN	**99 328**	**153 401**	**9.50**	**3.87**	**7 460**	**10 469**	**2.11**	**3.08**	**32 053**	**59 427**	**16.03**	**6.92**
Argentina	41 594	60 501	10.08	3.03	328	1 000	–6.88	12.77	8 289	13 968	20.42	7.49
Brazil	50 868	81 311	9.60	4.39	719	711	–2.59	–0.38	20 463	39 534	17.98	7.01
Chile	77	82	6.39	2.00	206	363	17.52	4.45	7	7	2.78	2.00
Colombia	64	72	–1.94	1.00	459	756	12.79	4.17	0	0	n.a.	1.00
Mexico	134	149	1.05	1.25	4 914	6 410	2.57	2.23	2	2	4.91	0.05
Paraguay	4 020	6 938	4.65	4.92	12	18	9.50	4.20	2 500	4 659	2.88	5.29
Uruguay	669	1 117	29.47	4.83	8	15	11.65	4.11	587	962	42.11	4.95
Other Latin America	*1 904*	*3 230*	*6.38*	*5.40*	*813*	*1 196*	*3.42*	*3.57*	*205*	*294*	*–0.51*	*5.44*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.11. **Oilseed projections** *(cont.)*

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**47 708**	**58 608**	**1.94**	**2.15**	**36 558**	**66 295**	**16.89**	**4.40**	**571**	**403**	**6.51**	**–2.41**
Bangladesh	243	299	–0.56	2.76	124	232	–4.63	5.08	0	0	n.a.	n.a.
China[c]	30 246	36 581	2.90	1.98	24 282	50 520	30.47	5.30	446	267	10.91	–3.67
India	13 748	17 275	1.55	2.42	20	5	12.49	0.00	12	5	–5.22	–11.93
Indonesia	729	887	–9.37	0.91	1 285	1 540	6.71	1.61	0	1	0.00	2.39
Iran, Islamic Republic of	154	225	0.64	4.94	705	929	43.07	2.12	2	2	68.50	0.00
Korea	125	72	–2.63	–5.80	1 614	1 884	0.85	1.37	0	0	–0.45	n.a.
Malaysia	0	0	0.00	1.72	613	755	3.05	1.63	32	35	3.63	–0.16
Pakistan	401	503	–4.43	1.39	735	954	37.92	3.46	0	0	n.a.	n.a.
Philippines	1	1	–5.71	0.44	329	503	8.70	3.91	0	0	n.a.	n.a.
Saudi Arabia	0	0	n.a.	n.a.	2	3	–4.64	5.17	0	0	40.42	0.00
Thailand	253	368	–4.38	4.48	1 558	1 812	13.78	1.05	1	1	0.85	–0.43
Turkey	698	893	–2.70	2.48	1 473	2 243	8.02	1.77	5	4	–2.26	2.48
Vietnam	201	257	7.46	2.44	25	28	n.a.	0.94	30	32	–6.62	0.70
Other Asia Pacific	*906*	*1 247*	*2.90*	*4.28*	*3 792*	*4 887*	*2.27*	*2.09*	*42*	*54*	*–0.39*	*3.68*
LEAST DEVELOPED COUNTRIES (LDC)	**1 146**	**1 548**	**4.49**	**3.79**	**229**	**456**	**2.09**	**5.03**	**19**	**28**	**0.14**	**3.87**
DEVELOPING excluding LDC	**147 193**	**212 158**	**6.49**	**3.36**	**44 896**	**77 899**	**12.97**	**4.16**	**32 659**	**59 897**	**15.75**	**6.82**
OECD	**113 346**	**130 627**	**1.62**	**1.22**	**34 225**	**37 675**	**–0.45**	**0.23**	**34 282**	**33 510**	**–1.00**	**–1.54**
NON-OECD	**162 304**	**232 066**	**6.63**	**3.29**	**37 558**	**68 460**	**16.20**	**4.55**	**34 566**	**63 015**	**13.26**	**6.86**

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.11. **Oilseed projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		DOMESTIC CRUSH (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**275 465**	**371 755**	**4.37**	**2.32**	**241 056**	**331 875**	**4.71**	**2.49**
DEVELOPED	**115 121**	**140 061**	**1.66**	**1.48**	**104 063**	**127 888**	**1.74**	**1.59**
NORTH AMERICA	***57 006***	***68 921***	***0.99***	***1.39***	***51 238***	***62 433***	***1.08***	***1.52***
Canada	5 874	7 802	0.68	2.56	4 894	6 602	0.69	2.61
United States	51 132	61 119	1.02	1.25	46 344	55 831	1.12	1.40
WESTERN EUROPE	**36 703**	**46 730**	**1.60**	**1.94**	**34 489**	**45 009**	**1.78**	**2.09**
EU25	36 107	46 029	1.60	1.95	33 907	44 322	1.78	2.11
Norway	459	557	4.52	1.49	457	555	5.12	1.50
Switzerland	136	144	–4.11	0.08	125	132	–4.59	0.00
Other Western Europe	*0*	*0*	*1.38*	*0.00*	*0*	*0*	*1.19*	*0.00*
EASTERN EUROPE	**2 194**	**2 620**	**2.48**	**1.94**	**1 910**	**2 200**	**2.31**	**1.60**
Other Eastern Europe	*2 194*	*2 620*	*2.48*	*1.94*	*1 910*	*2 200*	*2.31*	*1.60*
CIS	**10 245**	**13 262**	**13.18**	**1.90**	**8 515**	**10 853**	**13.57**	**1.79**
Russian Federation	5 341	6 533	11.74	1.63	4 886	6 044	12.79	1.78
Ukraine	3 948	5 067	15.17	1.35	2 916	3 426	14.93	0.42
Other CIS	*956*	*1 662*	*14.16*	*5.15*	*713*	*1 383*	*14.04*	*6.30*
OCEANIA DEVELOPED	**708**	**773**	**1.35**	**1.70**	**685**	**753**	**1.23**	**1.75**
Australia	703	768	1.36	1.71	680	749	1.24	1.76
New Zealand	5	5	0.72	0.00	4	4	–0.16	0.00
OTHER DEVELOPED	**8 265**	**7 754**	**0.71**	**–0.98**	**7 225**	**6 639**	**0.86**	**–1.11**
Japan	7 285	6 618	0.37	–1.31	6 344	5 658	0.53	–1.40
South Africa	979	1 136	3.70	1.20	881	981	3.70	0.79
DEVELOPING	**160 344**	**231 693**	**6.57**	**2.86**	**136 993**	**203 988**	**7.20**	**3.09**
AFRICA	**2 345**	**3 192**	**5.81**	**2.54**	**1 642**	**2 160**	**5.74**	**1.98**
NORTH AFRICA	**1 277**	**1 801**	**8.73**	**2.28**	**1 076**	**1 482**	**8.34**	**1.96**
Algeria	104	111	0.57	0.63	94	96	0.56	0.22
Egypt	480	841	12.12	3.31	432	755	12.12	3.23
Other North Africa	*693*	*848*	*8.39*	*1.57*	*550*	*631*	*7.61*	*0.87*
SUB-SAHARAN AFRICA	**1 068**	**1 391**	**2.93**	**2.89**	**566**	**678**	**1.80**	**2.04**
Ghana	0	0	n.a.	n.a.	0	0	n.a.	n.a.
Mozambique	11	16	–7.05	3.56	10	14	–5.76	3.47
Nigeria	452	552	3.92	2.05	226	231	3.92	0.29
Tanzania	36	39	1.17	0.78	29	29	0.18	–0.19
Zambia	18	26	–5.54	3.70	13	19	–3.41	3.69
Other Sub-Saharan Africa	*550*	*759*	*3.21*	*3.63*	*288*	*386*	*1.39*	*3.33*
LATIN AMERICA and CARIBBEAN	**74 337**	**104 235**	**6.41**	**2.39**	**70 726**	**99 585**	**6.49**	**2.37**
Argentina	33 584	47 509	8.20	2.15	33 054	46 110	8.44	2.17
Brazil	30 777	42 304	5.21	2.35	29 515	41 660	5.02	2.29
Chile	276	438	13.88	3.99	249	395	13.88	4.00
Colombia	531	828	10.33	3.85	478	747	10.33	3.85
Mexico	5 042	6 556	2.53	2.21	4 507	5 868	3.12	2.44
Paraguay	1 532	2 298	8.84	4.20	1 378	2 078	8.84	4.26
Uruguay	90	170	6.96	4.11	78	154	8.28	4.43
Other Latin America	*2 505*	*4 132*	*5.92*	*4.84*	*1 467*	*2 573*	*5.62*	*5.57*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.11. **Oilseed projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		DOMESTIC CRUSH (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**83 662**	**124 266**	**6.75**	**3.27**	**64 626**	**102 243**	**8.07**	**3.87**
Bangladesh	368	531	–2.22	3.71	331	475	–2.22	3.66
China[c]	54 221	86 862	9.98	3.80	43 078	74 471	12.15	4.49
India	13 595	17 079	1.52	2.29	12 548	15 860	1.50	2.37
Indonesia	2 014	2 427	–2.65	1.36	5	7	–0.43	4.41
Iran, Islamic Republic of	857	1 152	19.63	2.62	771	1 047	19.63	2.68
Korea	1 722	1 955	–0.24	0.85	1 215	1 394	–0.67	1.21
Malaysia	581	721	3.16	1.73	523	650	3.16	1.74
Pakistan	1 139	1 457	9.04	2.70	1 025	1 313	9.04	2.72
Philippines	320	504	8.25	3.91	161	262	8.32	4.25
Saudi Arabia	2	3	–5.28	5.46	2	3	–3.11	5.71
Thailand	1 833	2 112	9.08	1.21	917	1 096	9.08	1.58
Turkey	2 160	3 132	3.83	1.96	1 603	2 204	1.58	1.39
Vietnam	197	252	13.14	2.51	98	138	13.14	3.44
Other Asia Pacific	*4 654*	*6 080*	*2.38*	*2.49*	*2 349*	*3 322*	*2.66*	*3.32*
LEAST DEVELOPED COUNTRIES (LDC)	**1 356**	**1 976**	**3.99**	**4.06**	**972**	**1 421**	**3.02**	**4.09**
DEVELOPING excluding LDC	**158 988**	**229 718**	**6.60**	**2.85**	**136 021**	**202 567**	**7.23**	**3.09**
OECD	**110 625**	**134 686**	**0.95**	**1.47**	**100 080**	**123 319**	**1.11**	**1.61**
NON-OECD	**164 840**	**237 069**	**7.09**	**2.83**	**140 976**	**208 556**	**7.73**	**3.04**

a) For EU25, World, Developed, OECD and Western Europe growth rate refers to 1999-2005.
b) Least-squares growth rate (see glossary).
c) Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Other Asia Pacific aggregate.
est.: Estimate.
n.a.: Not available.
Source: OECD and FAO Secretariats.

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Table A.12. **Oilseed meal projections**

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**173 956**	**241 701**	**4.66**	**2.61**	**51 754**	**68 106**	**5.45**	**2.05**	**54 591**	**71 715**	**6.95**	**1.94**
DEVELOPED	**71 478**	**86 266**	**0.93**	**1.52**	**31 773**	**39 559**	**5.63**	**1.49**	**10 215**	**13 070**	**2.26**	**2.47**
NORTH AMERICA	**39 726**	**47 729**	**1.09**	**1.47**	**2 724**	**3 545**	**5.38**	**2.03**	**7 477**	**9 865**	**–1.63**	**3.11**
Canada	3 310	4 433	0.80	2.51	1 138	1 747	6.91	3.18	1 597	2 264	1.96	2.56
United States	36 416	43 295	1.11	1.37	1 586	1 799	4.24	1.01	5 880	7 601	–2.46	3.28
WESTERN EUROPE	**21 753**	**27 651**	**–0.08**	**2.12**	**25 415**	**31 820**	**5.26**	**1.76**	**740**	**788**	**8.48**	**0.00**
EU25	21 316	27 135	–0.10	2.14	25 002	31 315	5.18	1.75	612	658	10.63	0.00
Norway	354	431	5.09	1.50	123	143	49.35	1.54	128	130	–1.95	0.00
Switzerland	83	85	–5.58	0.00	223	295	18.30	2.66	0	0	n.a.	n.a.
Other Western Europe	*0*	*0*	*n.a.*	*n.a.*	*66*	*66*	*2.01*	*0.00*	*0*	*0*	*n.a.*	*n.a.*
EASTERN EUROPE	**833**	**961**	**3.31**	**1.60**	**412**	**438**	**5.55**	**–2.20**	**318**	**367**	**6.05**	**1.60**
Other Eastern Europe	*833*	*961*	*3.31*	*1.60*	*412*	*438*	*5.55*	*–2.20*	*318*	*367*	*6.05*	*1.60*
CIS	**3 617**	**4 589**	**13.66**	**1.82**	**950**	**1 373**	**14.30**	**0.69**	**1 668**	**2 039**	**34.70**	**0.91**
Russian Federation	2 114	2 584	12.83	1.78	428	784	11.36	1.35	492	489	57.66	0.01
Ukraine	1 188	1 396	15.25	0.42	132	175	28.01	1.21	1 028	1 263	29.66	0.34
Other CIS	*315*	*608*	*14.03*	*6.30*	*390*	*414*	*18.55*	*–0.57*	*148*	*287*	*53.90*	*6.30*
OCEANIA DEVELOPED	**404**	**431**	**0.74**	**1.47**	**452**	**639**	**10.19**	**2.40**	**4**	**0**	**–24.83**	**0.00**
Australia	402	429	0.75	1.48	352	533	10.85	2.94	4	0	n.a.	n.a.
New Zealand	2	2	–0.80	0.00	100	105	7.92	0.00	0	0	n.a.	0.00
OTHER DEVELOPED	**5 145**	**4 906**	**1.42**	**–1.19**	**1 820**	**1 744**	**3.62**	**–2.26**	**9**	**10**	**12.68**	**0.00**
Japan	4 680	4 381	1.21	–1.40	1 162	703	2.70	–7.74	0	0	n.a.	n.a.
South Africa	465	525	3.99	0.79	658	1 041	5.59	4.72	9	10	12.68	0.00
DEVELOPING	**102 478**	**155 435**	**7.69**	**3.26**	**19 981**	**28 547**	**3.54**	**2.89**	**44 376**	**58 645**	**6.61**	**1.83**
AFRICA	**1 170**	**1 543**	**6.95**	**1.98**	**2 043**	**2 862**	**5.81**	**2.56**	**34**	**47**	**0.46**	**3.15**
NORTH AFRICA	**772**	**1 073**	**10.02**	**2.01**	**1 885**	**2 650**	**5.61**	**2.56**	**4**	**6**	**0.99**	**2.29**
Algeria	56	57	0.41	0.22	534	616	9.36	0.65	0	0	n.a.	n.a.
Egypt	323	566	12.52	3.23	842	1 335	2.97	4.01	2	4	1.63	3.23
Other North Africa	*393*	*450*	*10.17*	*0.87*	*509*	*699*	*6.90*	*1.89*	*2*	*2*	*0.28*	*0.87*
SUB-SAHARAN AFRICA	**399**	**470**	**2.39**	**1.90**	**158**	**212**	**8.45**	**2.48**	**30**	**40**	**0.42**	**3.29**
Ghana	0	0	n.a.	n.a.	1	1	–6.54	0.00	0	0	n.a.	n.a.
Mozambique	4	6	–7.11	3.47	6	9	37.44	2.37	0	0	n.a.	n.a.
Nigeria	179	182	3.92	0.29	27	40	60.60	3.62	7	7	–0.15	0.29
Tanzania	14	14	1.22	–0.19	0	0	28.53	3.84	8	5	6.71	–4.77
Zambia	7	10	–5.62	3.69	5	7	0.84	2.97	0	0	n.a.	n.a.
Other Sub-Saharan Africa	*195*	*258*	*2.14*	*3.25*	*119*	*155*	*6.21*	*2.20*	*15*	*28*	*0.35*	*6.95*
LATIN AMERICA and CARIBBEAN	**54 233**	**78 059**	**6.80**	**2.63**	**4 720**	**7 073**	**5.82**	**3.68**	**39 614**	**54 910**	**7.28**	**1.96**
Argentina	24 772	36 193	9.33	2.71	0	0	n.a.	n.a.	23 874	34 609	9.51	2.65
Brazil	23 286	32 885	5.01	2.30	231	213	1.34	–0.31	13 859	17 124	3.88	0.21
Chile	177	283	15.52	4.00	608	921	6.88	4.10	0	0	n.a.	n.a.
Colombia	378	590	10.33	3.85	550	692	2.16	2.81	60	60	62.08	3.85
Mexico	3 382	4 451	2.94	2.52	123	480	32.54	11.67	0	2	n.a.	7.75
Paraguay	1 075	1 620	9.17	4.26	4	6	n.a.	2.52	724	1 147	11.53	5.09
Uruguay	43	83	9.88	4.43	82	152	10.76	4.32	6	12	–9.06	4.43
Other Latin America	*1 119*	*1 954*	*5.73*	*5.57*	*3 120*	*4 610*	*6.22*	*3.38*	*1 090*	*1 956*	*9.70*	*5.91*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.12. **Oilseed meal projections** *(cont.)*

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**47 075**	**75 833**	**8.82**	**3.99**	**13 217**	**18 612**	**2.57**	**2.66**	**4 728**	**3 688**	**1.70**	**0.00**
Bangladesh	199	285	–2.22	3.66	170	305	51.65	3.80	0	0	n.a.	n.a.
China[c]	32 079	56 541	13.14	4.62	106	181	–39.56	–11.79	716	0	20.19	n.a.
India	8 803	11 114	1.48	2.37	4	0	n.a.	n.a.	3 293	2 794	–1.77	–0.03
Indonesia	1	0	n.a.	n.a.	1 889	2 430	9.50	2.00	10	11	–5.64	0.00
Iran, Islamic Republic of	595	809	21.04	2.68	528	550	–0.78	0.41	55	35	n.a.	0.00
Korea	947	1 086	–0.62	1.21	1 730	2 306	3.65	2.32	0	0	n.a.	n.a.
Malaysia	413	513	3.20	1.74	772	1 083	4.11	1.83	20	20	8.91	–0.06
Pakistan	625	806	10.05	2.72	177	283	6.49	2.17	40	36	54.12	0.82
Philippines	127	206	8.29	4.25	1 438	1 763	6.69	1.46	60	60	n.a.	–0.06
Saudi Arabia	0	0	n.a.	n.a.	621	999	1.76	4.19	0	0	n.a.	0.00
Thailand	724	866	9.08	1.58	1 901	2 131	7.99	0.88	0	0	–52.33	n.a.
Turkey	859	1 216	3.77	1.39	867	2 209	8.41	9.06	27	41	17.09	1.39
Vietnam	78	109	13.14	3.44	1 033	1 136	29.11	1.32	0	0	n.a.	n.a.
Other Asia Pacific	*1 626*	*2 281*	*2.46*	*3.21*	*1 980*	*3 237*	*10.06*	*4.38*	*507*	*692*	*22.16*	*2.84*
LEAST DEVELOPED COUNTRIES (LDC)	**570**	**824**	**2.98**	**3.99**	**275**	**430**	**19.20**	**3.24**	**16**	**20**	**5.69**	**3.08**
DEVELOPING excluding LDC	**101 908**	**154 611**	**7.72**	**3.26**	**19 706**	**28 117**	**3.43**	**2.89**	**44 360**	**58 625**	**6.61**	**1.83**
OECD	**71 750**	**86 945**	**0.55**	**1.55**	**32 473**	**41 701**	**5.32**	**1.90**	**8 248**	**10 696**	**–0.11**	**2.83**
NON-OECD	**102 206**	**154 757**	**8.14**	**3.25**	**19 280**	**26 405**	**3.74**	**2.29**	**46 343**	**61 018**	**7.03**	**1.79**

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.12. **Oilseed meal projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**170 782**	**237 922**	**4.16**	**2.65**
DEVELOPED	**93 068**	**112 758**	**2.23**	**1.40**
NORTH AMERICA	***34 954***	***41 408***	***2.06***	***1.16***
Canada	2 840	3 916	2.16	2.77
United States	32 113	37 492	2.05	1.01
WESTERN EUROPE	**46 412**	**58 685**	**2.48**	**1.96**
EU25	45 690	57 795	2.43	1.96
Norway	350	444	18.70	2.00
Switzerland	306	380	6.86	2.00
Other Western Europe	*66*	*66*	*2.00*	*0.00*
EASTERN EUROPE	**920**	**1 031**	**3.22**	**–0.18**
Other Eastern Europe	*920*	*1 031*	*3.22*	*–0.18*
CIS	**2 885**	**3 923**	**8.16**	**1.89**
Russian Federation	2 051	2 880	9.07	1.97
Ukraine	283	308	–1.07	1.21
Other CIS	*551*	*735*	*12.86*	*1.89*
OCEANIA DEVELOPED	**852**	**1 069**	**5.24**	**2.01**
Australia	750	962	4.95	2.26
New Zealand	102	107	7.68	0.00
OTHER DEVELOPED	**7 045**	**6 641**	**2.46**	**–1.48**
Japan	5 928	5 085	2.00	–2.57
South Africa	1 117	1 556	5.39	3.26
DEVELOPING	**77 714**	**125 163**	**6.96**	**3.91**
AFRICA	**3 172**	**4 359**	**6.25**	**2.34**
NORTH AFRICA	**2 644**	**3 717**	**6.73**	**2.40**
Algeria	590	673	8.19	0.61
Egypt	1 155	1 897	5.04	3.77
Other North Africa	*900*	*1 147*	*8.18*	*1.48*
SUB-SAHARAN AFRICA	**527**	**641**	**4.11**	**2.01**
Ghana	1	1	–6.61	0.00
Mozambique	11	15	3.49	2.79
Nigeria	198	215	5.92	0.84
Tanzania	6	9	–2.53	3.84
Zambia	12	17	–2.30	3.39
Other Sub-Saharan Africa	*300*	*385*	*3.81*	*2.59*
LATIN AMERICA and CARIBBEAN	**19 196**	**30 045**	**5.24**	**4.16**
Argentina	823	1 427	5.51	3.55
Brazil	9 608	15 955	5.87	4.99
Chile	786	1 204	8.42	4.08
Colombia	874	1 221	4.29	3.25
Mexico	3 504	4 929	3.35	3.11
Paraguay	352	479	6.07	2.52
Uruguay	121	222	12.75	4.35
Other Latin America	*3 128*	*4 608*	*4.86*	*3.27*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.12. **Oilseed meal projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**55 346**	**90 760**	**7.63**	**3.91**
Bangladesh	369	590	5.76	3.74
China[c]	31 469	56 722	9.75	4.57
India	5 325	8 320	3.23	3.34
Indonesia	1 851	2 417	9.20	1.99
Iran, Islamic Republic of	1 038	1 323	4.35	1.74
Korea	2 719	3 388	1.40	1.96
Malaysia	1 165	1 575	3.82	1.82
Pakistan	754	1 068	8.67	2.78
Philippines	1 480	1 905	6.14	1.78
Saudi Arabia	622	999	1.71	4.19
Thailand	2 679	2 997	8.50	1.08
Turkey	1 673	3 384	6.51	5.73
Vietnam	1 111	1 245	27.12	1.49
Other Asia Pacific	*3 092*	*4 827*	*4.54*	*4.04*
LEAST DEVELOPED COUNTRIES (LDC)	**830**	**1 234**	**6.19**	**3.74**
DEVELOPING excluding LDC	**76 884**	**123 929**	**6.97**	**3.91**
OECD	**96 042**	**117 949**	**2.08**	**1.57**
NON-OECD	**74 740**	**119 973**	**7.39**	**3.83**

a) For EU25, World, Developed, OECD and Western Europe growth rate refers to 1999-2005.
b) Least-squares growth rate (see glossary).
c) Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Other Asia Pacific aggregate.
est.: Estimate.
n.a.: Not available.
Source: OECD and FAO Secretariats.

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Table A.13. **Vegetable oil projections**

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**90 234**	**124 067**	**5.78**	**2.55**	**37 249**	**48 427**	**8.58**	**2.29**	**39 863**	**53 054**	**9.07**	**2.06**
DEVELOPED	**26 971**	**33 598**	**2.16**	**1.67**	**9 042**	**9 464**	**15.16**	**0.50**	**4 356**	**3 939**	**6.34**	**–2.01**
NORTH AMERICA	**10 773**	**13 529**	**1.19**	**1.65**	**1 189**	**1 629**	**5.48**	**3.80**	**1 783**	**2 286**	**–3.18**	**–0.07**
Canada	1 656	2 236	0.70	2.75	224	168	11.62	–0.84	1 006	1 449	3.29	3.59
United States	9 117	11 293	1.26	1.45	964	1 462	4.50	4.49	777	836	–8.08	–4.32
WESTERN EUROPE	**10 008**	**12 923**	**1.21**	**2.09**	**5 010**	**4 541**	**58.70**	**–0.84**	**1 197**	**27**	**39.14**	**–25.02**
EU25	9 876	12 771	1.20	2.10	4 842	4 357	n.a.	–0.89	1 153	–13	n.a.	n.a.
Norway	89	107	5.15	1.50	72	89	12.70	0.83	42	38	36.36	0.00
Switzerland	43	45	–3.96	0.00	93	92	6.82	0.00	2	2	–24.62	0.00
Other Western Europe	*0*	*0*	*n.a.*	*n.a.*	*3*	*4*	*–0.56*	*2.59*	*0*	*0*	*n.a.*	*n.a.*
EASTERN EUROPE	**589**	**676**	**1.54**	**1.60**	**221**	**319**	**9.60**	**2.81**	**185**	**212**	**–2.16**	**1.60**
Other Eastern Europe	*589*	*676*	*1.54*	*1.60*	*221*	*319*	*9.60*	*2.81*	*185*	*212*	*–2.16*	*1.60*
CIS	**3 461**	**4 414**	**13.75**	**1.75**	**1 294**	**1 409**	**7.41**	**0.10**	**1 122**	**1 349**	**21.43**	**0.36**
Russian Federation	1 881	2 326	13.16	1.75	733	678	3.82	–1.52	126	130	13.63	0.05
Ukraine	1 280	1 506	14.70	0.42	218	314	31.52	2.34	941	1 124	23.33	0.02
Other CIS	*300*	*583*	*14.02*	*6.30*	*343*	*417*	*9.14*	*1.48*	*55*	*95*	*15.84*	*6.30*
OCEANIA DEVELOPED	**265**	**294**	**2.23**	**1.83**	**277**	**269**	**7.00**	**–0.74**	**54**	**55**	**11.95**	**0.00**
Australia	264	294	2.25	1.83	141	132	1.18	–1.46	54	55	11.96	0.00
New Zealand	1	0	–0.80	n.a.	136	136	19.17	0.00	0	0	n.a.	n.a.
OTHER DEVELOPED	**1 875**	**1 761**	**1.16**	**–1.08**	**1 051**	**1 296**	**3.83**	**2.32**	**15**	**10**	**–15.44**	**0.00**
Japan	1 615	1 476	0.82	–1.40	526	571	5.07	1.73	0	0	n.a.	n.a.
South Africa	259	285	3.72	0.79	525	726	2.68	2.80	15	10	–15.07	0.00
DEVELOPING	**63 264**	**90 469**	**7.48**	**2.90**	**28 207**	**38 964**	**6.07**	**2.77**	**35 507**	**49 115**	**8.96**	**2.48**
AFRICA	**2 075**	**2 423**	**0.50**	**1.44**	**4 542**	**6 701**	**7.46**	**3.59**	**253**	**263**	**1.45**	**1.07**
NORTH AFRICA	**240**	**322**	**5.76**	**1.81**	**2 314**	**3 477**	**5.77**	**3.63**	**11**	**17**	**–0.69**	**2.41**
Algeria	35	36	0.49	0.22	477	619	6.25	1.83	1	1	n.a.	0.22
Egypt	86	149	11.52	3.23	1 184	1 902	6.04	4.47	7	12	1.48	3.23
Other North Africa	*119*	*137*	*4.47*	*0.87*	*653*	*956*	*5.15*	*3.30*	*3*	*4*	*6.58*	*0.87*
SUB-SAHARAN AFRICA	**1 835**	**2 101**	**–0.05**	**1.39**	**2 228**	**3 224**	**9.57**	**3.54**	**242**	**246**	**3.11**	**0.99**
Ghana	110	121	0.99	0.98	121	143	37.27	1.30	33	36	5.74	0.98
Mozambique	3	4	–4.90	3.47	50	68	7.65	2.92	0	0	n.a.	n.a.
Nigeria	842	945	0.34	1.05	215	134	11.37	–5.01	6	7	6.40	1.05
Tanzania	15	18	–0.32	2.15	208	332	10.25	4.33	18	22	44.76	2.15
Zambia	4	5	–1.32	3.69	4	5	–6.11	1.68	0	0	n.a.	n.a.
Other Sub-Saharan Africa	*860*	*1 007*	*–0.50*	*1.74*	*1 631*	*2 543*	*8.60*	*4.30*	*186*	*183*	*1.42*	*0.86*
LATIN AMERICA and CARIBBEAN	**15 830**	**22 234**	**5.67**	**2.43**	**2 654**	**3 769**	**3.51**	**3.20**	**9 985**	**13 461**	**7.89**	**1.82**
Argentina	6 959	9 466	5.97	2.04	0	0	–10.07	0.00	6 336	8 165	6.61	1.40
Brazil	5 658	8 064	5.49	2.28	73	41	–16.43	0.20	2 526	3 489	9.83	1.62
Chile	61	95	10.99	4.00	222	337	4.72	4.29	3	5	8.58	4.00
Colombia	747	1 013	5.67	2.47	215	265	5.38	1.72	231	388	17.02	3.82
Mexico	921	1 177	4.19	2.29	591	950	2.71	3.14	45	41	–5.18	0.00
Paraguay	256	386	8.16	4.25	5	7	–7.79	3.39	163	250	11.69	4.75
Uruguay	21	43	7.07	4.43	32	39	15.05	1.73	3	6	5.41	4.43
Other Latin America	*1 207*	*1 990*	*5.58*	*4.83*	*1 518*	*2 129*	*6.05*	*3.36*	*679*	*1 118*	*14.32*	*4.82*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.13. **Vegetable oil projections** *(cont.)*

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**45 358**	**65 811**	**8.64**	**3.13**	**21 010**	**28 494**	**6.15**	**2.53**	**25 269**	**35 391**	**9.53**	**2.76**
Bangladesh	126	181	–2.22	3.66	1 011	1 633	10.73	4.65	0	0	n.a.	n.a.
China[c]	10 001	17 093	11.25	4.55	6 297	7 445	9.42	0.67	42	53	–18.06	–0.37
India	3 432	4 348	1.66	2.35	4 850	7 312	8.03	3.37	44	0	n.a.	n.a.
Indonesia	13 617	21 034	13.51	3.58	54	139	1.83	7.57	10 021	16 280	20.40	3.92
Iran, Islamic Republic of	145	196	17.56	2.68	1 193	1 602	3.92	3.13	147	199	–1.99	2.68
Korea	217	250	–0.65	1.21	479	602	8.86	2.28	5	20	6.97	14.51
Malaysia	14 995	18 647	6.93	1.71	689	579	12.66	0.60	13 566	16 606	7.18	1.61
Pakistan	323	413	9.03	2.72	1 593	2 226	1.62	3.05	0	0	n.a.	n.a.
Philippines	100	120	1.89	1.69	122	157	8.63	2.45	19	22	47.87	1.86
Saudi Arabia	0	0	n.a.	n.a.	345	548	6.87	4.59	14	14	12.61	0.00
Thailand	878	1 033	4.88	1.25	65	78	12.12	1.19	238	280	15.28	0.76
Turkey	571	761	–0.41	1.39	608	632	2.05	0.66	23	33	–17.15	1.39
Vietnam	18	27	13.50	3.54	261	324	4.16	1.33	8	16	–18.94	0.00
Other Asia Pacific	*935*	*1 708*	*4.73*	*5.85*	*3 444*	*5 217*	*2.77*	*3.81*	*1 143*	*1 869*	*–4.05*	*4.47*
LEAST DEVELOPED COUNTRIES (LDC)	**798**	**1 258**	**2.53**	**4.88**	**3 120**	**4 840**	**9.08**	**4.12**	**85**	**131**	**8.55**	**5.16**
DEVELOPING excluding LDC	**62 465**	**89 211**	**7.56**	**2.88**	**25 087**	**34 123**	**5.74**	**2.59**	**35 422**	**48 985**	**8.96**	**2.47**
OECD	**24 372**	**30 411**	**1.16**	**1.68**	**8 680**	**9 194**	**16.38**	**0.68**	**3 107**	**2 462**	**4.58**	**–3.19**
NON-OECD	**65 863**	**93 656**	**7.84**	**2.85**	**28 569**	**39 233**	**6.22**	**2.70**	**36 757**	**50 593**	**9.21**	**2.41**

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.13. **Vegetable oil projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**87 111**	**119 412**	**5.47**	**2.65**	**13.64**	**16.56**	**4.19**	**1.53**
DEVELOPED	**31 355**	**39 142**	**4.07**	**1.78**	**23.60**	**28.67**	**3.71**	**1.54**
NORTH AMERICA	***9 998***	***12 892***	***2.38***	***2.10***	***30.54***	***35.74***	***1.37***	***1.22***
Canada	872	954	–0.07	0.91	27.27	27.20	–1.03	0.09
United States	9 127	11 939	2.64	2.20	30.89	36.65	1.62	1.31
WESTERN EUROPE	**13 787**	**17 435**	**5.69**	**1.89**	**29.31**	**36.51**	**5.38**	**1.77**
EU25	13 529	17 140	5.66	1.91	29.53	36.86	5.35	1.80
Norway	121	157	4.09	1.50	26.26	32.43	3.49	1.03
Switzerland	134	135	4.07	0.00	18.51	18.41	3.72	–0.10
Other Western Europe	*3*	*4*	*–0.63*	*2.59*	*9.55*	*11.47*	*–1.58*	*2.02*
EASTERN EUROPE	**621**	**782**	**4.97**	**2.07**	**11.58**	**14.98**	**5.16**	**2.35**
Other Eastern Europe	*621*	*782*	*4.97*	*2.07*	*11.58*	*14.98*	*5.16*	*2.35*
CIS	**3 560**	**4 471**	**8.85**	**1.69**	**12.80**	**16.40**	**9.12**	**1.87**
Russian Federation	2 477	2 873	9.03	0.97	17.22	21.02	9.43	1.44
Ukraine	505	696	6.58	2.34	10.76	16.63	7.75	3.42
Other CIS	*578*	*901*	*10.46*	*3.80*	*6.61*	*9.58*	*9.96*	*3.08*
OCEANIA DEVELOPED	**491**	**508**	**4.20**	**0.58**	**20.52**	**19.14**	**3.03**	**–0.34**
Australia	355	372	1.24	0.81	17.83	16.71	0.08	–0.18
New Zealand	136	136	18.60	0.00	33.98	31.68	17.45	–0.63
OTHER DEVELOPED	**2 898**	**3 054**	**2.40**	**0.21**	**16.55**	**17.36**	**1.94**	**0.21**
Japan	2 120	2 054	1.71	–0.64	16.57	16.04	1.51	–0.62
South Africa	778	1 001	4.53	2.21	16.48	20.89	3.34	2.15
DEVELOPING	**55 756**	**80 269**	**5.93**	**3.11**	**11.03**	**13.73**	**4.35**	**1.77**
AFRICA	**6 351**	**8 859**	**5.02**	**3.03**	**7.57**	**8.30**	**2.63**	**0.82**
NORTH AFRICA	**2 549**	**3 780**	**6.22**	**3.47**	**16.79**	**20.94**	**4.45**	**1.87**
Algeria	517	654	5.60	1.74	15.97	17.16	4.06	0.25
Egypt	1 259	2 037	6.97	4.39	17.32	23.11	4.95	2.59
Other North Africa	*773*	*1 089*	*5.58*	*2.97*	*16.53*	*20.06*	*4.01*	*1.59*
SUB-SAHARAN AFRICA	**3 802**	**5 079**	**4.31**	**2.72**	**5.53**	**5.73**	**1.79**	**0.38**
Ghana	198	228	10.95	1.18	9.12	8.60	8.54	–0.64
Mozambique	53	73	6.14	2.95	2.72	3.10	3.90	1.21
Nigeria	1 050	1 072	1.89	0.10	8.15	6.66	–0.45	–1.89
Tanzania	202	328	7.88	4.35	5.37	7.20	5.67	2.56
Zambia	8	10	–4.57	2.71	0.67	0.72	–6.39	0.96
Other Sub-Saharan Africa	*2 292*	*3 367*	*4.87*	*3.67*	*4.89*	*5.47*	*2.24*	*1.13*
LATIN AMERICA and CARIBBEAN	**8 500**	**12 525**	**2.74**	**3.42**	**15.36**	**19.77**	**1.24**	**2.18**
Argentina	626	1 303	0.03	7.45	16.32	30.54	–1.01	6.42
Brazil	3 216	4 603	1.60	2.89	17.49	21.98	0.15	1.72
Chile	283	428	6.03	4.23	17.52	23.85	4.76	3.25
Colombia	719	889	3.35	1.72	16.01	17.08	1.65	0.40
Mexico	1 467	2 086	3.98	2.72	13.88	17.51	2.50	1.64
Paraguay	97	142	4.11	3.39	16.19	18.70	1.62	1.24
Uruguay	50	77	13.03	2.97	14.41	20.85	12.21	2.37
Other Latin America	*2 042*	*2 996*	*3.92*	*3.76*	*13.20*	*16.55*	*2.25*	*2.32*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.13. **Vegetable oil projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**40 905**	**58 886**	**6.86**	**3.06**	**11.16**	**14.20**	**5.45**	**1.92**
Bangladesh	1 140	1 814	8.46	4.54	8.19	10.79	6.36	2.79
China[c]	16 265	24 484	10.76	3.20	12.65	17.88	9.94	2.61
India	8 164	11 659	5.19	2.97	7.51	9.25	3.49	1.63
Indonesia	3 623	4 875	2.45	2.63	16.46	19.75	1.14	1.60
Iran, Islamic Republic of	1 195	1 600	5.93	3.13	17.36	20.02	4.85	1.66
Korea	698	831	4.46	1.58	14.65	16.93	3.87	1.32
Malaysia	2 028	2 622	7.26	2.09	81.44	88.70	4.98	0.56
Pakistan	1 939	2 634	2.89	2.98	12.52	13.62	0.64	0.91
Philippines	199	255	4.43	2.14	2.44	2.64	2.44	0.60
Saudi Arabia	328	535	6.54	4.74	13.70	17.34	3.64	2.42
Thailand	696	830	2.90	1.43	10.93	12.02	1.94	0.71
Turkey	1 132	1 359	2.20	1.07	15.66	16.44	0.65	–0.14
Vietnam	266	334	7.27	1.54	3.19	3.52	5.80	0.33
Other Asia Pacific	*3 231*	*5 052*	*7.23*	*4.21*	*10.41*	*13.47*	*5.10*	*2.47*
LEAST DEVELOPED COUNTRIES (LDC)	**3 827**	**5 968**	**7.39**	**4.25**	**5.17**	**6.28**	**4.84**	**1.94**
DEVELOPING excluding LDC	**51 929**	**74 302**	**5.83**	**3.02**	**12.03**	**15.17**	**4.40**	**1.86**
OECD	**29 693**	**37 166**	**3.70**	**1.79**	**25.26**	**29.88**	**3.02**	**1.29**
NON-OECD	**57 418**	**82 246**	**6.22**	**3.07**	**11.02**	**13.78**	**4.75**	**1.81**

a) For EU25, World, Developed, OECD and Western Europe growth rate refers to 1999-2005.
b) Least-squares growth rate (see glossary).
c) Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Other Asia Pacific aggregate.
est.: Estimate.
n.a.: Not available.
Source: OECD and FAO Secretariats.

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Table A.14. **Main policy assumptions for meat markets**

		Average 2000-04	2005 est.	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
ARGENTINA													
Beef export tax	%	3	5	15	15	15	15	15	15	15	15	15	15
CANADA													
Beef tariff-quota	*kt pw*	76	76	76	76	76	76	76	76	76	76	76	76
in-quota tariff	%	0	0	0	0	0	0	0	0	0	0	0	0
out-of-quota tariff	%	27	27	27	27	27	27	27	27	27	27	27	27
Poultry meat tariff-quota	*kt pw*	45	45	45	45	45	45	45	45	45	45	45	45
in-quota tariff	%	2	2	2	2	2	2	2	2	2	2	2	2
out-of-quota tariff	%	197	197	197	197	197	197	197	197	197	197	197	197
EUROPEAN UNION[a, b]													
Beef basic price[c, d, e]	*EUR/kg dw*	2.59	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22
Beef buy-in price[c, f]	*EUR/kg dw*	. .	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56
Pig meat basic price[d]	*EUR/kg dw*	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51
Sheep meat basic price	*EUR/kg dw*	5.04	5.04	5.04	5.04	5.04	5.04	5.04	5.04	5.04	5.04	5.04	5.04
Sheep basic rate[g]	*EUR/head*	. .	21.00	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Male bovine premium[h]	*EUR/head*	214	0	0	0	0	0	0	0	0	0	0	0
Adult bovine slaughter premium[i]	*EUR/head*	86	0	0	0	0	0	0	0	0	0	0	0
Calf slaughter premium	*EUR/head*	40	0	0	0	0	0	0	0	0	0	0	0
Suckler cow premium	*EUR/head*	189	0	0	0	0	0	0	0	0	0	0	0
Beef tariff-quota	*kt pw*	216	216	216	216	216	216	216	216	216	216	216	216
Pig meat tariff-quota	*kt pw*	167	167	167	167	167	167	167	167	167	167	167	167
Poultry meat tariff-quota	*kt pw*	96	96	96	96	96	96	96	96	96	96	96	96
Sheep meat tariff-quota	*kt cwe*	285	285	285	285	285	285	285	285	285	285	285	285
Subsidised export limits[d]													
beef[j]	*kt cwe*	990	990	990	990	990	990	990	990	990	990	990	990
pig meat[j]	*kt cwe*	588	588	588	588	588	588	588	588	588	588	588	588
poultry meat	*kt cwe*	431	431	431	431	431	431	431	431	431	431	431	431
JAPAN[k]													
Beef stabilisation prices													
upper price	*JPY/kg dw*	1 012	1 010	1 010	1 010	1 010	1 010	1 010	1 010	1 010	1 010	1 010	1 010
lower price	*JPY/kg dw*	781	780	780	780	780	780	780	780	780	780	780	780
Beef tariff	%	39	39	39	39	39	39	39	39	39	39	39	39
Pig meat stabilisation prices													
upper price	*JPY/kg dw*	481	480	480	480	480	480	480	480	480	480	480	480
lower price	*JPY/kg dw*	365	365	365	365	365	365	365	365	365	365	365	365
Pig meat import system[l]													
tariff	%	4	4	4	4	4	4	4	4	4	4	4	4
standard import price	*JPY/kg dw*	410	410	410	410	410	410	410	410	410	410	410	410
Poultry meat tariff	%	7	7	7	7	7	7	7	7	7	7	7	7
KOREA													
Beef tariff	%	41	40	40	40	40	40	40	40	40	40	40	40
Beef mark-up	%	0	0	0	0	0	0	0	0	0	0	0	0
Pig meat tariff	%	24	22	22	22	22	22	22	22	22	22	22	22
Poultry meat tariff	%	22	21	21	21	21	21	21	21	21	21	21	21
MEXICO													
Pig meat tariff	%	46	45	45	45	45	45	45	45	45	45	45	45
Pig meat NAFTA tariff	%	2	0	0	0	0	0	0	0	0	0	0	0
Poultry meat tariff-quota	*kt pw*	41	41	41	41	41	41	41	41	41	41	41	41
in-quota tariff	%	50	50	50	50	50	50	50	50	50	50	50	50
out-of-quota tariff	%	233	228	228	228	228	228	228	228	228	228	228	228

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.14. **Main policy assumptions for meat markets** *(cont.)*

		Average 2000-04	2005 est.	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
RUSSIA													
Beef tariff-quota	*kt pw*	458	458	458	458	458	458	458	458	458	458	458	458
in-quota tariff	%	15	15	15	15	15	15	15	15	15	15	15	15
out-of-quota tariff	%	60	60	60	60	60	60	60	60	60	60	60	60
Pigmeat tariff-quota	*kt pw*	. .	476	476	476	476	476	476	476	476	476	476	476
in-quota tariff	%	15	15	15	15	15	15	15	15	15	15	15	15
out-of-quota tariff	%	80	80	80	80	80	80	80	80	80	80	80	80
Poultry meat tariff-quota	*kt pw*	1 050	1 050	1 050	1 050	1 050	1 050	1 050	1 050	1 050	1 050	1 050	1 050
in-quota tariff	%	25	25	25	25	25	25	25	25	25	25	25	25
UNITED STATES													
Beef tariff-quota	*kt pw*	657	657	657	657	657	657	657	657	657	657	657	657
in-quota tariff	%	5	5	5	5	5	5	5	5	5	5	5	5
out-of-quota tariff	%	26	26	26	26	26	26	26	26	26	26	26	26
CHINA													
Beef tariff	%	29	16	16	16	16	16	16	16	16	16	16	16
Pig meat tariff	%	18	16	16	16	16	16	16	16	16	16	16	16
Sheep meat tariff	%	19	15	15	15	15	15	15	15	15	15	15	15
Poultry meat tariff	%	20	19	19	19	19	19	19	19	19	19	19	19
INDIA													
Beef tariff	%	108	100	100	100	100	100	100	100	100	100	100	100
Pig meat tariff	%	108	100	100	100	100	100	100	100	100	100	100	100
Sheep meat tariff	%	99	92	92	92	92	92	92	92	92	92	92	92
Poultry meat tariff	%	98	87	87	87	87	87	87	87	87	87	87	87
Eggs tariff	%	150	150	150	150	150	150	150	150	150	150	150	150
SOUTH AFRICA													
Sheepmeat tariff-quota	*kt pw*	6	6	6	6	6	6	6	6	6	6	6	6
in-quota tariff	%	20	20	20	20	20	20	20	20	20	20	20	20
out-of-quota tariff	%	120	96	96	96	96	96	96	96	96	96	96	96

a) Prices and payments in market Euro's – see Glossary of Terms.
b) EU farmers also benefit from the Single Farm Payment (SFP) Scheme, which provides flat-rate payments independent from current production decisions and market developments. The total amount spent under the SFP scheme, before modulation, is assumed to increase from 26.9 billion euro in 2005 to 28.4 billion euro in 2008 for the total of the 15 former member States. The final number is equivalent to 233 euro per hectare of eligible farm land on average. For the accession countries, payments are phased in with the assumption of maximum top-ups from national budgets. Due to modulation, between 2.7% and 4.6% of the total SFP will go to rural development spending rather than directly to the farmers.
c) Price for R3 grade male cattle.
d) Year beginning 1 July, except for E10 which is calendar year. Poland has a commitment on export subsidies on unspecified meat.
e) Ending 1 July 2002, replaced by basic price for storage.
f) Starting 1 July 2002.
g) A supplementary payment of 7 euro per head is provided for Less Favoured Areas.
h) Weighted average of all bull and steers payments.
i) Includes national envelopes for beef.
j) Includes live trade.
k) Year beginning 1 April.
l) Pig carcass imports. Emergency import procedures triggered from November 1995 to March 1996, from July 1996 to June 1997, from August 2001 to March 2002, from August 2002 to March 2003 and from August 2003 to March 2004.

Note: The source for tariffs and Tariff Rate Quotas (excluding Russia) is AMAD (Agricultural market access database). The tariff and TRQ data are based on Most Favoured Nation rates scheduled with the WTO and exclude those under preferential or regional agreements, which may be substantially different. Tariffs are simple averages of several product lines. Specific rates are converted to *ad valorem* rates using world prices in the Outlook. Import quotas are based on global commitments scheduled in the WTO rather than those allocated to preferential partners under regional or other agreements. For Mexico, the NAFTA in-quota tariff on poultry meat is zero and the tariff-rate quota is unlimited from 2003.
est.: Estimate.
Source: OECD and FAO Secretariats.

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Table A.15. **World meat projections**

Calendar year		Average 2000-04	2005 est.	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
OECD[a]													
BEEF AND VEAL[b]													
Production	*kt cwe*	26 473	26 119	27 142	27 397	27 462	27 564	27 696	27 781	27 824	27 797	27 864	27 924
Consumption	*kt cwe*	26 202	26 260	27 161	27 365	27 450	27 594	27 844	28 017	28 114	28 183	28 262	28 369
Ending stocks	*kt cwe*	904	686	682	568	557	556	535	524	523	522	521	520
Per capita consumption	*kg rwt*	15.8	15.6	16.0	16.0	16.0	16.0	16.0	16.1	16.0	16.0	16.0	16.0
Price, Australia[c]	*AUD/100 kg dw*	279	322	264	250	238	239	239	240	243	253	267	277
Price, EU[d]	*EUR/100 kg dw*	242	247	245	247	251	254	256	260	261	262	262	262
Price, USA[e]	*USD/100 kg dw*	269	310	275	264	267	263	260	258	259	267	280	288
Price, Argentina[a]	*ARS/100 kg dw*	257	397	390	397	415	430	458	477	478	474	480	486
PIG MEAT[g]													
Production	*kt cwe*	35 843	36 739	37 300	37 614	38 032	38 240	38 410	38 724	38 948	39 230	39 649	39 917
Consumption	*kt cwe*	34 798	35 215	35 720	36 051	36 349	36 547	36 727	36 999	37 289	37 560	37 855	38 163
Ending stocks	*kt cwe*	797	813	777	736	721	683	663	666	667	654	646	640
Per capita consumption	*kg rwt*	23.4	23.2	23.4	23.5	23.6	23.6	23.6	23.6	23.7	23.8	23.9	23.9
Price, EU[h]	*EUR/100 kg dw*	134	134	137	140	145	148	150	147	145	149	153	155
Price, USA[i]	*USD/100 kg dw*	133	153	138	140	142	145	151	148	144	146	149	151
POULTRY MEAT													
Production	*kt rtc*	34 426	36 687	37 396	38 277	39 018	39 635	40 258	40 877	41 440	42 078	42 563	43 123
Consumption	*kt rtc*	32 468	34 497	35 062	35 996	36 611	37 233	37 866	38 571	39 203	39 888	40 476	41 129
Stock changes	*kt rtc*	–4	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Per capita consumption	*kg rwt*	24.6	25.7	25.9	26.5	26.8	27.1	27.4	27.8	28.1	28.5	28.8	29.1
Price, EU[j]	*EUR/100 kg rtc*	102	104	102	103	105	107	107	108	108	108	109	110
Price, USA[k]	*USD/100 kg rtc*	135	158	148	146	144	145	147	150	149	148	151	151
SHEEP MEAT													
Production	*kt cwe*	2 749	2 653	2 647	2 653	2 660	2 669	2 677	2 678	2 689	2 701	2 714	2 731
Consumption	*kt cwe*	2 405	2 333	2 336	2 342	2 351	2 359	2 369	2 374	2 382	2 390	2 399	2 407
Stock changes	*kt cwe*	10	23	23	23	23	24	24	24	25	25	25	26
Per capita consumption	*kg rwt*	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Price, Australia[l]	*AUD/100 kg dw*	295	351	339	328	316	306	295	284	274	264	254	244
Price, Australia[m]	*AUD/100 kg dw*	153	182	177	173	169	165	161	157	154	150	147	143
Price, New Zealand[n]	*NZD/100 kg dw*	373	389	373	370	378	387	394	401	401	402	403	403
TOTAL MEAT													
Per capita consumption	*kg rwt*	65.7	66.2	67.1	67.7	68.1	68.4	68.8	69.2	69.6	70.0	70.3	70.7

For notes, see end of the table.

Source: OECD and FAO Secretariats.

Table A.15. **World meat projections** *(cont.)*

Calendar year		Average 2000-04	2005 est.	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Non-OECD													
BEEF AND VEAL													
Production[o]	*kt cwe*	34 036	37 850	38 451	39 592	40 854	41 995	43 324	44 795	45 974	47 060	48 300	49 565
Consumption	*kt cwe*	33 945	37 042	37 767	39 069	40 198	41 282	42 503	43 876	44 995	45 988	47 218	48 440
Per capita consumption	*kg rwt*	4.9	5.2	5.2	5.3	5.4	5.5	5.6	5.7	5.7	5.8	5.9	6.0
Stock changes	*kt cwe*	–26	4	1	1	1	1	1	1	1	1	1	1
PIG MEAT													
Production[o]	*kt cwe*	58 915	65 449	68 072	70 613	71 625	74 095	74 725	76 564	78 602	80 153	81 670	83 057
Consumption	*kt cwe*	59 866	66 392	69 195	71 705	72 797	75 297	75 896	77 770	79 742	81 310	82 934	84 270
Per capita consumption	*kg rwt*	9.6	10.3	10.6	10.8	10.9	11.1	11.1	11.2	11.4	11.4	11.5	11.6
Stock changes	*kt cwe*	–14	3	0	0	0	0	0	0	0	0	0	0
POULTRY MEAT													
Production	*kt rtc*	39 461	44 733	46 425	48 101	49 299	50 725	52 276	53 841	55 359	56 900	58 511	60 113
Consumption	*kt rtc*	41 475	46 163	48 156	49 754	51 078	52 498	54 037	55 516	56 964	58 459	59 965	61 474
Per capita consumption	*kg rwt*	7.5	8.1	8.3	8.5	8.6	8.7	8.9	9.0	9.1	9.3	9.4	9.5
Stock changes	*kt rtc*	42	–83	–13	0	0	0	0	0	0	0	0	0
SHEEP MEAT													
Production[p]	*kt cwe*	8 180	8 836	9 030	9 268	9 498	9 718	9 925	10 133	10 337	10 545	10 759	10 981
Consumption[p]	*kt cwe*	8 487	9 151	9 362	9 605	9 862	10 131	10 415	10 680	10 954	11 227	11 509	11 784
Per capita consumption[p]	*kg rwt*	1.5	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8
Stock changes	*kt cwe*	–1	0	0	0	0	0	0	0	0	0	0	0
TOTAL MEAT													
Per capita consumption	*kg rwt*	23.6	25.1	25.7	26.3	26.5	27.0	27.2	27.6	28.0	28.3	28.6	28.9

a) Excludes Iceland but includes the 6 EU members that are not members of the OECD. Carcass weight to retail weight conversion factors of 0.7 for beef and veal, 0.78 for pig meat and 0.88 for sheep meat. Rtc to retail weight conversion factor 0.88 for poultry meat.
b) Do not balance due to statistical differences in New Zealand.
c) Weighted average price of cows 201-260 kg, steers 301-400 kg, yearling < 200 kg dw.
d) Producer price.
e) Choice steers, 1 100-1 300 lb lw, Nebraska – lw to dw conversion factor 0.63.
f) Buenos Aires wholesale price linier, young bulls.
g) Do not balance due to consumption in Canada which excludes non-food parts.
h) Pig producer price.
i) Barrows and gilts, No. 1-3, 230-250 lb lw, Iowa/South Minnesota – lw to dw conversion factor 0.74.
j) Weighted average farmgate live fowls, top quality, (lw to rtc conversion of 0.75), EU15 starting in 1995.
k) Wholesale weighted average broiler price 12 cities.
l) Saleyard price, lamb, 16-20 kg dw.
m) Saleyard price, wethers, < 22 kg dw.
n) Lamb schedule price, all grade average.
o) Includes trade of live animals.
p) Excludes Argentina, Brazil and Russia.
est.: Estimate.
Source: OECD and FAO Secretariats.

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Table A.16. **Beef and veal projections**

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)[d]		Growth (%)[b]		EXPORTS (kt)[d]		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**62 961**	**77 835**	**1.47**	**1.86**	**6 981**	**9 240**	**1.58**	**1.99**	**7 843**	**10 257**	**2.39**	**1.80**
DEVELOPED	**29 460**	**31 104**	**–0.52**	**0.31**	**4 342**	**5 209**	**–0.08**	**1.43**	**4 049**	**4 548**	**–5.46**	**0.14**
NORTH AMERICA	**12 689**	**14 854**	**–0.07**	**1.06**	**2 110**	**2 027**	**2.02**	**–1.04**	**1 232**	**2 342**	**–5.25**	**4.22**
Canada	1 521	1 967	0.84	0.69	173	91	–7.24	–2.04	666	962	–0.81	0.35
United States	11 168	12 888	–0.21	1.12	1 937	1 936	3.01	–0.99	566	1 380	–11.73	8.57
WESTERN EUROPE	**8 237**	**7 826**	**–0.96**	**–0.72**	**515**	**754**	**7.01**	**3.97**	**432**	**208**	**–13.89**	**–7.57**
EU25	8 015	7 623	–0.95	–0.71	497	731	6.99	4.12	429	202	–14.06	–7.73
Norway	83	73	–1.02	–1.34	5	7	n.a.	0.00	1	2	n.a.	0.00
Switzerland	135	125	–1.78	–0.93	13	15	3.94	0.00	2	3	40.60	0.00
Other Western Europe	*4*	*5*	*1.45*	*3.56*	*0*	*0*	*33.75*	*n.a.*	*0*	*1*	*n.a.*	*n.a.*
EASTERN EUROPE	**500**	**532**	**–1.10**	**0.79**	**147**	**246**	**6.27**	**2.17**	**44**	**46**	**1.47**	**0.79**
Other Eastern Europe	*500*	*532*	*–1.10*	*0.79*	*147*	*246*	*6.27*	*2.17*	*44*	*46*	*1.47*	*0.79*
CIS	**3 925**	**4 017**	**–2.65**	**1.05**	**776**	**864**	**–1.64**	**2.12**	**176**	**91**	**–6.01**	**–3.96**
Russian Federation	1 898	2 018	–3.28	2.15	702	761	0.50	2.59	9	9	–4.26	0.00
Ukraine	651	513	–5.27	–1.10	4	12	2.23	5.41	98	5	–11.17	–22.00
Other CIS	*1 375*	*1 485*	*–0.18*	*0.46*	*70*	*91*	*–12.93*	*–1.21*	*69*	*77*	*2.01*	*0.46*
OCEANIA DEVELOPED	**2 997**	**2 771**	**1.70**	**–1.44**	**12**	**9**	**1.23**	**–1.10**	**2 157**	**1 858**	**2.62**	**–2.30**
Australia	2 322	2 105	2.00	–1.68	5	6	–4.47	0.00	1 583	1 331	2.87	–2.53
New Zealand	675	666	0.73	–0.62	8	3	3.94	–2.67	574	527	1.94	–1.68
OTHER DEVELOPED	**1 111**	**1 104**	**1.35**	**0.07**	**783**	**1 309**	**–4.23**	**4.21**	**8**	**3**	**–9.43**	**0.00**
Japan	504	517	–0.96	0.06	698	1 156	–4.43	4.39	0	0	–13.74	0.00
South Africa	607	587	3.70	0.08	85	152	–2.77	3.00	8	3	–9.20	0.00
DEVELOPING	**33 502**	**46 731**	**3.03**	**3.05**	**2 638**	**4 031**	**3.96**	**2.76**	**3 794**	**5 709**	**11.35**	**3.32**
AFRICA	**3 835**	**4 996**	**2.12**	**2.41**	**511**	**796**	**4.01**	**2.65**	**131**	**138**	**–5.95**	**0.74**
NORTH AFRICA	**861**	**1 120**	**1.93**	**2.27**	**272**	**370**	**2.85**	**2.10**	**1**	**1**	**4.57**	**2.13**
Algeria	124	192	2.75	3.74	93	115	19.67	1.72	0	0	n.a.	3.74
Egypt	520	688	0.88	2.37	157	222	1.03	2.84	1	1	6.88	2.37
Other North Africa	*217*	*240*	*4.12*	*0.94*	*22*	*33*	*–14.77*	*–0.53*	*0*	*0*	*0.16*	*0.94*
SUB-SAHARAN AFRICA	**2 974**	**3 875**	**2.18**	**2.45**	**239**	**426**	**5.47**	**3.18**	**130**	**137**	**–6.01**	**0.73**
Ghana	15	14	–0.63	–0.06	13	25	5.31	5.18	0	0	n.a.	0.00
Mozambique	38	40	0.59	0.06	2	3	–0.83	–2.37	0	0	n.a.	n.a.
Nigeria	235	286	–0.59	1.85	50	64	1.16	2.31	0	0	n.a.	n.a.
Tanzania	248	315	3.40	2.10	0	17	8.09	35.46	0	0	n.a.	–3.80
Zambia	41	48	0.02	1.07	0	2	–5.86	10.78	0	0	n.a.	n.a.
Other Sub-Saharan Africa	*2 397*	*3 173*	*2.45*	*2.61*	*175*	*316*	*7.20*	*2.83*	*129*	*137*	*–6.02*	*0.75*
LATIN AMERICA and CARIBBEAN	**15 841**	**21 193**	**2.77**	**2.63**	**601**	**957**	**1.41**	**3.03**	**3 157**	**4 777**	**13.91**	**3.02**
Argentina	2 906	3 232	1.06	0.54	7	7	–6.90	0.00	592	963	3.98	3.22
Brazil	8 268	12 380	4.69	3.74	60	60	–13.52	–0.13	1 758	2 763	27.16	3.26
Chile	204	235	–3.21	1.19	166	225	8.34	2.89	11	13	53.44	1.19
Colombia	686	737	–1.28	0.75	2	10	–17.81	9.05	4	5	–3.42	0.86
Mexico	1 528	1 723	2.19	1.26	250	499	5.89	4.44	288	303	10.46	0.63
Paraguay	217	253	–0.43	1.23	0	0	–46.06	–2.50	92	146	11.90	5.14
Uruguay	496	675	1.01	2.19	1	1	15.39	0.83	321	475	5.25	2.80
Other Latin America	*1 536*	*1 959*	*1.51*	*2.30*	*115*	*155*	*7.87*	*0.56*	*91*	*109*	*4.73*	*1.59*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.16. **Beef and veal projections** *(cont.)*

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)[d]		Growth (%)[b]		EXPORTS (kt)[d]		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**13 825**	**20 541**	**3.61**	**3.67**	**1 526**	**2 277**	**5.13**	**2.70**	**506**	**794**	**6.88**	**5.96**
Bangladesh	184	237	1.72	2.59	0	5	24.60	5.99	0	0	n.a.	n.a.
China[c]	6 766	11 712	7.03	5.01	8	16	5.32	9.31	60	75	–6.51	0.00
India	3 006	3 718	1.25	1.99	0	0	n.a.	n.a.	370	628	12.24	7.79
Indonesia	373	444	2.07	1.32	71	102	–2.85	3.18	0	0	–3.88	–1.58
Iran, Islamic Republic of	333	427	0.34	2.10	71	125	0.82	4.37	0	0	n.a.	0.00
Korea	189	262	–6.75	2.67	265	393	5.78	5.05	0	0	n.a.	n.a.
Malaysia	15	22	4.52	3.79	156	201	6.15	1.51	2	3	0.80	3.79
Pakistan	986	1 305	2.52	2.63	0	16	–9.73	47.84	6	9	63.49	11.16
Philippines	243	311	7.27	2.47	141	188	2.13	2.60	0	0	32.20	2.47
Saudi Arabia	19	19	0.37	0.21	107	192	10.15	3.92	1	1	–10.66	0.21
Thailand	183	193	–5.96	1.53	61	77	34.80	–0.02	5	2	–2.55	–5.97
Turkey	289	322	–1.83	1.26	0	3	–19.11	–0.05	0	4	–0.66	27.48
Vietnam	219	257	3.77	1.09	0	0	6.01	n.a.	0	0	n.a.	n.a.
Other Asia Pacific	*1 021*	*1 311*	*1.95*	*2.49*	*645*	*958*	*5.88*	*1.71*	*61*	*72*	*5.35*	*0.99*
LEAST DEVELOPED COUNTRIES (LDC)	**2 938**	**3 903**	**2.36**	**2.68**	**127**	**262**	**12.12**	**3.70**	**99**	**111**	**0.29**	**1.28**
DEVELOPING excluding LDC	**30 564**	**42 828**	**3.09**	**3.08**	**2 511**	**3 769**	**3.66**	**2.71**	**3 694**	**5 598**	**11.84**	**3.36**
OECD	**26 434**	**28 275**	**–0.63**	**0.29**	**3 851**	**4 841**	**–1.99**	**1.75**	**4 109**	**4 715**	**–5.04**	**0.27**
NON-OECD	**36 527**	**49 560**	**2.38**	**2.88**	**3 130**	**4 398**	**1.98**	**2.26**	**3 734**	**5 542**	**9.67**	**3.28**

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.16. **Beef and veal projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**62 230**	**76 809**	**1.36**	**1.88**	**6.82**	**7.45**	**0.13**	**0.76**
DEVELOPED	**29 864**	**31 737**	**0.30**	**0.47**	**15.73**	**16.27**	**–0.04**	**0.24**
NORTH AMERICA	***13 578***	***14 539***	***0.75***	***0.30***	***29.03***	***28.21***	***–0.25***	***–0.57***
Canada	1 025	1 096	0.41	0.74	22.45	21.89	–0.56	–0.08
United States	12 553	13 443	0.78	0.27	29.75	28.89	–0.23	–0.61
WESTERN EUROPE	**8 408**	**8 374**	**0.30**	**–0.15**	**12.52**	**12.28**	**0.01**	**–0.26**
EU25	8 172	8 152	0.34	–0.13	12.49	12.27	0.06	–0.23
Norway	87	81	–0.29	–1.04	13.25	11.69	–0.86	–1.50
Switzerland	145	137	–1.56	–0.85	14.05	13.08	–1.89	–0.95
Other Western Europe	*4*	*4*	*1.69*	*1.57*	*8.98*	*10.10*	*0.72*	*1.01*
EASTERN EUROPE	**604**	**732**	**0.27**	**1.23**	**7.88**	**9.82**	**0.46**	**1.50**
Other Eastern Europe	*604*	*732*	*0.27*	*1.23*	*7.88*	*9.82*	*0.46*	*1.50*
CIS	**4 529**	**4 790**	**–2.32**	**1.35**	**11.39**	**12.30**	**–2.09**	**1.53**
Russian Federation	2 591	2 770	–2.36	2.27	12.60	14.19	–2.00	2.75
Ukraine	562	520	–4.19	–0.18	8.37	8.70	–3.14	0.87
Other CIS	*1 376*	*1 500*	*–1.40*	*0.34*	*11.02*	*11.16*	*–1.85*	*–0.35*
OCEANIA DEVELOPED	**848**	**892**	**–0.36**	**0.14**	**24.80**	**23.51**	**–1.48**	**–0.78**
Australia	744	780	0.17	–0.04	26.11	24.54	–0.98	–1.01
New Zealand	104	112	–3.70	1.46	18.26	18.19	–4.63	0.82
OTHER DEVELOPED	**1 897**	**2 410**	**–1.03**	**2.11**	**7.58**	**9.59**	**–1.47**	**2.10**
Japan	1 213	1 673	–2.83	2.84	6.64	9.15	–3.03	2.86
South Africa	684	737	2.99	0.62	10.14	10.77	1.83	0.56
DEVELOPING	**32 366**	**45 072**	**2.40**	**2.99**	**4.48**	**5.40**	**0.88**	**1.65**
AFRICA	**4 216**	**5 654**	**2.74**	**2.48**	**3.52**	**3.71**	**0.40**	**0.28**
NORTH AFRICA	**1 132**	**1 489**	**2.29**	**2.23**	**5.22**	**5.77**	**0.58**	**0.64**
Algeria	217	307	7.48	2.94	4.69	5.64	5.90	1.43
Egypt	676	909	0.90	2.48	6.51	7.22	–1.01	0.72
Other North Africa	*239*	*273*	*2.62*	*0.73*	*3.58*	*3.52*	*1.10*	*–0.61*
SUB-SAHARAN AFRICA	**3 083**	**4 164**	**2.90**	**2.58**	**3.14**	**3.29**	**0.42**	**0.24**
Ghana	28	39	1.53	3.02	0.90	1.04	–0.67	1.16
Mozambique	40	42	0.47	–0.14	1.44	1.26	–1.65	–1.83
Nigeria	285	349	–0.30	1.93	1.55	1.52	–2.60	–0.09
Tanzania	248	331	3.40	2.55	4.61	5.09	1.28	0.78
Zambia	41	49	0.01	1.25	2.52	2.49	–1.91	–0.47
Other Sub-Saharan Africa	*2 442*	*3 353*	*3.40*	*2.71*	*3.65*	*3.81*	*0.80*	*0.19*
LATIN AMERICA and CARIBBEAN	**13 284**	**17 373**	**1.01**	**2.54**	**16.81**	**19.20**	**–0.47**	**1.32**
Argentina	2 321	2 276	0.30	–0.43	42.33	37.33	–0.73	–1.38
Brazil	6 571	9 677	1.66	3.85	25.01	32.35	0.21	2.67
Chile	358	447	0.31	2.00	15.54	17.47	–0.88	1.04
Colombia	684	741	–1.28	0.80	10.65	9.96	–2.91	–0.51
Mexico	1 491	1 919	1.56	2.12	9.88	11.27	0.12	1.05
Paraguay	125	107	–6.67	–2.50	14.54	9.81	–8.90	–4.53
Uruguay	176	201	–3.89	0.83	35.87	38.27	–4.60	0.24
Other Latin America	*1 559*	*2 004*	*1.75*	*2.20*	*7.05*	*7.75*	*0.11*	*0.77*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.16. **Beef and veal projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**14 866**	**22 046**	**3.70**	**3.50**	**2.84**	**3.72**	**2.33**	**2.36**
Bangladesh	184	243	1.72	2.64	0.93	1.01	–0.25	0.92
China[c]	6 714	11 653	7.26	5.06	3.66	5.96	6.47	4.46
India	2 636	3 090	0.25	1.14	1.70	1.72	–1.37	–0.18
Indonesia	444	546	0.86	1.65	1.41	1.55	–0.43	0.63
Iran, Islamic Republic of	404	552	0.60	2.58	4.10	4.83	–0.42	1.12
Korea	467	654	–0.28	4.27	6.87	9.33	–0.85	4.01
Malaysia	168	220	6.01	1.69	4.73	5.20	3.76	0.17
Pakistan	980	1 332	2.43	2.82	4.43	4.82	0.19	0.75
Philippines	384	499	5.11	2.52	3.29	3.61	3.11	0.97
Saudi Arabia	125	210	8.65	3.54	3.64	4.77	5.69	1.25
Thailand	239	268	–2.43	1.15	2.62	2.72	–3.35	0.43
Turkey	298	322	–2.36	1.07	2.88	2.73	–3.84	–0.14
Vietnam	219	259	3.77	1.17	1.85	1.91	2.34	–0.03
Other Asia Pacific	*1 604*	*2 198*	*3.32*	*2.19*	*3.62*	*4.10*	*1.26*	*0.49*
LEAST DEVELOPED COUNTRIES (LDC)	**2 966**	**4 053**	**2.74**	**2.78**	**2.80**	**2.99**	**0.30**	**0.50**
DEVELOPING excluding LDC	**29 400**	**41 019**	**2.37**	**3.01**	**4.77**	**5.86**	**0.99**	**1.85**
OECD	**26 304**	**28 374**	**–0.06**	**0.49**	**15.67**	**15.97**	**–0.71**	**0.00**
NON-OECD	**35 926**	**48 435**	**1.78**	**2.78**	**4.83**	**5.68**	**0.37**	**1.53**

a) For EU25, World, Developed, OECD and Western Europe growth rate refers to 1999-2005.
b) Least-squares growth rate (see glossary).
c) Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Other Asia Pacific aggregate.
d) Excludes trade of live animals.
est.: Estimate.
n.a.: Not available.

Source: OECD and FAO Secretariats.

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Table A.17. **Pig meat projections**

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)[d]		Growth (%)[b]		EXPORTS (kt)[d]		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**99 867**	**122 980**	**2.48**	**1.69**	**4 953**	**6 645**	**7.90**	**2.41**	**5 061**	**6 905**	**9.03**	**2.30**
DEVELOPED	**38 921**	**42 082**	**0.67**	**0.63**	**3 266**	**4 173**	**8.39**	**2.11**	**3 920**	**5 044**	**6.32**	**1.55**
NORTH AMERICA	**11 238**	**13 089**	**2.63**	**1.05**	**935**	**1 151**	**7.62**	**3.59**	**2 371**	**3 441**	**11.42**	**2.47**
Canada	2 311	3 273	6.38	2.83	98	125	9.83	2.00	1 365	2 077	11.97	3.49
United States	8 927	9 816	1.82	0.52	837	1 026	7.39	3.82	1 005	1 364	10.66	1.08
WESTERN EUROPE	**21 555**	**22 795**	**0.13**	**0.55**	**35**	**53**	**–1.57**	**5.10**	**1 396**	**1 403**	**–0.71**	**–0.08**
EU25	21 213	22 455	0.14	0.56	17	33	–3.77	9.26	1 394	1 401	–0.63	–0.08
Norway	105	104	0.10	0.00	2	2	1.79	0.00	2	2	–0.78	0.00
Switzerland	231	228	0.63	0.00	16	17	–2.43	0.00	0	0	n.a.	n.a.
Other Western Europe	*6*	*7*	*6.87*	*1.01*	*0*	*1*	*n.a.*	*25.97*	*0*	*0*	*n.a.*	*n.a.*
EASTERN EUROPE	**1 402**	**1 332**	**–2.01**	**–0.85**	**260**	**471**	**17.28**	**5.78**	**8**	**7**	**–22.52**	**–0.85**
Other Eastern Europe	*1 402*	*1 332*	*–2.01*	*–0.85*	*260*	*471*	*17.28*	*5.78*	*8*	*7*	*–22.52*	*–0.85*
CIS	**2 882**	**3 168**	**0.01**	**0.83**	**672**	**832**	**1.08**	**0.65**	**68**	**73**	**4.67**	**0.48**
Russian Federation	1 684	2 030	0.71	1.32	545	555	–1.02	–0.61	10	11	3.48	1.23
Ukraine	562	439	–3.93	–1.02	49	162	14.82	6.36	15	12	–2.99	–1.02
Other CIS	*636*	*699*	*2.39*	*0.70*	*78*	*116*	*20.77*	*1.32*	*43*	*50*	*8.52*	*0.70*
OCEANIA DEVELOPED	**451**	**457**	**1.80**	**0.69**	**153**	**260**	**25.73**	**0.41**	**77**	**116**	**23.77**	**–1.85**
Australia	400	396	1.99	0.63	127	221	30.02	0.05	77	112	23.86	–2.27
New Zealand	51	61	0.39	1.09	26	38	13.95	2.78	0	5	n.a.	n.a.
OTHER DEVELOPED	**1 393**	**1 242**	**–0.16**	**–0.99**	**1 211**	**1 406**	**5.85**	**1.21**	**1**	**3**	**–22.87**	**34.93**
Japan	1 259	1 110	–0.26	–1.03	1 186	1 359	5.71	1.11	0	3	5.71	34.93
South Africa	134	131	0.90	–0.70	24	47	15.19	4.59	1	0	n.a.	n.a.
DEVELOPING	**60 947**	**80 898**	**4.13**	**2.29**	**1 687**	**2 472**	**10.72**	**2.95**	**1 141**	**1 861**	**10.73**	**4.59**
AFRICA	**651**	**847**	**2.73**	**2.15**	**59**	**98**	**6.08**	**2.81**	**6**	**9**	**2.58**	**0.75**
NORTH AFRICA	**4**	**5**	**0.31**	**2.55**	**1**	**0**	**3.29**	**2.22**	**0**	**0**	**–12.33**	**3.20**
Algeria	0	0	0.00	0.00	0	0	25.06	0.00	0	0	n.a.	n.a.
Egypt	3	4	0.91	3.20	0	0	n.a.	3.37	0	0	n.a.	3.20
Other North Africa	*1*	*1*	*–1.83*	*0.00*	*0*	*0*	*–3.37*	*0.00*	*0*	*0*	*n.a.*	*n.a.*
SUB-SAHARAN AFRICA	**647**	**842**	**2.75**	**2.15**	**58**	**97**	**6.37**	**2.81**	**6**	**9**	**2.62**	**0.75**
Ghana	11	11	0.73	0.00	6	13	4.15	6.47	0	0	n.a.	n.a.
Mozambique	13	17	0.36	1.96	1	1	26.08	4.83	0	0	n.a.	n.a.
Nigeria	208	234	5.92	1.04	0	2	n.a.	–14.94	0	0	n.a.	n.a.
Tanzania	13	14	2.88	0.00	0	0	15.14	0.00	0	0	n.a.	n.a.
Zambia	11	16	0.97	3.22	0	0	–14.64	n.a.	0	1	n.a.	23.92
Other Sub-Saharan Africa	*391*	*551*	*1.51*	*2.75*	*51*	*81*	*8.09*	*2.91*	*6*	*8*	*2.64*	*0.07*
LATIN AMERICA and CARIBBEAN	**5 371**	**7 559**	**5.06**	**3.16**	**471**	**580**	**13.65**	**2.17**	**628**	**1 169**	**27.65**	**6.58**
Argentina	181	440	0.25	7.87	37	5	–8.84	–10.53	–17	64	n.a.	n.a.
Brazil	2 703	3 864	8.06	3.43	1	2	–8.18	0.41	523	806	31.00	4.79
Chile	383	617	9.31	3.96	1	1	–7.60	2.81	88	208	43.32	6.72
Colombia	119	127	1.63	0.87	3	7	–7.75	2.42	0	0	–21.61	0.87
Mexico	1 029	1 235	1.68	1.61	332	438	25.64	2.78	29	71	6.39	7.04
Paraguay	133	192	1.01	2.73	0	0	–7.45	0.00	0	0	n.a.	n.a.
Uruguay	16	22	–4.53	2.90	10	10	10.34	–1.86	0	0	–16.96	2.90
Other Latin America	*806*	*1 062*	*2.35*	*2.52*	*86*	*116*	*10.27*	*1.69*	*6*	*20*	*5.72*	*16.40*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.17. **Pig meat projections** *(cont.)*

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)[d]		Growth (%)[b]		EXPORTS (kt)[d]		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**54 925**	**72 492**	**4.06**	**2.20**	**1 158**	**1 795**	**10.08**	**3.22**	**507**	**683**	**2.18**	**1.87**
Bangladesh	0	0	n.a.	n.a.	0	0	n.a.	n.a.	0	0	n.a.	n.a.
China[c]	47 036	62 893	4.23	2.30	118	235	51.64	4.15	355	493	15.68	2.04
India	495	582	0.38	0.90	1	0	8.71	n.a.	1	17	n.a.	12.40
Indonesia	578	636	–0.97	0.51	4	5	23.07	2.40	25	19	11.28	–3.82
Iran, Islamic Republic of	0	0	n.a.	n.a.	0	0	n.a.	n.a.	0	0	n.a.	n.a.
Korea	1 107	1 245	2.57	1.48	216	331	16.47	1.88	26	40	–14.03	4.66
Malaysia	204	250	–5.75	1.81	36	63	28.69	2.96	1	1	–44.26	3.51
Pakistan	0	0	n.a.	n.a.	0	0	n.a.	n.a.	0	0	n.a.	n.a.
Philippines	1 349	1 547	6.05	1.58	43	59	19.99	0.84	0	0	12.72	2.47
Saudi Arabia	0	0	n.a.	n.a.	0	0	n.a.	n.a.	0	0	n.a.	n.a.
Thailand	657	796	4.23	1.75	0	0	–12.12	2.07	16	17	27.91	2.62
Turkey	0	0	–6.07	0.70	1	2	15.61	1.46	1	2	8.75	1.40
Vietnam	2 004	2 602	8.33	1.76	0	0	n.a.	n.a.	12	3	6.62	–7.46
Other Asia Pacific	*1 496*	*1 941*	*0.21*	*2.07*	*739*	*1 098*	*6.30*	*3.63*	*70*	*89*	*–6.27*	*1.73*
LEAST DEVELOPED COUNTRIES (LDC)	**663**	**912**	**2.03**	**2.73**	**43**	**94**	**16.82**	**5.67**	**1**	**1**	**0.35**	**2.75**
DEVELOPING excluding LDC	**60 283**	**79 986**	**4.15**	**2.28**	**1 645**	**2 378**	**10.59**	**2.86**	**1 141**	**1 859**	**10.74**	**4.60**
OECD	**36 639**	**39 930**	**0.80**	**0.73**	**2 859**	**3 595**	**7.70**	**2.10**	**3 899**	**5 077**	**5.85**	**1.65**
NON-OECD	**63 228**	**83 050**	**3.80**	**2.19**	**2 094**	**3 050**	**5.83**	**2.79**	**1 161**	**1 827**	**10.94**	**4.29**

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.17. **Pig meat projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**99 586**	**122 434**	**2.43**	**1.69**	**12.17**	**13.24**	**1.19**	**0.58**
DEVELOPED	**38 106**	**40 926**	**0.68**	**0.65**	**22.37**	**23.38**	**0.33**	**0.41**
NORTH AMERICA	***9 602***	***10 514***	***1.45***	***0.83***	***22.88***	***22.73***	***0.44***	***–0.04***
Canada	844	1 034	0.83	1.65	20.59	23.01	–0.14	0.83
United States	8 758	9 479	1.51	0.75	23.13	22.70	0.50	–0.13
WESTERN EUROPE	**20 269**	**21 445**	**0.26**	**0.60**	**33.62**	**35.03**	**–0.04**	**0.49**
EU25	19 911	21 088	0.25	0.61	33.90	35.37	–0.04	0.50
Norway	105	104	0.24	0.00	17.80	16.76	–0.34	–0.46
Switzerland	247	245	0.42	0.00	26.60	26.06	0.08	–0.10
Other Western Europe	*6*	*8*	*6.83*	*2.08*	*16.47*	*20.31*	*5.81*	*1.51*
EASTERN EUROPE	**1 654**	**1 796**	**0.09**	**0.54**	**24.03**	**26.85**	**0.28**	**0.81**
Other Eastern Europe	*1 654*	*1 796*	*0.09*	*0.54*	*24.03*	*26.85*	*0.28*	*0.81*
CIS	**3 486**	**3 928**	**0.11**	**0.79**	**9.77**	**11.24**	**0.35**	**0.97**
Russian Federation	2 219	2 574	0.17	0.86	12.03	14.69	0.54	1.32
Ukraine	596	589	–2.92	0.54	9.89	10.98	–1.86	1.59
Other CIS	*671*	*765*	*3.27*	*0.79*	*5.99*	*6.34*	*2.80*	*0.09*
OCEANIA DEVELOPED	**528**	**600**	**3.52**	**1.13**	**17.20**	**17.63**	**2.37**	**0.20**
Australia	450	506	3.52	1.12	17.60	17.73	2.33	0.14
New Zealand	78	94	3.57	1.19	15.18	17.11	2.57	0.55
OTHER DEVELOPED	**2 567**	**2 644**	**2.05**	**0.01**	**11.43**	**11.73**	**1.60**	**0.01**
Japan	2 409	2 466	2.03	–0.02	14.69	15.03	1.82	0.00
South Africa	158	178	2.41	0.46	2.61	2.89	1.25	0.40
DEVELOPING	**61 480**	**81 507**	**4.17**	**2.26**	**9.48**	**10.87**	**2.62**	**0.93**
AFRICA	**704**	**936**	**2.98**	**2.23**	**0.65**	**0.68**	**0.64**	**0.03**
NORTH AFRICA	**4**	**5**	**–1.26**	**2.52**	**0.02**	**0.02**	**–2.91**	**0.93**
Algeria	0	0	8.93	0.00	0.01	0.00	7.34	–1.47
Egypt	3	4	–1.69	3.21	0.03	0.04	–3.54	1.43
Other North Africa	*1*	*1*	*–1.78*	*0.00*	*0.01*	*0.01*	*–3.23*	*–1.34*
SUB-SAHARAN AFRICA	**699**	**931**	**3.02**	**2.23**	**0.79**	**0.82**	**0.53**	**–0.10**
Ghana	17	24	1.78	2.97	0.61	0.69	–0.42	1.11
Mozambique	14	18	1.01	2.12	0.55	0.60	–1.12	0.39
Nigeria	208	235	5.59	0.88	1.26	1.14	3.16	–1.12
Tanzania	14	14	3.12	0.00	0.29	0.25	1.01	–1.72
Zambia	11	15	0.82	2.87	0.76	0.87	–1.11	1.12
Other Sub-Saharan Africa	*436*	*624*	*2.12*	*2.81*	*0.73*	*0.79*	*–0.44*	*0.29*
LATIN AMERICA and CARIBBEAN	**5 193**	**6 959**	**4.20**	**2.64**	**7.32**	**8.57**	**2.67**	**1.41**
Argentina	215	371	–1.41	5.06	4.38	6.77	–2.43	4.05
Brazil	2 182	3 060	5.56	3.08	9.25	11.40	4.05	1.91
Chile	296	411	5.66	2.81	14.33	17.88	4.40	1.85
Colombia	122	134	1.25	0.94	2.12	2.01	–0.42	–0.38
Mexico	1 332	1 602	4.51	1.71	9.83	10.49	3.02	0.64
Paraguay	133	191	0.95	2.74	17.14	19.60	–1.46	0.60
Uruguay	27	33	–0.53	1.17	6.05	6.91	–1.26	0.58
Other Latin America	*886*	*1 158*	*2.93*	*2.28*	*4.46*	*4.99*	*1.28*	*0.86*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.17. **Pig meat projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**55 584**	**73 613**	**4.19**	**2.23**	**11.83**	**13.85**	**2.81**	**1.10**
Bangladesh	0	0	n.a.	n.a.	0.01	0.01	–1.93	–1.68
China[c]	46 799	62 635	4.21	2.31	28.40	35.68	3.44	1.72
India	496	565	0.39	0.78	0.36	0.35	–1.24	–0.54
Indonesia	556	622	–1.27	0.70	1.97	1.97	–2.53	–0.31
Iran, Islamic Republic of	0	0	n.a.	n.a.	0.01	0.01	–1.02	–1.43
Korea	1 305	1 545	4.98	1.48	21.37	24.55	4.39	1.22
Malaysia	239	312	–1.32	2.02	7.47	8.23	–3.41	0.49
Pakistan	0	0	n.a.	n.a.	0.01	0.01	–2.19	–2.01
Philippines	1 392	1 606	6.29	1.55	13.30	12.94	4.26	0.02
Saudi Arabia	0	0	n.a.	n.a.	0.04	0.03	–2.72	–2.22
Thailand	641	779	3.94	1.74	7.85	8.80	2.97	1.01
Turkey	0	0	n.a.	0.00	0.01	0.00	–0.29	–1.19
Vietnam	1 992	2 598	8.33	1.72	18.68	21.33	6.85	0.51
Other Asia Pacific	*2 165*	*2 950*	*2.70*	*2.63*	*5.44*	*6.13*	*0.66*	*0.93*
LEAST DEVELOPED COUNTRIES (LDC)	**705**	**1 005**	**2.58**	**2.97**	**0.74**	**0.83**	**0.15**	**0.69**
DEVELOPING excluding LDC	**60 775**	**80 503**	**4.19**	**2.25**	**10.98**	**12.82**	**2.79**	**1.10**
OECD	**35 446**	**38 171**	**0.77**	**0.71**	**23.53**	**23.94**	**0.12**	**0.21**
NON-OECD	**64 140**	**84 262**	**3.76**	**2.17**	**9.60**	**11.01**	**2.33**	**0.92**

a) For EU25, World, Developed, OECD and Western Europe growth rate refers to 1999-2005.
b) Least-squares growth rate (see glossary).
c) Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Other Asia Pacific aggregate.
d) Excludes trade of live animals.
est.: Estimate.
n.a.: Not available.
Source: OECD and FAO Secretariats.

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Table A.18. **Poultry meat projections**

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**78 545**	**103 236**	**3.61**	**2.31**	**7 909**	**10 796**	**3.34**	**2.96**	**7 975**	**11 426**	**4.28**	**2.77**
DEVELOPED	**35 575**	**43 659**	**2.45**	**1.64**	**3 356**	**4 165**	**4.45**	**1.62**	**3 764**	**4 673**	**–0.03**	**0.77**
NORTH AMERICA	**19 077**	**23 685**	**2.72**	**1.79**	**169**	**193**	**4.57**	**1.49**	**2 617**	**3 485**	**0.50**	**1.40**
Canada	1 120	1 328	2.81	1.46	155	175	3.58	1.66	112	88	2.09	–2.36
United States	17 957	22 357	2.71	1.82	14	18	26.62	0.00	2 506	3 398	0.44	1.52
WESTERN EUROPE	**11 066**	**12 056**	**1.37**	**0.72**	**626**	**798**	**11.52**	**2.48**	**1 050**	**1 050**	**–0.38**	**–1.20**
EU25	10 954	11 937	1.33	0.72	573	743	12.40	2.69	1 050	1 048	–0.38	–1.22
Norway	47	47	5.28	0.00	0	0	–14.86	0.00	0	0	14.48	0.00
Switzerland	60	62	4.84	0.00	53	55	2.54	0.00	1	1	6.27	0.00
Other Western Europe	*6*	*10*	*15.45*	*5.13*	*0*	*0*	*11.47*	*n.a.*	*0*	*2*	*n.a.*	*n.a.*
EASTERN EUROPE	**570**	**807**	**1.20**	**3.22**	**313**	**504**	**17.53**	**3.34**	**24**	**34**	**1.67**	**3.22**
Other Eastern Europe	*570*	*807*	*1.20*	*3.22*	*313*	*504*	*17.53*	*3.34*	*24*	*34*	*1.67*	*3.22*
CIS	**1 829**	**3 808**	**8.61**	**4.49**	**1 627**	**1 711**	**1.22**	**0.25**	**33**	**52**	**5.93**	**4.40**
Russian Federation	1 280	2 941	9.62	4.48	1 125	1 050	–1.75	0.00	1	1	–21.58	–6.74
Ukraine	316	481	7.25	4.40	228	274	15.53	–1.27	12	21	44.38	4.40
Other CIS	*233*	*386*	*5.43*	*4.78*	*274*	*387*	*10.35*	*2.33*	*20*	*30*	*12.25*	*4.78*
OCEANIA DEVELOPED	**873**	**1 004**	**4.31**	**1.19**	**0**	**0**	**n.a.**	**n.a.**	**26**	**39**	**4.36**	**–0.66**
Australia	720	817	3.74	1.25	0	0	n.a.	n.a.	26	39	4.36	–0.66
New Zealand	153	187	7.37	0.90	0	0	n.a.	n.a.	0	0	n.a.	n.a.
OTHER DEVELOPED	**2 159**	**2 299**	**1.88**	**0.73**	**622**	**958**	**0.24**	**2.83**	**12**	**13**	**3.82**	**0.00**
Japan	1 251	1 119	0.25	–1.02	430	658	–2.94	3.06	1	1	–15.20	0.00
South Africa	908	1 180	4.52	2.71	192	300	13.20	2.36	11	12	8.21	0.00
DEVELOPING	**42 971**	**59 576**	**5.74**	**2.84**	**4 553**	**6 631**	**5.05**	**3.90**	**4 212**	**6 752**	**10.02**	**4.43**
AFRICA	**2 482**	**3 185**	**3.29**	**2.38**	**561**	**1 010**	**17.10**	**4.89**	**31**	**72**	**9.01**	**5.00**
NORTH AFRICA	**1 401**	**1 700**	**3.46**	**1.89**	**25**	**43**	**–2.88**	**8.10**	**9**	**27**	**23.38**	**5.14**
Algeria	240	268	1.50	1.07	8	10	6.75	9.78	0	0	n.a.	1.07
Egypt	667	800	4.44	1.73	9	21	11.64	8.28	9	10	35.35	–1.43
Other North Africa	*494*	*632*	*3.27*	*2.49*	*8*	*12*	*–14.74*	*10.74*	*0*	*16*	*–7.80*	*21.43*
SUB-SAHARAN AFRICA	**1 080**	**1 484**	**3.09**	**2.96**	**536**	**967**	**19.54**	**4.77**	**22**	**45**	**6.38**	**5.73**
Ghana	26	38	9.95	3.72	51	97	24.41	4.40	1	1	n.a.	3.72
Mozambique	34	47	1.40	2.90	10	21	20.67	4.99	0	0	n.a.	n.a.
Nigeria	210	241	3.28	1.04	6	10	13.31	1.97	0	0	n.a.	1.04
Tanzania	50	80	4.34	4.63	2	3	61.12	4.70	4	7	n.a.	4.02
Zambia	37	58	3.35	4.36	0	1	–9.40	n.a.	0	0	n.a.	n.a.
Other Sub-Saharan Africa	*723*	*1 020*	*2.85*	*3.25*	*466*	*836*	*19.10*	*4.83*	*17*	*36*	*3.66*	*6.44*
LATIN AMERICA and CARIBBEAN	**15 546**	**22 594**	**7.23**	**3.13**	**1 015**	**1 485**	**12.18**	**4.09**	**2 817**	**4 763**	**21.92**	**5.25**
Argentina	868	1 394	0.89	2.91	11	50	–22.15	11.75	100	249	31.28	2.72
Brazil	8 422	12 115	9.58	3.03	0	0	–11.90	–0.15	2 626	4 369	22.79	5.43
Chile	514	772	5.12	3.75	6	9	30.92	3.77	59	83	14.26	3.64
Colombia	687	854	5.86	2.57	41	79	5.58	3.43	5	6	19.27	2.57
Mexico	2 274	3 149	6.91	2.69	458	649	15.82	3.97	1	14	–22.28	34.70
Paraguay	36	51	1.45	2.89	4	3	–2.96	2.56	0	0	n.a.	2.89
Uruguay	55	66	2.22	1.83	1	1	10.44	5.28	0	2	n.a.	47.74
Other Latin America	*2 690*	*4 192*	*4.66*	*3.87*	*494*	*694*	*12.85*	*3.91*	*26*	*40*	*–4.58*	*3.81*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.18. **Poultry meat projections**

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**24 943**	**33 798**	**5.13**	**2.70**	**2 977**	**4 137**	**2.07**	**3.61**	**1 364**	**1 918**	**–1.46**	**2.63**
Bangladesh	113	187	–0.12	4.62	3	2	0.49	–9.84	0	0	n.a.	–72.96
China[c]	13 483	16 314	5.46	1.54	491	989	–6.09	10.60	409	469	–2.36	1.37
India	1 792	3 227	13.90	4.90	0	15	n.a.	n.a.	13	10	15.31	–11.42
Indonesia	1 035	1 535	3.63	4.43	3	7	–5.69	4.46	2	1	–15.51	–13.05
Iran, Islamic Republic of	847	1 007	2.79	1.55	15	35	–6.02	10.10	14	17	20.79	2.32
Korea	427	518	0.61	2.25	86	202	12.31	8.15	2	3	14.09	3.46
Malaysia	957	1 411	2.92	3.55	48	55	9.58	0.29	108	148	3.56	1.36
Pakistan	389	645	1.69	4.85	1	1	3.73	0.11	4	18	n.a.	4.68
Philippines	669	971	4.42	3.81	35	47	31.02	3.94	4	16	53.52	4.10
Saudi Arabia	484	732	4.19	3.66	500	652	8.92	2.05	8	12	–10.29	3.66
Thailand	1 131	1 877	0.64	4.31	2	0	–20.12	3.55	384	639	6.18	5.08
Turkey	939	1 602	9.70	5.32	122	143	63.06	3.93	34	60	18.88	5.32
Vietnam	392	494	6.35	2.83	28	16	55.28	–7.79	0	0	n.a.	n.a.
Other Asia Pacific	*2 285*	*3 275*	*4.60*	*3.21*	*1 641*	*1 972*	*1.71*	*1.68*	*382*	*526*	*–7.70*	*2.82*
LEAST DEVELOPED COUNTRIES (LDC)	**1 109**	**1 718**	**3.62**	**4.08**	**476**	**837**	**19.70**	**5.30**	**10**	**15**	**17.28**	**–2.00**
DEVELOPING excluding LDC	**41 862**	**57 858**	**5.80**	**2.80**	**4 076**	**5 795**	**4.05**	**3.71**	**4 202**	**6 737**	**10.02**	**4.45**
OECD	**35 909**	**43 133**	**2.34**	**1.56**	**1 891**	**2 644**	**5.92**	**3.30**	**3 732**	**4 652**	**–0.08**	**0.81**
NON-OECD	**42 637**	**60 103**	**5.68**	**2.89**	**6 018**	**8 153**	**3.59**	**2.85**	**4 244**	**6 774**	**9.86**	**4.38**

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.18. **Poultry meat projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**78 494**	**102 603**	**3.53**	**2.33**	**10.82**	**12.52**	**2.27**	**1.21**
DEVELOPED	**35 154**	**43 163**	**2.90**	**1.73**	**23.28**	**27.82**	**2.55**	**1.49**
NORTH AMERICA	***16 637***	***20 392***	***3.16***	***1.85***	***44.72***	***49.74***	***2.13***	***0.97***
Canada	1 164	1 415	3.05	1.77	32.06	35.51	2.05	0.95
United States	15 473	18 978	3.17	1.86	46.09	51.27	2.14	0.97
WESTERN EUROPE	**10 599**	**11 818**	**1.86**	**1.01**	**19.83**	**21.78**	**1.57**	**0.90**
EU25	10 434	11 646	1.82	1.03	20.04	22.04	1.53	0.92
Norway	47	47	5.61	0.00	9.06	8.54	5.00	–0.46
Switzerland	112	116	3.69	0.00	13.57	13.97	3.35	–0.10
Other Western Europe	*6*	*9*	*15.28*	*3.10*	*18.07*	*24.44*	*14.18*	*2.53*
EASTERN EUROPE	**859**	**1 277**	**5.19**	**3.26**	**14.09**	**21.54**	**5.39**	**3.54**
Other Eastern Europe	*859*	*1 277*	*5.19*	*3.26*	*14.09*	*21.54*	*5.39*	*3.54*
CIS	**3 446**	**5 467**	**4.67**	**2.97**	**10.90**	**17.65**	**4.92**	**3.15**
Russian Federation	2 427	3 990	3.27	3.10	14.84	25.69	3.65	3.58
Ukraine	532	734	9.95	1.88	9.97	15.43	11.15	2.95
Other CIS	*487*	*743*	*7.76*	*3.43*	*4.90*	*6.95*	*7.27*	*2.72*
OCEANIA DEVELOPED	**847**	**965**	**4.31**	**1.27**	**31.15**	**31.99**	**3.14**	**0.34**
Australia	694	779	3.72	1.36	30.61	30.79	2.53	0.37
New Zealand	153	187	7.37	0.90	33.82	38.22	6.33	0.27
OTHER DEVELOPED	**2 766**	**3 245**	**1.42**	**1.31**	**13.90**	**16.23**	**0.97**	**1.30**
Japan	1 677	1 776	–0.73	0.30	11.54	12.21	–0.93	0.32
South Africa	1 089	1 468	5.66	2.66	20.30	26.98	4.46	2.60
DEVELOPING	**43 340**	**59 439**	**5.32**	**2.78**	**7.54**	**8.95**	**3.75**	**1.45**
AFRICA	**3 011**	**4 123**	**5.00**	**2.90**	**3.16**	**3.40**	**2.61**	**0.69**
NORTH AFRICA	**1 417**	**1 716**	**3.28**	**1.99**	**8.22**	**8.36**	**1.55**	**0.41**
Algeria	248	278	1.63	1.25	6.74	6.43	0.15	–0.24
Egypt	667	810	4.38	1.90	8.09	8.09	2.41	0.14
Other North Africa	*501*	*628*	*2.79*	*2.46*	*9.43*	*10.17*	*1.27*	*1.09*
SUB-SAHARAN AFRICA	**1 594**	**2 407**	**6.75**	**3.60**	**2.04**	**2.39**	**4.17**	**1.24**
Ghana	76	134	17.43	4.20	3.09	4.43	14.88	2.33
Mozambique	44	67	4.27	3.48	2.00	2.52	2.07	1.73
Nigeria	216	251	3.67	1.06	1.48	1.37	1.28	–0.94
Tanzania	47	75	4.04	4.70	1.11	1.45	1.91	2.90
Zambia	37	60	3.30	4.79	2.86	3.79	1.33	3.01
Other Sub-Saharan Africa	*1 173*	*1 820*	*7.28*	*3.89*	*2.20*	*2.60*	*4.59*	*1.34*
LATIN AMERICA and CARIBBEAN	**13 777**	**19 315**	**5.75**	**2.73**	**21.91**	**26.83**	**4.21**	**1.50**
Argentina	779	1 195	–1.19	3.20	17.85	24.64	–2.22	2.21
Brazil	5 795	7 746	6.09	1.89	27.73	32.55	4.58	0.73
Chile	462	699	4.44	3.77	25.19	34.32	3.20	2.79
Colombia	723	927	5.78	2.63	14.16	15.65	4.04	1.29
Mexico	2 732	3 784	8.05	2.86	22.74	27.95	6.51	1.78
Paraguay	39	53	1.00	2.87	5.76	6.15	–1.41	0.73
Uruguay	55	65	3.09	1.59	14.10	15.53	2.33	0.99
Other Latin America	*3 192*	*4 846*	*5.89*	*3.87*	*18.15*	*23.56*	*4.19*	*2.43*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.18. **Poultry meat projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**26 552**	**36 001**	**5.13**	**2.80**	**6.38**	**7.64**	**3.74**	**1.66**
Bangladesh	116	190	–0.13	4.92	0.73	0.99	–2.07	3.17
China[c]	13 565	16 834	5.11	1.91	9.29	10.82	4.33	1.33
India	1 779	3 232	13.91	5.08	1.44	2.26	12.07	3.70
Indonesia	1 036	1 525	3.62	4.46	4.15	5.44	2.29	3.41
Iran, Islamic Republic of	847	1 025	2.46	1.74	10.83	11.29	1.42	0.29
Korea	512	718	2.07	3.56	9.45	12.87	1.49	3.30
Malaysia	898	1 318	3.14	3.67	31.72	39.24	0.95	2.12
Pakistan	386	628	1.56	4.84	2.19	2.86	–0.66	2.74
Philippines	700	1 002	4.85	3.81	7.55	9.11	2.86	2.24
Saudi Arabia	976	1 373	6.64	2.85	35.85	39.18	3.73	0.57
Thailand	745	1 239	–1.54	4.01	10.29	15.79	–2.46	3.27
Turkey	1 027	1 685	11.26	5.19	12.51	17.94	9.57	3.94
Vietnam	420	510	7.48	2.22	4.45	4.72	6.01	1.00
Other Asia Pacific	*3 544*	*4 721*	*5.03*	*2.58*	*10.05*	*11.08*	*2.94*	*0.87*
LEAST DEVELOPED COUNTRIES (LDC)	**1 575**	**2 540**	**6.74**	**4.52**	**1.87**	**2.35**	**4.21**	**2.20**
DEVELOPING excluding LDC	**41 765**	**56 899**	**5.27**	**2.71**	**8.52**	**10.22**	**3.85**	**1.55**
OECD	**34 031**	**41 137**	**2.75**	**1.75**	**25.49**	**29.11**	**2.08**	**1.24**
NON-OECD	**44 463**	**61 465**	**5.05**	**2.73**	**7.51**	**9.06**	**3.60**	**1.48**

a) For EU25, World, Developed, OECD and Western Europe growth rate refers to 1999-2005.
b) Least-squares growth rate (see glossary).
c) Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Other Asia Pacific aggregate.
est.: Estimate.
n.a.: Not available.
Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/233840101021*

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Table A.19. **Sheep meat projections**

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)[d]		Growth (%)[b]		EXPORTS (kt)[d]		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**11 596**	**14 093**	**1.32**	**1.76**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**
DEVELOPED	**3 275**	**3 496**	**–0.86**	**0.58**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**
NORTH AMERICA	**115**	**153**	**–2.25**	**2.58**	**18**	**18**	**5.19**	**0.00**	**2**	**2**	**9.07**	**0.00**
Canada	19	37	8.22	5.67	18	18	5.19	0.00	2	2	9.07	0.00
United States	96	116	–3.61	1.77	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
WESTERN EUROPE	**1 084**	**1 062**	**–1.43**	**–0.18**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**
EU25	1 044	1 019	–1.51	–0.22	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Norway	24	23	–0.82	0.00	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Switzerland	7	8	1.82	0.00	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other Western Europe	*9*	*12*	*1.18*	*3.05*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
EASTERN EUROPE	**184**	**198**	**–0.80**	**1.59**	**7**	**8**	**13.68**	**2.50**	**33**	**16**	**5.34**	**–5.25**
Other Eastern Europe	*184*	*198*	*–0.80*	*1.59*	*7*	*8*	*13.68*	*2.50*	*33*	*16*	*5.34*	*–5.25*
CIS	**570**	**625**	**–0.83**	**0.77**	**1**	**2**	**–17.69**	**5.46**	**2**	**4**	**–10.07**	**8.57**
Russian Federation	139	150	–4.97	0.68	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ukraine	16	15	–6.43	–0.45	0	1	–9.98	25.58	0	0	–49.15	–0.45
Other CIS	*415*	*460*	*1.29*	*0.85*	*1*	*1*	*–17.71*	*0.80*	*1*	*4*	*–8.88*	*8.57*
OCEANIA DEVELOPED	**1 188**	**1 319**	**–0.37**	**0.80**	**5**	**7**	**3.43**	**0.00**	**812**	**875**	**–0.14**	**0.32**
Australia	653	732	–0.66	0.74	0	0	n.a.	n.a.	367	404	–0.45	0.11
New Zealand	535	587	0.00	0.88	5	7	3.43	0.00	446	471	0.13	0.50
OTHER DEVELOPED	**134**	**140**	**1.55**	**0.25**	**70**	**79**	**–6.28**	**–0.31**	**0**	**0**	**–5.07**	**0.00**
Japan	0	0	n.a.	n.a.	44	36	–5.15	–2.68	n.a.	n.a.	n.a.	n.a.
South Africa	134	140	1.55	0.25	26	43	–7.72	2.26	0	0	–5.07	0.00
DEVELOPING	**8 322**	**10 597**	**2.84**	**2.18**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**
AFRICA	**1 914**	**2 329**	**1.91**	**1.73**	**37**	**53**	**0.72**	**3.51**	**75**	**63**	**–2.92**	**–2.12**
NORTH AFRICA	**512**	**590**	**0.36**	**1.12**	**9**	**12**	**2.41**	**4.17**	**0**	**0**	**–11.81**	**0.98**
Algeria	211	247	2.06	1.11	3	4	15.94	6.15	0	0	n.a.	1.11
Egypt	74	83	–2.89	0.98	3	5	14.67	7.41	0	0	–10.78	0.98
Other North Africa	*227*	*260*	*0.15*	*1.17*	*3*	*4*	*–2.82*	*0.48*	*0*	*0*	*n.a.*	*1.17*
SUB-SAHARAN AFRICA	**1 402**	**1 740**	**2.53**	**1.95**	**28**	**41**	**0.46**	**3.32**	**75**	**63**	**–2.83**	**–2.14**
Ghana	23	27	9.31	1.13	3	6	23.17	3.98	0	0	n.a.	0.00
Mozambique	3	3	0.21	0.08	0	1	n.a.	n.a.	0	0	n.a.	n.a.
Nigeria	238	266	2.55	0.80	10	10	0.85	0.81	0	0	n.a.	0.80
Tanzania	41	47	1.38	0.97	0	0	81.45	0.97	0	0	n.a.	–1.24
Zambia	6	8	8.72	0.82	0	1	n.a.	n.a.	0	0	n.a.	n.a.
Other Sub-Saharan Africa	*1 091*	*1 389*	*2.45*	*2.25*	*16*	*23*	*–1.53*	*3.55*	*75*	*62*	*–2.86*	*–2.05*
LATIN AMERICA and CARIBBEAN	**313**	**332**	**0.15**	**1.20**	**13**	**33**	**2.55**	**13.70**	**15**	**16**	**–6.29**	**–0.83**
Argentina	0	0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Brazil	114	139	2.11	1.84	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Chile	15	15	–0.39	–0.75	0	0	n.a.	–1.49	6	7	6.32	0.13
Colombia	13	13	0.57	–0.24	0	1	n.a.	n.a.	0	0	–1.40	–7.97
Mexico	29	0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Paraguay	3	3	–0.34	–0.18	0	0	n.a.	n.a.	0	0	n.a.	n.a.
Uruguay	29	33	–10.38	1.76	0	0	n.a.	2.86	9	8	–9.94	–1.18
Other Latin America	*110*	*129*	*3.79*	*0.84*	*13*	*32*	*3.09*	*13.14*	*0*	*0*	*–8.41*	*0.31*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.19. **Sheep meat projections** *(cont.)*

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)[d]		Growth (%)[b]		EXPORTS (kt)[d]		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**6 095**	**7 936**	**3.31**	**2.36**	**415**	**897**	**–1.33**	**8.83**	**75**	**88**	**–0.94**	**0.60**
Bangladesh	134	157	1.23	1.42	0	0	n.a.	1.56	0	1	n.a.	–11.37
China[c]	3 055	4 472	5.58	3.56	9	20	10.21	7.16	7	17	–8.10	8.47
India	716	901	0.74	2.30	0	0	–1.17	0.00	20	19	8.86	–0.38
Indonesia	153	169	7.16	0.55	1	1	0.93	–0.56	0	0	n.a.	n.a.
Iran, Islamic Republic of	454	480	1.66	0.49	0	7	n.a.	8.73	1	1	–22.78	0.49
Korea	2	2	–4.57	0.00	5	6	–10.86	0.00	0	0	–70.74	0.00
Malaysia	1	1	15.35	0.80	14	19	0.88	1.73	0	0	16.20	0.80
Pakistan	538	680	2.68	1.77	0	0	n.a.	n.a.	5	6	86.05	1.55
Philippines	34	39	1.41	1.14	2	3	23.45	0.98	0	0	n.a.	n.a.
Saudi Arabia	20	39	n.a.	1.49	126	148	–1.84	2.03	2	4	0.89	1.49
Thailand	1	1	3.27	1.26	0	0	0.42	–1.42	0	0	n.a.	1.26
Turkey	311	299	–2.54	–0.35	0	36	n.a.	26.54	2	2	–10.44	–0.35
Vietnam	7	7	5.02	0.95	0	1	21.71	4.37	0	0	n.a.	n.a.
Other Asia Pacific	*669*	*688*	*1.64*	*–0.28*	*258*	*655*	*–0.28*	*11.19*	*39*	*38*	*–1.37*	*–0.92*
LEAST DEVELOPED COUNTRIES (LDC)	**1 325**	**1 672**	**1.51**	**2.07**	**23**	**26**	**6.14**	**2.43**	**64**	**57**	**–3.20**	**–2.06**
DEVELOPING excluding LDC	**6 997**	**8 925**	**3.11**	**2.20**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**
OECD	**2 730**	**2 835**	**–2.00**	**0.38**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**
NON-OECD	**8 867**	**11 258**	**2.70**	**2.14**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.19. **Sheep meat projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**11 502**	**14 481**	**1.46**	**2.16**	**1.59**	**1.77**	**0.23**	**1.04**
DEVELOPED	***2 816***	***2 984***	***–0.82***	***0.53***	***1.87***	***1.92***	***–1.16***	***0.29***
NORTH AMERICA	**201**	**236**	**1.84**	**1.44**	**0.54**	**0.58**	**0.83**	**0.56**
Canada	36	53	6.35	3.57	0.98	1.33	5.33	2.73
United States	166	183	1.05	0.90	0.49	0.49	0.04	0.02
WESTERN EUROPE	**1 342**	**1 328**	**–1.26**	**–0.13**	**2.51**	**2.45**	**–1.55**	**–0.25**
EU25	1 296	1 282	–1.31	–0.14	2.49	2.43	–1.59	–0.25
Norway	24	23	–0.63	0.00	4.61	4.20	–1.20	–0.46
Switzerland	14	15	1.32	0.00	1.71	1.80	0.99	–0.10
Other Western Europe	*7*	*8*	*1.49*	*0.56*	*21.02*	*22.12*	*0.52*	*0.00*
EASTERN EUROPE	**158**	**189**	**–1.46**	**2.50**	**2.59**	**3.19**	**–1.28**	**2.78**
Other Eastern Europe	*158*	*189*	*–1.46*	*2.50*	*2.59*	*3.19*	*–1.28*	*2.78*
CIS	**573**	**626**	**–1.06**	**0.73**	**1.81**	**2.02**	**–0.82**	**0.90**
Russian Federation	143	152	–5.38	0.57	0.87	0.98	–5.02	1.03
Ukraine	16	16	–6.24	0.10	0.30	0.34	–5.22	1.15
Other CIS	*414*	*458*	*1.20*	*0.80*	*4.17*	*4.28*	*0.74*	*0.11*
OCEANIA DEVELOPED	**338**	**386**	**–2.40**	**1.48**	**12.45**	**12.80**	**–3.50**	**0.55**
Australia	259	302	–2.22	1.73	11.45	11.95	–3.35	0.73
New Zealand	79	84	–2.99	0.65	17.46	17.21	–3.92	0.01
OTHER DEVELOPED	**204**	**219**	**–1.73**	**0.02**	**1.03**	**1.09**	**–2.17**	**0.02**
Japan	44	36	–5.15	–2.78	0.30	0.25	–5.34	–2.76
South Africa	161	183	–0.55	0.68	2.99	3.35	–1.68	0.62
DEVELOPING	**8 686**	**11 497**	**2.77**	**2.63**	**1.51**	**1.73**	**1.24**	**1.29**
AFRICA	**1 876**	**2 319**	**2.15**	**1.90**	**1.97**	**1.91**	**–0.17**	**–0.29**
NORTH AFRICA	**520**	**602**	**0.48**	**1.17**	**3.02**	**2.93**	**–1.20**	**–0.40**
Algeria	214	251	2.13	1.17	5.82	5.79	0.63	–0.32
Egypt	76	87	–2.45	1.23	0.93	0.87	–4.29	–0.52
Other North Africa	*230*	*264*	*0.18*	*1.16*	*4.32*	*4.28*	*–1.31*	*–0.19*
SUB-SAHARAN AFRICA	**1 356**	**1 718**	**2.87**	**2.16**	**1.74**	**1.71**	**0.39**	**–0.16**
Ghana	26	33	10.21	1.57	1.05	1.08	7.82	–0.26
Mozambique	3	4	–0.11	4.40	0.12	0.15	–2.21	2.64
Nigeria	248	276	2.48	0.80	1.70	1.51	0.12	–1.20
Tanzania	41	47	1.38	0.97	0.97	0.91	–0.70	–0.76
Zambia	6	8	8.73	2.54	0.43	0.52	6.65	0.80
Other Sub-Saharan Africa	*1 032*	*1 350*	*2.87*	*2.52*	*1.94*	*1.93*	*0.29*	*0.00*
LATIN AMERICA and CARIBBEAN	**375**	**433**	**2.09**	**1.35**	**0.60**	**0.60**	**0.60**	**0.14**
Argentina	0	0	n.a.	n.a.	0.03	0.02	–1.03	–0.96
Brazil	119	137	1.54	1.35	0.57	0.58	0.09	0.20
Chile	10	8	–3.37	–1.49	0.52	0.39	–4.52	–2.41
Colombia	13	13	0.60	0.87	0.25	0.23	–1.06	–0.45
Mexico	89	87	8.00	–0.15	0.74	0.65	6.46	–1.20
Paraguay	3	3	–0.54	0.97	0.45	0.39	–2.92	–1.14
Uruguay	20	25	–10.73	2.86	5.04	6.01	–11.38	2.26
Other Latin America	*123*	*158*	*3.89*	*2.27*	*0.70*	*0.77*	*2.22*	*0.85*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.19. **Sheep meat projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**6 434**	**8 744**	**3.00**	**2.90**	**1.55**	**1.86**	**1.64**	**1.76**
Bangladesh	134	157	1.15	1.56	0.85	0.82	–0.81	–0.14
China[c]	3 058	4 475	5.62	3.56	2.09	2.88	4.85	2.96
India	697	883	0.57	2.37	0.56	0.62	–1.05	1.03
Indonesia	153	170	7.12	0.54	0.61	0.61	5.75	–0.46
Iran, Islamic Republic of	453	486	1.23	0.56	5.79	5.35	0.20	–0.87
Korea	7	8	–4.20	0.00	0.13	0.14	–4.75	–0.25
Malaysia	15	20	1.21	1.70	0.52	0.58	–0.93	0.17
Pakistan	533	673	2.54	1.77	3.03	3.06	0.30	–0.27
Philippines	36	42	1.99	1.13	0.39	0.38	0.05	–0.40
Saudi Arabia	144	184	0.57	1.93	5.30	5.25	–2.17	–0.33
Thailand	1	1	2.98	1.04	0.01	0.01	2.01	0.32
Turkey	309	333	–2.48	0.80	3.77	3.55	–3.97	–0.41
Vietnam	7	8	5.13	1.19	0.07	0.07	3.69	–0.01
Other Asia Pacific	*887*	*1 305*	*1.18*	*4.08*	*2.52*	*3.06*	*–0.84*	*2.35*
LEAST DEVELOPED COUNTRIES (LDC)	**1 283**	**1 639**	**1.87**	**2.24**	**1.52**	**1.52**	**–0.54**	**–0.03**
DEVELOPING excluding LDC	**7 403**	**9 858**	**2.93**	**2.69**	**1.51**	**1.77**	**1.55**	**1.53**
OECD	**2 330**	**2 415**	**–1.56**	**0.34**	**1.75**	**1.71**	**–2.21**	**–0.16**
NON-OECD	**9 172**	**12 066**	**2.52**	**2.56**	**1.55**	**1.78**	**1.10**	**1.31**

a) For EU25, World, Developed, OECD and Western Europe growth rate refers to 1999-2005.
b) Least-squares growth rate (see glossary).
c) Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Other Asia Pacific aggregate.
d) Excludes trade of live animals. Imports and Exports of sheep meat are not covered for all countries and regions.
est.: Estimate.
n.a.: Not available.
Source: OECD and FAO Secretariats.

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Table A.20. **Main policy assumptions for dairy markets**

		Average 2000-04	2005 est.	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
ARGENTINA													
Dairy export tax	*%*	3	15	5	5	5	5	5	5	5	5	5	5
CANADA													
Milk target price[b]	*CADc/litre*	59	67	70	71	72	73	74	75	77	78	79	80
Butter support price	*CAD/t*	5 909	6 820	6 894	6 995	7 195	7 396	7 596	7 796	7 997	8 197	8 397	8 598
SMP support price	*CAD/t*	5 016	5 443	5 745	5 789	5 809	5 900	5 972	5 995	6 041	6 092	6 156	6 204
Dairy subsidy	*CADc/hl*	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cheese tariff-quota	*kt pw*	20	20	20	20	20	20	20	20	20	20	20	20
in-quota tariff	*%*	1	1	1	1	1	1	1	1	1	1	1	1
out-of-quota tariff	*%*	246	246	246	246	246	246	246	246	246	246	246	246
Subsidised export limits[c]													
cheese	*kt pw*	9	9	9	9	9	9	9	9	9	9	9	9
SMP	*kt pw*	45	45	45	45	45	45	45	45	45	45	45	45
EUROPEAN UNION[d, e]													
Milk quota[f]	*mt pw*	138 415	139	140	140	141	141	141	141	141	141	141	141
Butter intervention price	*EUR/t*	3 259	2 938	2 708	2 528	2 462	2 462	2 462	2 464	2 464	2 464	2 464	2 464
SMP intervention price	*EUR/t*	2 045	1 901	1 798	1 747	1 747	1 747	1 747	1 747	1 747	1 747	1 747	1 747
Butter tariff-quotas	*kt pw*	90	90	90	90	90	90	90	90	90	90	90	90
Cheese tariff-quota[g]	*kt pw*	103	103	103	103	103	103	103	103	103	103	103	103
SMP tariff-quota	*kt pw*	71	71	71	71	71	71	71	71	71	71	71	71
Subsidised export limits[a]													
butter	*kt pw*	399	399	399	399	399	399	399	399	399	399	399	399
cheese	*kt pw*	323	323	323	323	323	323	323	323	323	323	323	323
SMP	*kt pw*	368	368	368	368	368	368	368	368	368	368	368	368
JAPAN													
Direct payments[h]	*JPY/kg*	. .	11	11	11	11	11	11	11	11	11	11	11
Cheese tariff[i]	*%*	239	249	252	255	260	266	271	276	280	285	290	294
Tariff-quotas													
Butter	*kt pw*	2	2	2	2	2	2	2	2	2	2	2	2
in-quota tariff	*%*	35	35	35	35	35	35	35	35	35	35	35	35
out-of-quota tariff	*%*	733	733	733	733	733	733	733	733	733	733	733	733
SMP	*kt pw*	116	116	116	116	116	116	116	116	116	116	116	116
in-quota tariff	*%*	16	16	16	16	16	16	16	16	16	16	16	16
out-of-quota tariff	*%*	210	210	210	210	210	210	210	210	210	210	210	210
WMP	*t pw*	0	0	0	0	0	0	0	0	0	0	0	0
in-quota tariff	*%*	24	24	24	24	24	24	24	24	24	24	24	24
out-of-quota tariff	*%*	316	316	316	316	316	316	316	316	316	316	316	316
KOREA													
Tariff-quotas													
Butter	*kt pw*	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
in-quota tariff	*%*	40	40	40	40	40	40	40	40	40	40	40	40
out-of-quota tariff	*%*	89	89	89	89	89	89	89	89	89	89	89	89
SMP	*kt pw*	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
in-quota tariff	*%*	20	20	20	20	20	20	20	20	20	20	20	20
out-of-quota tariff	*%*	176	176	176	176	176	176	176	176	176	176	176	176
WMP	*kt pw*	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
in-quota tariff	*%*	40	40	40	40	40	40	40	40	40	40	40	40
out-of-quota tariff	*%*	176	176	176	176	176	176	176	176	176	176	176	176

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.20. **Main policy assumptions for dairy markets** *(cont.)*

		Average 2000-04	2005 est.	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
MEXICO													
Butter tariff	*%*	2	0	0	0	0	0	0	0	0	0	0	0
Tariff-quotas													
cheese	*kt pw*	9	9	9	9	9	9	9	9	9	9	9	9
in-quota tariff	*%*	50	50	50	50	50	50	50	50	50	50	50	50
out-of-quota tariff	*%*	128	125	125	125	125	125	125	125	125	125	125	125
SMP	*kt pw*	90	90	90	90	90	90	90	90	90	90	90	90
in-quota tariff	*%*	0	0	0	0	0	0	0	0	0	0	0	0
out-of-quota tariff	*%*	128	125	125	125	125	125	125	125	125	125	125	125
Liconsa social program	*MXN mn*	858	400	400	400	400	400	400	400	400	400	400	400
RUSSIA													
Butter tariff	*%*	20	20	20	20	20	20	20	20	20	20	20	20
Cheese tariff	*%*	15	15	15	15	15	15	15	15	15	15	15	15
UNITED STATES[j]													
Milk support price[b]	*USDc/litre*	22	22	22	22	22	22	22	22	22	22	22	22
Target price[k]	*USDc/litre*	. .	37.3	37.3	37.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Butter support price	*USD/t*	1 948	2 315	2 315	2 315	2 315	2 315	2 315	2 315	2 315	2 315	2 316	2 316
SMP support price	*USD/t*	1 956	1 764	1 764	1 764	1 764	1 764	1 764	1 764	1 764	1 764	1 764	1 764
Butter tariff-quota	*kt pw*	13	13	13	13	13	13	13	13	13	13	13	13
in-quota tariff	*%*	10	10	10	10	10	10	10	10	10	10	10	10
out-of-quota tariff	*%*	112	112	112	112	112	112	112	112	112	112	112	112
Cheese tariff-quota	*kt pw*	135	135	135	135	135	135	135	135	135	135	135	135
in-quota tariff	*%*	12	12	12	12	12	12	12	12	12	12	12	12
out-of-quota tariff	*%*	87	87	87	87	87	87	87	87	87	87	87	87
Subsidised export limits[a]													
butter	*kt pw*	21	21	21	21	21	21	21	21	21	21	21	21
SMP	*kt pw*	68	68	68	68	68	68	68	68	68	68	68	68
INDIA													
Milk tariff	*%*	80	80	80	80	80	80	80	80	80	80	80	80
Butter tariff	*%*	52	40	40	40	40	40	40	40	40	40	40	40
Cheese tariff	*%*	42	40	40	40	40	40	40	40	40	40	40	40
Whole milk powder tariff	*%*	20	20	20	20	20	20	20	20	20	20	20	20
SOUTH AFRICA													
Milk powder tariff-quota	*kt pw*	4	4	4	4	4	4	4	4	4	4	4	4
in-quota tariff	*%*	20	20	20	20	20	20	20	20	20	20	20	20
out-of-quota tariff	*%*	95	81	81	81	81	81	81	81	81	81	81	81

a) Year ending 30 June.
b) For manufacturing milk.
c) The effective volume of cheese and SMP subsidized exports will be lower reflecting the binding nature of subsidized export limits in value terms.
d) Prices and payments in market Euro's – see Glossary of Terms.
e) EU farmers also benefit from the Single Farm Payment (SFP) Scheme, which provides flat-rate payments independent from current production decisions and market developments. The total amount spent under the SFP scheme, before modulation, is assumed to increase from 26.9 billion euro in 2005 to 28.4 billion euro in 2008 for the total of the 15 former member States. The final number is equivalent to 233 euro per hectare of eligible farm land on average. For the accession countries, payments are phased in with the assumption of maximum top-ups from national budgets. Due to modulation, between 2.7% and 4.6% of the total SFP will go to rural development spending rather than directly to the farmers.
f) Total quota, EU25 starting in 1999.
g) Calendar year minimum access for Australia, New Zealand and Canada before 1995.
h) In addition to direct payments, a further payment is provided – equal to 80% difference between the market price and the base price (the average price of the past three years).
i) Excludes processed cheese.
j) Year beginning 1 January.
k) The counter-cyclical payment is determined as a 45% difference in 2005 and a 34% difference in 2006 and 2007, between the target price and the Boston class I price.

Note: The source for tariffs and Tariff Rate Quotas (except Russia) is AMAD (Agricultural market access database). The tariff and TRQ data are based on Most Favoured Nation rates scheduled with the WTO and exclude those under preferential or regional agreements, which may be substantially different. Tariffs are simple averages of several product lines. Specific rates are converted to *ad valorem* rates using world prices in the Outlook. Import quotas are based on global commitments scheduled in the WTO rather than those allocated to preferential partners under regional or other agreements.
est.: Estimate.
Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/233840101021*

Table A.21. **World dairy projections (butter and cheese)**

Calendar year[a]		Average 2000-04	2005 est.	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
BUTTER													
OECD[b, c]													
Production	*kt pw*	3 603	3 582	3 603	3 603	3 588	3 578	3 564	3 539	3 523	3 497	3 474	3 452
Consumption	*kt pw*	2 998	3 030	3 031	3 024	3 020	3 026	3 017	3 000	2 987	2 967	2 948	2 928
Stock changes	*kt pw*	11	–30	–43	–33	–7	–4	–1	1	0	0	1	2
Non-OECD													
Production	*kt pw*	4 254	4 902	5 050	5 359	5 475	5 579	5 744	5 898	6 024	6 163	6 299	6 454
Consumption	*kt pw*	4 689	5 360	5 537	5 884	6 033	6 167	6 323	6 465	6 587	6 718	6 848	6 998
WORLD[c]													
Production	*kt pw*	7 857	8 484	8 653	8 962	9 062	9 157	9 308	9 437	9 547	9 660	9 773	9 906
Consumption	*kt pw*	7 688	8 389	8 567	8 908	9 053	9 193	9 339	9 465	9 574	9 685	9 796	9 926
Stock changes	*kt pw*	6	–26	–37	–29	–3	0	3	5	4	4	5	6
Price[d]	*USD/100 kg*	142	204	193	177	178	182	184	186	191	194	199	202
CHEESE													
OECD[b]													
Production	*kt pw*	13 571	14 268	14 538	14 789	14 979	15 186	15 399	15 602	15 827	15 989	16 194	16 394
Consumption	*kt pw*	13 150	13 840	14 086	14 325	14 518	14 737	14 956	15 166	15 397	15 573	15 786	15 994
Stock changes	*kt pw*	–13	–17	–13	–6	3	2	1	1	0	0	0	0
Non-OECD													
Production	*kt pw*	3 663	3 999	4 090	4 153	4 200	4 264	4 351	4 451	4 553	4 656	4 761	4 865
Consumption	*kt pw*	4 039	4 344	4 438	4 573	4 669	4 760	4 841	4 935	5 029	5 120	5 215	5 312
WORLD													
Production	*kt pw*	17 234	18 267	18 629	18 941	19 179	19 449	19 750	20 054	20 380	20 645	20 955	21 259
Consumption	*kt pw*	17 189	18 184	18 524	18 898	19 187	19 497	19 797	20 101	20 426	20 693	21 001	21 306
Stock changes	*kt pw*	–8	–16	–11	–4	5	7	7	8	7	7	8	8
Price[e]	*USD/100 kg*	208	305	280	254	246	250	254	257	262	267	272	277

a) Year ending 30 June for Australia and 31 May for New Zealand in OECD aggregate.
b) Excludes Iceland but includes the 6 EU members that are not members of the OECD.
c) Do not balance due to statistical differences in New Zealand.
d) F.o.b. export price, butter, 82% butterfat, northern Europe.
e) F.o.b. export price, cheddar cheese, 40 lb blocks, Northern Europe.
est.: Estimate.
Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/233840101021*

Table A.22. **World dairy projections (powders and casein)**

Calendar year[a]		Average 2000-04	2005 est.	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
SKIM MILK POWDER													
OECD[b, c]													
Production	*kt pw*	2 907	2 755	2 798	2 777	2 722	2 680	2 623	2 575	2 520	2 476	2 450	2 414
Consumption	*kt pw*	2 067	2 178	2 058	2 079	2 041	2 006	1 965	1 925	1 881	1 850	1 837	1 813
Stock changes	*kt pw*	43	–239	13	0	–5	–5	–5	0	0	0	0	0
Non-OECD													
Production	*kt pw*	760	742	770	800	822	841	862	885	907	932	955	979
Consumption	*kt pw*	1 488	1 577	1 598	1 617	1 626	1 636	1 644	1 654	1 665	1 676	1 689	1 699
WORLD[c]													
Production	*kt pw*	3 666	3 498	3 567	3 577	3 544	3 520	3 486	3 460	3 427	3 408	3 405	3 393
Consumption	*kt pw*	3 555	3 754	3 656	3 696	3 667	3 642	3 609	3 579	3 546	3 527	3 526	3 512
Stock changes	*kt pw*	42	–240	12	–1	–6	–6	–6	–1	–1	–1	–1	–1
Price[d]	*USD/100 kg*	180	223	209	201	204	206	210	213	216	222	225	230
WHOLE MILK POWDER													
OECD[b]													
Production	*kt pw*	1 809	1 915	1 925	1 946	1 951	1 966	1 984	1 997	2 009	2 020	2 030	2 044
Consumption	*kt pw*	717	808	772	776	778	778	778	778	779	779	779	780
Non-OECD													
Production	*kt pw*	1 500	1 783	1 831	1 877	1 950	2 018	2 082	2 153	2 225	2 298	2 371	2 443
Consumption	*kt pw*	2 334	2 630	2 724	2 835	2 910	2 993	3 075	3 159	3 243	3 326	3 410	3 494
WORLD													
Production	*kt pw*	3 309	3 698	3 755	3 824	3 901	3 984	4 065	4 150	4 235	4 318	4 402	4 487
Consumption	*kt pw*	3 051	3 438	3 497	3 611	3 688	3 771	3 853	3 937	4 022	4 105	4 189	4 274
Price[e]	*USD/100 kg*	182	229	215	202	206	210	213	217	221	227	233	236
WHEY POWDER													
Non-OECD													
Wholesale price, USA[f]	*USD/100 kg*	46	67	56	54	53	54	55	56	57	59	60	61
CASEIN													
Price[g]	*USD/100 kg*	424	480	497	442	419	435	440	448	457	468	478	483

a) Year ending 30 June for Australia and 31 May for New Zealand in OECD aggregate.
b) Excludes Iceland but includes the 6 EU members that are not members of the OECD.
c) Do not balance due to statistical differences in New Zealand.
d) Non-OECD net exports (imports) equal OECD net imports (exports).
e) F.o.b. export price, non-fat dry milk, extra grade, Northern Europe.
f) F.o.b. export price, WMP 26% butterfat, Northern Europe.
g) Edible dry whey, Wisconsin, plant.
h) Export price, New Zealand.
est.: Estimate.
Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/233840101021*

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Table A.23. **Butter projections**

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**8 221**	**9 906**	**2.68**	**1.39**	**733**	**860**	**3.66**	**1.36**	**893**	**808**	**3.71**	**–0.56**
DEVELOPED	**3 981**	**3 878**	**0.04**	**–0.31**	**345**	**423**	**7.71**	**2.09**	**846**	**715**	**4.04**	**–0.93**
NORTH AMERICA	**664**	**738**	**1.04**	**0.22**	**30**	**28**	**14.11**	**1.97**	**4**	**21**	**–38.03**	**0.00**
Canada	85	86	–1.01	–0.80	12	9	22.80	0.00	0	1	–38.77	0.00
United States	579	653	1.36	0.36	18	19	10.85	3.08	3	20	n.a.	0.00
WESTERN EUROPE	**2 189**	**1 928**	**–0.03**	**–1.29**	**89**	**84**	**–3.63**	**0.06**	**337**	**176**	**11.19**	**–6.20**
EU25	2 133	1 871	–0.04	–1.33	86	79	–3.30	0.00	335	175	11.57	–6.24
Norway	15	15	0.78	0.00	0	1	49.16	7.30	1	0	–13.67	–7.68
Switzerland	40	40	0.29	0.00	3	4	–5.57	0.00	1	1	n.a.	0.00
Other Western Europe	*1*	*1*	*–1.12*	*0.00*	*0*	*0*	*–11.19*	*n.a.*	*0*	*1*	*32.28*	*2.24*
EASTERN EUROPE	**23**	**25**	**–2.32**	**1.92**	**11**	**12**	**9.43**	**–0.38**	**1**	**1**	**14.68**	**1.92**
Other Eastern Europe	*23*	*25*	*–2.32*	*1.92*	*11*	*12*	*9.43*	*–0.38*	*1*	*1*	*14.68*	*1.92*
CIS	**511**	**535**	**0.22**	**1.21**	**194**	**288**	**0.37**	**3.43**	**64**	**96**	**7.42**	**8.48**
Russian Federation	271	284	–0.42	1.01	164	262	2.19	3.87	3	3	–7.56	0.00
Ukraine	142	143	1.16	1.54	1	1	–6.77	–1.96	30	48	12.40	17.38
Other CIS	*98*	*109*	*0.89*	*1.34*	*29*	*26*	*–5.36*	*–0.07*	*31*	*45*	*8.56*	*3.80*
OCEANIA DEVELOPED	**502**	**553**	**–0.12**	**1.16**	**8**	**9**	**5.28**	**0.00**	**440**	**420**	**3.33**	**0.67**
Australia	137	128	–2.02	–0.58	8	9	6.27	0.00	88	59	0.48	–3.50
New Zealand	365	426	0.70	1.75	0	0	n.a.	n.a.	352	361	4.13	1.58
OTHER DEVELOPED	**93**	**98**	**–0.89**	**0.09**	**12**	**2**	**12.22**	**–16.21**	**1**	**0**	**n.a.**	**n.a.**
Japan	81	86	–0.94	0.23	10	0	59.55	–31.89	0	0	n.a.	n.a.
South Africa	12	11	0.55	–0.90	3	2	–11.82	5.52	1	0	n.a.	n.a.
DEVELOPING	**4 240**	**6 028**	**6.00**	**2.66**	**388**	**437**	**1.40**	**0.70**	**47**	**93**	**0.46**	**3.25**
AFRICA	**219**	**249**	**3.05**	**1.38**	**107**	**105**	**1.45**	**–1.08**	**1**	**2**	**–4.65**	**–7.57**
NORTH AFRICA	**144**	**162**	**3.56**	**1.60**	**89**	**81**	**0.72**	**–1.66**	**0**	**0**	**–3.06**	**2.06**
Algeria	2	2	4.95	1.48	15	15	5.42	–0.17	0	0	n.a.	n.a.
Egypt	116	125	3.58	1.27	36	26	–4.57	–3.73	0	0	–4.40	1.27
Other North Africa	*26*	*35*	*3.45*	*2.91*	*38*	*40*	*5.99*	*–0.62*	*0*	*0*	*31.69*	*2.91*
SUB-SAHARAN AFRICA	**75**	**87**	**2.13**	**1.00**	**18**	**24**	**5.96**	**1.20**	**1**	**1**	**–4.85**	**–8.29**
Ghana	0	0	n.a.	n.a.	2	3	55.18	0.90	0	0	n.a.	n.a.
Mozambique	0	0	n.a.	n.a.	0	1	–5.15	3.77	0	0	n.a.	n.a.
Nigeria	10	10	2.66	0.90	4	6	17.49	1.36	0	0	n.a.	0.90
Tanzania	6	6	2.07	1.71	0	1	19.40	–2.16	0	0	n.a.	1.71
Zambia	0	0	–0.34	0.00	0	0	8.84	0.00	0	0	n.a.	n.a.
Other Sub-Saharan Africa	*59*	*70*	*2.06*	*0.96*	*11*	*14*	*1.95*	*1.36*	*1*	*1*	*–5.76*	*–8.74*
LATIN AMERICA and CARIBBEAN	**207**	**239**	**0.98**	**1.13**	**25**	**33**	**–2.36**	**2.13**	**21**	**31**	**1.50**	**2.53**
Argentina	39	38	–3.56	–0.50	1	0	n.a.	n.a.	3	11	–6.96	7.90
Brazil	78	98	1.39	1.99	2	13	–22.35	10.60	0	0	n.a.	0.72
Chile	12	16	5.51	2.28	2	2	–4.60	1.82	0	0	–6.81	2.28
Colombia	20	24	2.80	1.61	0	0	–21.96	–38.46	0	1	n.a.	4.79
Mexico	17	17	4.00	0.13	1	1	n.a.	n.a.	0	1	38.58	4.68
Paraguay	0	0	n.a.	n.a.	0	0	n.a.	n.a.	0	0	n.a.	n.a.
Uruguay	17	18	2.67	0.22	0	0	n.a.	1.27	14	14	2.65	–0.20
Other Latin America	*23*	*28*	*2.57*	*0.87*	*20*	*18*	*2.26*	*–0.92*	*3*	*3*	*29.79*	*0.62*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.23. **Butter projections** *(cont.)*

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**3 814**	**5 541**	**6.53**	**2.80**	**255**	**299**	**1.87**	**1.26**	**25**	**61**	**0.13**	**4.50**
Bangladesh	19	20	1.66	0.47	3	10	12.87	10.77	0	0	n.a.	0.47
China[c]	93	148	2.74	4.38	29	35	10.94	1.67	0	0	2.92	0.00
India	2 746	4 249	8.54	3.19	4	0	n.a.	n.a.	2	2	21.35	0.00
Indonesia	0	0	0.05	–0.21	11	14	4.70	2.07	0	0	4.35	3.81
Iran, Islamic Republic of	151	188	3.00	2.11	25	36	5.87	3.18	0	0	n.a.	2.11
Korea, Republic of	5	6	6.91	1.69	1	1	10.13	–0.55	0	0	n.a.	n.a.
Malaysia	0	0	0.05	2.53	9	8	0.08	–1.83	1	1	3.89	2.53
Pakistan	556	672	3.08	1.23	0	0	–6.54	–15.66	0	35	n.a.	19.29
Philippines	0	0	0.07	1.48	10	12	–2.71	2.08	0	0	56.81	1.48
Saudi Arabia	5	5	2.10	1.38	33	36	4.55	0.98	1	1	39.17	1.38
Thailand	1	1	0.00	4.53	15	18	6.06	1.65	0	0	64.80	4.53
Turkey	121	124	–0.69	0.85	5	4	–0.14	–1.48	0	0	–27.78	0.85
Vietnam	0	0	2.54	15.97	6	7	2.31	2.27	0	0	n.a.	n.a.
Other Asia Pacific	*117*	*128*	*1.83*	*1.01*	*105*	*117*	*–0.84*	*0.40*	*20*	*21*	*–1.96*	*0.97*
LEAST DEVELOPED COUNTRIES (LDC)	**160**	**181**	**2.12**	**0.97**	**13**	**25**	**–1.59**	**4.68**	**2**	**2**	**0.15**	**–6.89**
DEVELOPING excluding LDC	**4 080**	**5 847**	**6.18**	**2.72**	**375**	**412**	**1.60**	**0.50**	**45**	**92**	**0.52**	**3.63**
OECD	**3 580**	**3 454**	**–0.10**	**–0.50**	**144**	**127**	**–0.40**	**–0.35**	**781**	**618**	**3.71**	**–1.85**
NON-OECD	**4 642**	**6 452**	**5.36**	**2.57**	**589**	**733**	**0.78**	**1.69**	**112**	**190**	**3.54**	**5.59**

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.23. **Butter projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**8 121**	**9 926**	**2.93**	**1.50**	**1.27**	**1.38**	**1.69**	**0.40**
DEVELOPED	**3 537**	**3 551**	**0.36**	**–0.08**	**2.66**	**2.60**	**0.02**	**–0.32**
NORTH AMERICA	***704***	***745***	***1.94***	***0.29***	***2.15***	***2.07***	***0.93***	***–0.58***
Canada	95	94	1.92	–0.55	2.96	2.68	0.94	–1.36
United States	609	651	1.95	0.42	2.06	2.00	0.93	–0.46
WESTERN EUROPE	**1 967**	**1 834**	**–0.87**	**–0.83**	**4.18**	**3.84**	**–1.16**	**–0.94**
EU25	1 909	1 775	–0.89	–0.86	4.17	3.82	–1.18	–0.97
Norway	14	16	3.06	0.61	3.05	3.26	2.47	0.15
Switzerland	42	43	–0.42	0.00	5.85	5.81	–0.75	–0.10
Other Western Europe	*1*	*1*	*–5.46*	*–1.43*	*3.95*	*2.62*	*–6.36*	*–1.98*
EASTERN EUROPE	**32**	**35**	**0.10**	**1.07**	**0.60**	**0.68**	**0.28**	**1.34**
Other Eastern Europe	*32*	*35*	*0.10*	*1.07*	*0.60*	*0.68*	*0.28*	*1.34*
CIS	**643**	**727**	**–1.23**	**1.34**	**2.31**	**2.67**	**–0.99**	**1.52**
Russian Federation	434	543	–0.78	2.33	3.02	3.97	–0.41	2.80
Ukraine	113	95	–0.66	–1.96	2.40	2.28	0.43	–0.93
Other CIS	*96*	*89*	*–3.64*	*–0.07*	*1.10*	*0.95*	*–4.08*	*–0.76*
OCEANIA DEVELOPED	**89**	**110**	**–2.15**	**1.82**	**3.71**	**4.14**	**–3.24**	**0.89**
Australia	58	78	–3.20	2.54	2.88	3.50	–4.32	1.53
New Zealand	31	32	0.00	0.28	7.87	7.46	–0.97	–0.35
OTHER DEVELOPED	**102**	**99**	**0.28**	**–0.50**	**0.59**	**0.56**	**–0.17**	**–0.50**
Japan	89	86	0.61	–0.54	0.70	0.67	0.41	–0.52
South Africa	14	13	–1.08	–0.21	0.29	0.28	–2.20	–0.27
DEVELOPING	**4 584**	**6 375**	**5.61**	**2.51**	**0.91**	**1.09**	**4.03**	**1.18**
AFRICA	**325**	**352**	**2.25**	**0.64**	**0.39**	**0.33**	**–0.07**	**–1.52**
NORTH AFRICA	**233**	**243**	**2.00**	**0.38**	**1.53**	**1.34**	**0.29**	**–1.18**
Algeria	17	18	5.34	0.01	0.51	0.46	3.80	–1.46
Egypt	152	151	0.89	0.19	2.09	1.71	–1.02	–1.53
Other North Africa	*64*	*74*	*4.19*	*0.86*	*1.37*	*1.37*	*2.65*	*–0.49*
SUB-SAHARAN AFRICA	**92**	**109**	**2.93**	**1.24**	**0.13**	**0.12**	**0.45**	**–1.06**
Ghana	2	3	n.a.	0.90	0.11	0.12	n.a.	–0.91
Mozambique	0	1	–5.16	3.77	0.03	0.03	–7.16	2.01
Nigeria	14	16	5.28	1.05	0.11	0.10	2.86	–0.96
Tanzania	6	7	2.33	1.08	0.16	0.15	0.22	–0.66
Zambia	0	0	1.00	0.00	0.03	0.02	–0.93	–1.70
Other Sub-Saharan Africa	*69*	*82*	*2.22*	*1.29*	*0.15*	*0.13*	*–0.34*	*–1.19*
LATIN AMERICA and CARIBBEAN	**214**	**244**	**0.72**	**1.09**	**0.39**	**0.39**	**–0.75**	**–0.12**
Argentina	37	26	–2.87	–2.69	0.96	0.62	–3.87	–3.62
Brazil	79	111	0.21	2.65	0.43	0.53	–1.22	1.49
Chile	15	17	4.41	2.21	0.90	0.96	3.16	1.25
Colombia	20	23	2.32	1.03	0.44	0.44	0.63	–0.29
Mexico	18	18	4.06	0.40	0.17	0.15	2.58	–0.65
Paraguay	0	0	–18.27	2.37	0.00	0.00	–20.22	0.24
Uruguay	5	6	7.60	1.27	1.47	1.55	6.81	0.68
Other Latin America	*41*	*43*	*1.88*	*0.07*	*0.26*	*0.24*	*0.25*	*–1.32*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.23. **Butter projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**4 045**	**5 779**	**6.24**	**2.70**	**1.10**	**1.39**	**4.84**	**1.56**
Bangladesh	22	29	2.47	2.89	0.16	0.17	0.49	1.16
China[c]	122	183	4.26	3.80	0.10	0.13	3.49	3.20
India	2 748	4 247	8.52	3.19	2.53	3.37	6.76	1.84
Indonesia	12	14	4.76	2.07	0.05	0.06	3.42	1.05
Iran, Islamic Republic of	176	223	3.12	2.27	2.56	2.79	2.07	0.81
Korea, Republic of	7	8	7.04	1.26	0.14	0.16	6.43	1.00
Malaysia	9	7	–0.16	–2.28	0.34	0.24	–2.28	–3.75
Pakistan	556	636	3.07	0.98	3.59	3.29	0.81	–1.05
Philippines	9	11	–3.06	2.10	0.12	0.12	–4.91	0.56
Saudi Arabia	36	40	3.72	1.02	1.51	1.30	0.89	–1.22
Thailand	15	19	5.86	1.74	0.23	0.27	4.87	1.02
Turkey	125	128	–0.65	0.76	1.74	1.55	–2.16	–0.44
Vietnam	6	7	2.30	2.36	0.07	0.08	0.90	1.15
Other Asia Pacific	*204*	*226*	*0.88*	*0.68*	*0.66*	*0.60*	*–1.13*	*–1.00*
LEAST DEVELOPED COUNTRIES (LDC)	**171**	**204**	**1.71**	**1.47**	**0.23**	**0.22**	**–0.70**	**–0.78**
DEVELOPING excluding LDC	**4 413**	**6 171**	**5.78**	**2.55**	**1.02**	**1.26**	**4.36**	**1.39**
OECD	**2 999**	**2 929**	**–0.30**	**–0.38**	**2.55**	**2.35**	**–0.95**	**–0.87**
NON-OECD	**5 123**	**6 997**	**4.62**	**2.41**	**0.98**	**1.17**	**3.18**	**1.16**

a) For EU25, World, Developed, OECD and Western Europe growth rate refers to 1999-2005.
b) Least-squares growth rate (see glossary).
c) Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Other Asia Pacific aggregate.
est.: Estimate.
n.a.: Not available.
Source: OECD and FAO Secretariats.

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Table A.24. **Cheese projections**

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**17 925**	**21 259**	**2.27**	**1.48**	**1 423**	**1 781**	**4.49**	**2.16**	**1 506**	**1 738**	**5.05**	**1.21**
DEVELOPED	**14 759**	**17 208**	**2.28**	**1.30**	**851**	**1 070**	**4.45**	**2.92**	**1 360**	**1 515**	**4.37**	**0.96**
NORTH AMERICA	**4 367**	**5 606**	**2.58**	**2.18**	**231**	**248**	**4.14**	**1.04**	**68**	**76**	**–0.02**	**1.82**
Canada	345	380	1.24	1.02	21	20	0.68	0.00	11	7	–8.78	–2.20
United States	4 023	5 226	2.70	2.27	209	227	4.55	1.14	58	69	2.91	2.33
WESTERN EUROPE	**8 660**	**9 664**	**1.91**	**0.88**	**151**	**152**	**–4.50**	**1.76**	**639**	**660**	**2.65**	**0.31**
EU25	8 402	9 396	1.96	0.90	114	112	–6.29	2.22	572	599	3.55	0.41
Norway	82	81	–0.94	0.00	5	7	9.04	3.27	17	13	–4.99	–2.35
Switzerland	172	183	2.81	0.00	32	32	0.47	0.00	50	48	–2.39	0.00
Other Western Europe	*5*	*5*	*3.23*	*0.00*	*1*	*1*	*1.98*	*3.75*	*0*	*0*	*n.a.*	*n.a.*
EASTERN EUROPE	**133**	**139**	**–4.40**	**1.37**	**26**	**30**	**2.74**	**1.69**	**20**	**21**	**5.56**	**1.37**
Other Eastern Europe	*133*	*139*	*–4.40*	*1.37*	*26*	*30*	*2.74*	*1.69*	*20*	*21*	*5.56*	*1.37*
CIS	**857**	**961**	**6.24**	**1.15**	**187**	**319**	**7.43**	**6.25**	**135**	**166**	**31.37**	**1.38**
Russian Federation	523	584	4.02	1.19	179	310	7.72	6.45	4	4	6.44	0.00
Ukraine	193	207	16.57	0.76	3	3	11.94	0.75	89	105	50.24	0.81
Other CIS	*142*	*170*	*5.56*	*1.53*	*6*	*6*	*2.31*	*1.02*	*43*	*57*	*20.18*	*2.66*
OCEANIA DEVELOPED	**671**	**771**	**3.51**	**1.22**	**43**	**57**	**3.14**	**3.63**	**497**	**593**	**5.43**	**1.57**
Australia	374	423	3.95	1.31	42	57	3.81	3.63	215	272	7.18	1.89
New Zealand	298	348	2.97	1.12	1	0	n.a.	n.a.	281	322	4.24	1.30
OTHER DEVELOPED	**70**	**66**	**–0.33**	**–2.65**	**212**	**265**	**2.58**	**2.18**	**2**	**0**	**n.a.**	**n.a.**
Japan	34	34	–0.02	0.13	209	259	2.72	1.90	0	0	n.a.	n.a.
South Africa	36	32	–0.59	–5.04	3	6	–9.53	n.a.	2	0	n.a.	n.a.
DEVELOPING	**3 166**	**4 051**	**2.61**	**2.25**	**572**	**711**	**5.57**	**1.15**	**145**	**223**	**11.55**	**3.12**
AFRICA	**898**	**1 183**	**6.05**	**2.48**	**69**	**97**	**4.22**	**1.74**	**26**	**30**	**17.54**	**–0.09**
NORTH AFRICA	**699**	**883**	**6.84**	**2.20**	**51**	**56**	**3.55**	**–0.52**	**26**	**29**	**17.71**	**0.57**
Algeria	2	2	3.85	0.00	24	25	7.33	0.31	0	0	n.a.	n.a.
Egypt	667	841	7.24	2.09	10	10	–5.97	–6.06	7	9	12.42	2.09
Other North Africa	*30*	*40*	*–0.02*	*4.80*	*18*	*22*	*7.59*	*2.21*	*19*	*21*	*20.72*	*0.00*
SUB-SAHARAN AFRICA	**199**	**299**	**3.65**	**3.38**	**18**	**40**	**6.30**	**6.01**	**0**	**0**	**8.18**	**–15.83**
Ghana	0	0	n.a.	n.a.	0	0	20.51	3.56	0	0	n.a.	n.a.
Mozambique	0	0	n.a.	n.a.	1	1	1.64	5.95	0	0	n.a.	n.a.
Nigeria	8	6	2.66	–2.29	1	6	18.59	10.36	0	0	n.a.	n.a.
Tanzania	3	3	7.19	0.00	0	2	27.62	16.83	0	0	n.a.	0.00
Zambia	1	1	–0.34	0.00	0	0	13.82	0.00	0	0	n.a.	n.a.
Other Sub-Saharan Africa	*187*	*290*	*3.67*	*3.58*	*17*	*30*	*5.91*	*5.03*	*0*	*0*	*5.51*	*–16.58*
LATIN AMERICA and CARIBBEAN	**1 326**	**1 639**	**1.12**	**1.88**	**179**	**256**	**6.51**	**2.49**	**94**	**168**	**11.56**	**4.32**
Argentina	367	459	–1.59	1.77	1	0	n.a.	n.a.	34	84	10.34	6.25
Brazil	470	585	2.30	2.07	5	8	–22.86	–5.76	4	5	33.11	–0.03
Chile	63	73	3.36	1.54	4	4	–5.72	0.79	10	16	51.77	5.17
Colombia	55	59	1.16	0.51	0	0	–28.69	0.63	2	1	41.08	–6.49
Mexico	131	141	2.09	0.54	88	161	19.20	5.94	1	1	22.77	0.32
Paraguay	0	0	n.a.	n.a.	1	2	–0.69	4.79	0	0	n.a.	n.a.
Uruguay	29	38	2.00	2.18	0	0	–17.00	1.80	18	26	2.77	2.38
Other Latin America	*211*	*285*	*2.71*	*2.74*	*80*	*81*	*8.54*	*–0.99*	*24*	*35*	*15.05*	*2.85*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.24. **Cheese projections** *(cont.)*

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**942**	**1 230**	**2.02**	**2.54**	**324**	**358**	**5.38**	**0.16**	**25**	**25**	**7.43**	**0.41**
Bangladesh	1	1	–0.01	–0.30	0	1	14.52	15.11	0	0	n.a.	n.a.
China[c]	236	380	3.71	4.38	22	29	17.11	1.67	1	1	18.91	1.67
India	0	0	n.a.	n.a.	1	1	38.10	0.00	0	0	37.89	0.00
Indonesia	0	0	0.05	1.59	7	8	3.94	1.15	0	0	28.43	–0.25
Iran, Islamic Republic of	219	237	1.80	0.60	0	2	–11.70	–4.99	0	0	n.a.	0.60
Korea, Republic of	26	60	19.74	7.15	41	53	13.92	1.00	1	0	n.a.	n.a.
Malaysia	0	0	0.05	1.76	6	7	9.71	1.19	0	0	–3.72	1.76
Pakistan	0	0	0.01	–0.02	1	3	10.27	6.41	0	0	n.a.	n.a.
Philippines	0	0	0.07	0.71	10	8	–7.61	1.41	0	0	6.94	0.71
Saudi Arabia	0	0	n.a.	n.a.	80	84	2.93	0.20	5	5	5.02	0.00
Thailand	1	1	16.27	3.73	3	6	9.47	4.75	0	0	13.00	3.73
Turkey	127	123	–1.29	0.17	4	5	6.36	0.97	8	4	6.85	–4.47
Vietnam	0	0	3.25	15.15	1	2	6.79	2.93	0	0	n.a.	n.a.
Other Asia Pacific	*331*	*428*	*1.71*	*2.48*	*149*	*150*	*5.53*	*–0.74*	*10*	*14*	*7.68*	*2.95*
LEAST DEVELOPED COUNTRIES (LDC)	**253**	**362**	**2.83**	**2.86**	**17**	**31**	**9.31**	**9.59**	**0**	**0**	**21.13**	**–20.50**
DEVELOPING excluding LDC	**2 913**	**3 689**	**2.59**	**2.19**	**556**	**680**	**5.47**	**0.89**	**145**	**223**	**11.54**	**3.24**
OECD	**14 016**	**16 399**	**1.96**	**1.33**	**766**	**935**	**1.72**	**2.27**	**1 213**	**1 334**	**2.56**	**0.91**
NON-OECD	**3 909**	**4 860**	**3.05**	**1.99**	**657**	**847**	**3.78**	**2.05**	**292**	**404**	**16.86**	**2.26**

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.24. **Cheese projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**17 891**	**21 306**	**2.27**	**1.55**	**2.80**	**2.95**	**1.04**	**0.44**
DEVELOPED	**14 284**	**16 762**	**2.26**	**1.43**	**10.75**	**12.28**	**1.91**	**1.19**
NORTH AMERICA	***4 531***	***5 775***	***2.79***	***2.14***	***13.84***	***16.01***	***1.77***	***1.26***
Canada	352	393	1.66	0.96	11.03	11.21	0.68	0.14
United States	4 178	5 382	2.89	2.23	14.14	16.52	1.87	1.34
WESTERN EUROPE	**8 180**	**9 157**	**1.69**	**0.93**	**17.39**	**19.18**	**1.39**	**0.82**
EU25	7 944	8 909	1.72	0.95	17.34	19.16	1.43	0.84
Norway	70	75	0.83	0.74	15.15	15.51	0.25	0.27
Switzerland	161	167	4.30	0.00	22.25	22.78	3.96	–0.10
Other Western Europe	*5*	*6*	*3.23*	*0.56*	*18.00*	*18.81*	*2.24*	*0.00*
EASTERN EUROPE	**140**	**148**	**–4.32**	**1.43**	**2.60**	**2.85**	**–4.14**	**1.70**
Other Eastern Europe	*140*	*148*	*–4.32*	*1.43*	*2.60*	*2.85*	*–4.14*	*1.70*
CIS	**909**	**1 114**	**4.35**	**2.33**	**3.27**	**4.09**	**4.60**	**2.51**
Russian Federation	698	889	4.29	2.73	4.85	6.50	4.67	3.21
Ukraine	107	106	7.73	0.75	2.26	2.52	8.91	1.81
Other CIS	*104*	*119*	*2.21*	*1.02*	*1.19*	*1.27*	*1.75*	*0.32*
OCEANIA DEVELOPED	**244**	**237**	**1.81**	**0.65**	**10.20**	**8.91**	**0.67**	**–0.27**
Australia	216	209	2.07	0.74	10.83	9.38	0.89	–0.25
New Zealand	28	28	0.00	0.06	7.02	6.52	–0.97	–0.57
OTHER DEVELOPED	**281**	**331**	**1.78**	**1.19**	**1.60**	**1.88**	**1.33**	**1.19**
Japan	243	293	2.30	1.68	1.90	2.29	2.10	1.70
South Africa	38	38	–1.18	–2.08	0.80	0.78	–2.30	–2.14
DEVELOPING	**3 607**	**4 544**	**2.84**	**1.98**	**0.71**	**0.78**	**1.31**	**0.66**
AFRICA	**943**	**1 246**	**5.74**	**2.43**	**1.12**	**1.17**	**3.33**	**0.23**
NORTH AFRICA	**726**	**907**	**6.37**	**1.98**	**4.79**	**5.02**	**4.59**	**0.40**
Algeria	25	27	7.18	0.29	0.78	0.70	5.61	–1.18
Egypt	670	842	6.86	1.96	9.22	9.55	4.85	0.20
Other North Africa	*31*	*38*	*–2.04*	*4.05*	*0.67*	*0.70*	*–3.49*	*2.66*
SUB-SAHARAN AFRICA	**217**	**339**	**3.84**	**3.74**	**0.32**	**0.38**	**1.34**	**1.37**
Ghana	0	0	20.11	3.56	0.01	0.02	17.51	1.69
Mozambique	1	1	1.64	5.95	0.03	0.04	–0.50	4.16
Nigeria	8	12	3.34	2.44	0.07	0.07	0.96	0.40
Tanzania	3	5	7.54	3.75	0.08	0.11	5.33	1.96
Zambia	1	1	–0.04	0.00	0.07	0.06	–1.95	–1.70
Other Sub-Saharan Africa	*204*	*320*	*3.83*	*3.79*	*0.43*	*0.52*	*1.22*	*1.25*
LATIN AMERICA and CARIBBEAN	**1 422**	**1 735**	**1.35**	**1.69**	**2.57**	**2.74**	**–0.13**	**0.47**
Argentina	337	374	–2.37	0.76	8.77	8.76	–3.37	–0.20
Brazil	470	589	1.32	1.89	2.56	2.81	–0.13	0.73
Chile	57	61	0.45	0.79	3.56	3.41	–0.75	–0.16
Colombia	53	58	0.47	0.65	1.19	1.11	–1.19	–0.66
Mexico	219	301	6.64	3.08	2.07	2.53	5.13	2.00
Paraguay	1	2	–2.36	4.79	0.14	0.22	–4.70	2.61
Uruguay	11	12	–0.21	1.80	3.08	3.37	–0.94	1.20
Other Latin America	*275*	*338*	*4.00*	*1.60*	*1.77*	*1.87*	*2.33*	*0.18*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.24. **Cheese projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**1 241**	**1 563**	**2.72**	**1.96**	**0.34**	**0.38**	**1.36**	**0.83**
Bangladesh	1	2	0.48	5.20	0.01	0.01	–1.46	3.44
China[c]	258	408	4.45	4.17	0.20	0.30	3.68	3.57
India	0	0	n.a.	0.00	0.00	0.00	n.a.	–1.31
Indonesia	7	8	3.77	1.18	0.03	0.03	2.44	0.17
Iran, Islamic Republic of	219	238	1.59	0.55	3.18	2.98	0.55	–0.89
Korea, Republic of	66	113	15.55	3.81	1.37	2.30	14.89	3.54
Malaysia	6	7	9.96	1.19	0.24	0.25	7.63	–0.33
Pakistan	1	3	16.07	6.41	0.01	0.01	13.53	4.27
Philippines	10	8	–7.75	1.43	0.12	0.08	–9.51	–0.10
Saudi Arabia	75	78	2.85	0.22	3.15	2.55	0.05	–2.00
Thailand	4	7	11.35	4.49	0.07	0.10	10.31	3.75
Turkey	123	123	–1.42	0.42	1.71	1.49	–2.92	–0.78
Vietnam	1	2	6.84	3.23	0.02	0.02	5.37	2.00
Other Asia Pacific	*469*	*565*	*2.62*	*1.45*	*1.51*	*1.51*	*0.58*	*–0.24*
LEAST DEVELOPED COUNTRIES (LDC)	**269**	**393**	**3.14**	**3.33**	**0.36**	**0.41**	**0.70**	**1.04**
DEVELOPING excluding LDC	**3 337**	**4 151**	**2.82**	**1.86**	**0.77**	**0.85**	**1.43**	**0.71**
OECD	**13 605**	**15 999**	**1.95**	**1.42**	**11.58**	**12.86**	**1.28**	**0.91**
NON-OECD	**4 286**	**5 306**	**2.62**	**1.95**	**0.82**	**0.89**	**1.20**	**0.71**

a) For EU25, World, Developed, OECD and Western Europe growth rate refers to 1999-2005.
b) Least-squares growth rate (see glossary).
c) Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Other Asia Pacific aggregate.
est.: Estimate.
n.a.: Not available.
Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/233840101021*

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Table A.25. **Skim milk powder projections**

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**3 571**	**3 393**	**–0.78**	**–0.65**	**1 223**	**1 209**	**0.43**	**–0.23**	**1 240**	**1 049**	**–0.04**	**–0.37**
DEVELOPED	**3 068**	**2 638**	**–1.46**	**–1.52**	**155**	**173**	**–4.99**	**1.96**	**1 119**	**894**	**–0.54**	**–0.81**
NORTH AMERICA	**789**	**600**	**4.32**	**–4.44**	**3**	**1**	**–9.16**	**0.00**	**246**	**164**	**11.21**	**–4.70**
Canada	89	81	3.96	–1.47	2	0	n.a.	n.a.	21	9	–7.37	–0.52
United States	701	519	4.36	–4.83	1	1	–12.77	0.00	225	155	16.04	–4.89
WESTERN EUROPE	**1 202**	**912**	**–3.33**	**–2.37**	**31**	**9**	**–15.54**	**0.00**	**296**	**111**	**–7.28**	**–5.59**
EU25	1 168	879	–3.42	–2.45	31	9	–15.59	0.00	283	98	–7.63	–6.38
Norway	7	7	1.34	0.00	0	0	n.a.	n.a.	0	0	11.07	n.a.
Switzerland	27	26	–0.55	0.00	0	0	2.70	0.00	13	13	10.36	3.95
Other Western Europe	*0*	*0*	*0.79*	*0.00*	*0*	*0*	*–2.32*	*n.a.*	*0*	*0*	*n.a.*	*8.49*
EASTERN EUROPE	**8**	**7**	**–4.42**	**0.02**	**14**	**15**	**14.57**	**0.68**	**0**	**0**	**–20.74**	**0.02**
Other Eastern Europe	*8*	*7*	*–4.42*	*0.02*	*14*	*15*	*14.57*	*0.68*	*0*	*0*	*–20.74*	*0.02*
CIS	**277**	**275**	**–6.72**	**1.03**	**61**	**103**	**10.39**	**3.03**	**98**	**122**	**7.06**	**1.68**
Russian Federation	121	99	–12.09	1.01	44	87	8.13	3.41	4	4	–21.74	0.00
Ukraine	117	131	–0.55	1.05	1	1	n.a.	–0.43	60	80	11.76	2.13
Other CIS	*38*	*45*	*–1.68*	*1.00*	*16*	*14*	*11.51*	*1.22*	*34*	*38*	*16.73*	*0.97*
OCEANIA DEVELOPED	**589**	**638**	**4.24**	**1.96**	**4**	**4**	**4.49**	**2.20**	**479**	**497**	**3.06**	**2.00**
Australia	201	234	–1.17	2.13	3	4	5.16	2.20	159	169	–1.98	1.53
New Zealand	388	404	8.48	1.87	1	0	n.a.	n.a.	320	328	6.72	2.26
OTHER DEVELOPED	**203**	**207**	**–0.72**	**0.18**	**43**	**41**	**–5.64**	**0.57**	**1**	**0**	**n.a.**	**n.a.**
Japan	183	188	–1.32	0.29	37	30	–7.15	–0.52	0	0	n.a.	n.a.
South Africa	21	19	8.71	–0.87	7	11	11.46	4.15	1	0	n.a.	n.a.
DEVELOPING	**503**	**755**	**5.00**	**3.16**	**1 068**	**1 036**	**1.50**	**–0.56**	**121**	**155**	**10.86**	**2.61**
AFRICA	**5**	**5**	**–0.28**	**–0.57**	**175**	**159**	**2.24**	**–1.35**	**5**	**3**	**11.34**	**–0.24**
NORTH AFRICA	**0**	**0**	**n.a.**	**n.a.**	**128**	**105**	**3.51**	**–2.56**	**1**	**0**	**–3.68**	**0.00**
Algeria	0	0	n.a.	n.a.	90	72	4.21	–3.49	0	0	n.a.	0.00
Egypt	0	0	n.a.	n.a.	20	16	0.73	–0.73	1	0	n.a.	n.a.
Other North Africa	*0*	*0*	*n.a.*	*n.a.*	*18*	*18*	*3.60*	*0.28*	*0*	*0*	*n.a.*	*0.00*
SUB-SAHARAN AFRICA	**5**	**5**	**–0.28**	**–0.57**	**47**	**53**	**–0.69**	**1.58**	**4**	**3**	**11.52**	**–0.25**
Ghana	0	0	n.a.	n.a.	9	12	47.47	1.09	0	0	n.a.	0.00
Mozambique	0	0	n.a.	n.a.	0	0	–41.58	2.64	0	0	n.a.	n.a.
Nigeria	0	0	n.a.	n.a.	14	11	10.56	2.11	0	0	n.a.	0.00
Tanzania	0	0	n.a.	n.a.	1	2	3.30	3.39	0	0	n.a.	0.00
Zambia	0	0	n.a.	n.a.	0	0	9.42	0.00	0	0	n.a.	n.a.
Other Sub-Saharan Africa	*5*	*5*	*–0.28*	*–0.57*	*24*	*29*	*–6.20*	*1.53*	*4*	*3*	*10.57*	*–0.29*
LATIN AMERICA and CARIBBEAN	**179**	**227**	**3.05**	**2.20**	**188**	**202**	**–5.89**	**0.84**	**33**	**61**	**0.45**	**6.05**
Argentina	35	55	–1.49	4.71	0	0	n.a.	n.a.	16	43	–0.75	9.74
Brazil	73	92	5.18	2.03	1	2	–45.95	–1.46	1	1	34.52	0.43
Chile	10	10	4.14	–0.02	6	1	–8.04	–16.83	0	0	26.38	–0.02
Colombia	8	9	n.a.	0.00	0	1	n.a.	35.60	0	0	40.51	4.05
Mexico	31	39	2.99	1.84	118	159	0.03	2.71	0	0	–25.12	0.57
Paraguay	0	0	n.a.	n.a.	0	0	8.56	2.34	0	0	n.a.	n.a.
Uruguay	16	16	–0.06	0.44	0	0	–4.13	1.55	14	15	2.41	0.39
Other Latin America	*6*	*6*	*1.61*	*–0.01*	*63*	*38*	*–6.05*	*–3.88*	*1*	*2*	*11.68*	*–0.01*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.25. **Skim milk powder projections** *(cont.)*

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**320**	**524**	**6.36**	**3.65**	**705**	**676**	**4.33**	**–0.75**	**83**	**91**	**19.71**	**0.91**
Bangladesh	0	0	n.a.	n.a.	17	23	3.82	2.50	0	0	n.a.	n.a.
China[c]	75	156	9.39	7.86	69	89	26.98	0.07	0	0	n.a.	n.a.
India	197	322	8.55	2.76	5	0	n.a.	n.a.	15	24	45.89	4.52
Indonesia	0	0	0.00	–0.34	74	50	7.32	–4.21	7	10	28.35	–0.34
Iran, Islamic Republic of	0	0	n.a.	n.a.	7	8	1.48	2.09	2	3	n.a.	0.00
Korea, Republic of	39	38	–1.26	–0.76	4	3	12.48	–4.31	0	0	–13.64	n.a.
Malaysia	0	0	0.01	–0.01	47	14	–5.94	–11.63	9	9	46.54	–0.01
Pakistan	0	0	0.00	0.00	5	5	12.09	2.43	0	0	n.a.	0.00
Philippines	0	0	0.00	–0.66	120	134	4.56	0.35	0	0	n.a.	–0.66
Saudi Arabia	0	0	n.a.	n.a.	31	23	–3.22	–2.90	10	13	28.78	0.00
Thailand	1	1	0.00	–1.95	77	85	2.91	0.65	1	0	35.60	–1.95
Turkey	0	0	n.a.	n.a.	6	6	–0.19	2.22	0	0	–15.93	0.00
Vietnam	1	1	0.00	0.17	30	31	11.34	0.34	0	0	n.a.	n.a.
Other Asia Pacific	*7*	*6*	*–7.03*	*–0.10*	*214*	*205*	*5.03*	*–0.39*	*39*	*32*	*13.08*	*–0.10*
LEAST DEVELOPED COUNTRIES (LDC)	**2**	**2**	**0.00**	**–1.21**	**79**	**110**	**0.67**	**2.59**	**3**	**3**	**32.38**	**–0.29**
DEVELOPING excluding LDC	**501**	**753**	**5.03**	**3.18**	**989**	**927**	**1.57**	**–0.87**	**118**	**152**	**10.64**	**2.66**
OECD	**2 833**	**2 414**	**–0.54**	**–1.73**	**201**	**211**	**–3.87**	**1.90**	**1 021**	**772**	**–0.89**	**–1.15**
NON-OECD	**738**	**979**	**–0.42**	**2.63**	**1 022**	**998**	**2.13**	**–0.63**	**219**	**277**	**8.75**	**2.19**

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.25. **Skim milk powder projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**3 696**	**3 512**	**0.82**	**–0.59**	**0.58**	**0.49**	**–0.40**	**–1.67**
DEVELOPED	**2 250**	**1 877**	**0.27**	**–1.60**	**1.69**	**1.37**	**–0.07**	**–1.83**
NORTH AMERICA	***687***	***437***	***5.73***	***–4.24***	***2.10***	***1.21***	***4.68***	***–5.07***
Canada	58	72	7.05	–1.58	1.81	2.07	6.02	–2.38
United States	629	365	5.59	–4.69	2.13	1.12	4.53	–5.52
WESTERN EUROPE	**976**	**810**	**–1.47**	**–1.80**	**2.08**	**1.70**	**–1.75**	**–1.91**
EU25	954	790	–1.51	–1.79	2.08	1.70	–1.79	–1.90
Norway	7	7	1.36	0.00	1.43	1.39	0.78	–0.46
Switzerland	15	13	–5.17	–2.71	2.07	1.74	–5.49	–2.81
Other Western Europe	*0*	*0*	*–2.08*	*–1.43*	*1.39*	*1.17*	*–3.01*	*–1.98*
EASTERN EUROPE	**21**	**22**	**4.64**	**0.48**	**0.39**	**0.42**	**4.84**	**0.75**
Other Eastern Europe	*21*	*22*	*4.64*	*0.48*	*0.39*	*0.42*	*4.84*	*0.75*
CIS	**240**	**255**	**–7.74**	**1.47**	**0.86**	**0.94**	**–7.52**	**1.64**
Russian Federation	162	182	–7.87	2.11	1.12	1.33	–7.53	2.59
Ukraine	58	52	–6.76	–0.43	1.24	1.25	–5.75	0.61
Other CIS	*20*	*21*	*–9.36*	*1.22*	*0.23*	*0.22*	*–9.78*	*0.52*
OCEANIA DEVELOPED	**82**	**105**	**7.77**	**2.06**	**3.43**	**3.95**	**6.56**	**1.12**
Australia	47	69	3.75	3.12	2.35	3.11	2.55	2.12
New Zealand	35	36	17.02	0.25	8.78	8.26	15.89	–0.38
OTHER DEVELOPED	**244**	**248**	**–1.75**	**0.32**	**1.39**	**1.41**	**–2.18**	**0.32**
Japan	217	218	–2.55	0.26	1.70	1.70	–2.75	0.28
South Africa	27	30	9.33	0.74	0.56	0.63	8.09	0.68
DEVELOPING	**1 446**	**1 635**	**1.96**	**0.71**	**0.29**	**0.28**	**0.44**	**–0.60**
AFRICA	**174**	**160**	**1.80**	**–1.35**	**0.21**	**0.15**	**–0.52**	**–3.47**
NORTH AFRICA	**127**	**105**	**3.06**	**–2.56**	**0.84**	**0.58**	**1.34**	**–4.07**
Algeria	90	72	4.22	–3.49	2.78	1.88	2.69	–4.90
Egypt	19	16	0.39	–0.73	0.26	0.18	–1.50	–2.44
Other North Africa	*18*	*18*	*1.40*	*0.28*	*0.39*	*0.33*	*–0.10*	*–1.06*
SUB-SAHARAN AFRICA	**47**	**55**	**–1.10**	**1.49**	**0.07**	**0.06**	**–3.49**	**–0.82**
Ghana	9	12	48.56	1.11	0.41	0.45	45.34	–0.71
Mozambique	0	0	–41.58	2.64	0.01	0.00	–42.81	0.90
Nigeria	13	10	10.28	2.17	0.10	0.06	7.75	0.14
Tanzania	1	2	3.22	3.47	0.02	0.04	1.11	1.69
Zambia	0	0	9.75	0.00	0.02	0.02	7.65	–1.70
Other Sub-Saharan Africa	*23*	*31*	*–6.63*	*1.34*	*0.05*	*0.05*	*–8.98*	*–1.15*
LATIN AMERICA and CARIBBEAN	**334**	**369**	**–2.59**	**0.99**	**0.60**	**0.58**	**–4.01**	**–0.22**
Argentina	19	12	–1.47	–4.26	0.49	0.28	–2.49	–5.18
Brazil	73	94	–5.97	1.91	0.40	0.45	–7.31	0.75
Chile	15	11	–1.29	–3.40	0.94	0.60	–2.47	–4.31
Colombia	8	10	7.77	1.37	0.17	0.19	6.00	0.04
Mexico	148	197	0.72	2.64	1.40	1.65	–0.71	1.56
Paraguay	0	0	8.56	2.34	0.06	0.06	5.97	0.21
Uruguay	1	1	–8.53	1.55	0.35	0.22	–9.20	0.96
Other Latin America	*69*	*44*	*–5.42*	*–3.41*	*0.45*	*0.25*	*–6.94*	*–4.76*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.25. **Skim milk powder projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**939**	**1 106**	**4.12**	**0.95**	**0.26**	**0.27**	**2.74**	**–0.17**
Bangladesh	17	23	3.82	2.50	0.12	0.14	1.81	0.78
China[c]	144	245	15.71	4.33	0.11	0.18	14.86	3.73
India	188	298	7.57	2.64	0.17	0.24	5.83	1.29
Indonesia	67	40	6.59	–4.97	0.30	0.16	5.23	–5.92
Iran, Islamic Republic of	5	5	–5.78	3.42	0.07	0.06	–6.74	1.95
Korea, Republic of	44	40	–0.18	–1.04	0.93	0.82	–0.75	–1.29
Malaysia	38	5	–8.63	–18.90	1.51	0.17	–10.57	–20.12
Pakistan	4	5	10.99	2.54	0.03	0.03	8.56	0.48
Philippines	120	134	4.55	0.35	1.47	1.38	2.56	–1.16
Saudi Arabia	21	10	–8.78	–5.63	0.88	0.33	–11.26	–7.72
Thailand	76	85	2.86	0.63	1.19	1.23	1.90	–0.09
Turkey	5	6	0.33	2.26	0.08	0.07	–1.20	1.04
Vietnam	30	32	11.34	0.31	0.36	0.33	9.82	–0.88
Other Asia Pacific	*179*	*177*	*2.89*	*–0.44*	*0.58*	*0.47*	*0.84*	*–2.10*
LEAST DEVELOPED COUNTRIES (LDC)	**77**	**109**	**0.42**	**2.60**	**0.10**	**0.11**	**–1.95**	**0.32**
DEVELOPING excluding LDC	**1 369**	**1 526**	**2.05**	**0.58**	**0.32**	**0.31**	**0.68**	**–0.55**
OECD	**2 160**	**1 813**	**1.91**	**–1.63**	**1.84**	**1.46**	**1.25**	**–2.12**
NON-OECD	**1 536**	**1 699**	**0.16**	**0.65**	**0.29**	**0.28**	**–1.23**	**–0.58**

a) For EU25, World, Developed, OECD and Western Europe growth rate refers to 1999-2005.
b) Least-squares growth rate (see glossary).
c) Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Other Asia Pacific aggregate.
est.: Estimate.
n.a.: Not available.
Source: OECD and FAO Secretariats.

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Table A.26. **Whole milk powder projections**

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**3 582**	**4 487**	**3.66**	**2.02**	**1 394**	**1 940**	**2.71**	**2.48**	**1 669**	**2 150**	**3.95**	**2.07**
DEVELOPED	**1 888**	**2 046**	**2.03**	**0.73**	**73**	**100**	**2.81**	**1.96**	**1 232**	**1 382**	**1.84**	**1.05**
NORTH AMERICA	**36**	**39**	**–10.57**	**–1.89**	**26**	**25**	**30.19**	**0.00**	**2**	**3**	**–25.62**	**0.00**
Canada	19	30	0.27	0.00	23	23	36.83	0.00	2	3	–11.35	0.00
United States	17	9	–16.75	–6.20	3	2	8.82	0.00	0	0	n.a.	n.a.
WESTERN EUROPE	**889**	**874**	**–1.28**	**–0.13**	**5**	**3**	**–10.70**	**–4.27**	**507**	**475**	**–3.18**	**–0.31**
EU25	866	849	–1.52	–0.13	5	3	–6.65	–4.60	501	470	–3.35	–0.31
Norway	1	1	–5.07	0.00	0	0	n.a.	n.a.	0	0	n.a.	n.a.
Switzerland	21	23	13.35	0.00	0	0	–31.42	0.00	6	6	71.47	0.00
Other Western Europe	*0*	*0*	*0.14*	*0.00*	*0*	*0*	*–6.49*	*n.a.*	*0*	*0*	*n.a.*	*n.a.*
EASTERN EUROPE	**3**	**3**	**–9.71**	**2.00**	**9**	**11**	**3.68**	**0.95**	**0**	**0**	**–14.86**	**2.00**
Other Eastern Europe	*3*	*3*	*–9.71*	*2.00*	*9*	*11*	*3.68*	*0.95*	*0*	*0*	*–14.86*	*2.00*
CIS	**144**	**163**	**1.79**	**1.65**	**26**	**51**	**–11.75**	**3.66**	**30**	**41**	**23.38**	**3.16**
Russian Federation	90	97	0.25	1.36	18	42	–17.75	4.31	2	1	–12.44	0.00
Ukraine	26	30	14.77	1.62	1	1	n.a.	–0.47	15	20	n.a.	2.83
Other CIS	*29*	*36*	*–0.06*	*2.56*	*8*	*9*	*3.08*	*1.19*	*13*	*20*	*44.73*	*3.81*
OCEANIA DEVELOPED	**750**	**921**	**6.58**	**1.79**	**7**	**9**	**4.23**	**3.66**	**686**	**859**	**7.00**	**1.79**
Australia	182	219	6.20	2.06	6	9	5.43	3.66	121	161	3.99	2.15
New Zealand	569	702	6.67	1.70	0	0	n.a.	n.a.	565	699	7.70	1.71
OTHER DEVELOPED	**65**	**47**	**–0.71**	**–2.40**	**1**	**0**	**n.a.**	**n.a.**	**8**	**3**	**–3.88**	**0.91**
Japan	50	34	–1.83	–3.32	0	0	n.a.	n.a.	0	0	n.a.	n.a.
South Africa	15	13	4.03	0.58	1	0	n.a.	n.a.	8	3	–3.88	0.91
DEVELOPING	**1 694**	**2 441**	**6.28**	**3.24**	**1 321**	**1 840**	**3.65**	**2.51**	**437**	**768**	**13.79**	**4.20**
AFRICA	**8**	**8**	**–4.78**	**0.26**	**342**	**499**	**9.63**	**3.14**	**9**	**10**	**–5.12**	**0.31**
NORTH AFRICA	**0**	**0**	**n.a.**	**n.a.**	**169**	**257**	**7.80**	**3.18**	**2**	**2**	**34.90**	**0.00**
Algeria	0	0	n.a.	n.a.	159	246	9.42	3.19	1	1	n.a.	0.00
Egypt	0	0	n.a.	n.a.	6	7	–7.00	3.24	0	0	n.a.	n.a.
Other North Africa	*0*	*0*	*n.a.*	*n.a.*	*4*	*4*	*–6.52*	*2.67*	*0*	*0*	*17.20*	*0.00*
SUB-SAHARAN AFRICA	**8**	**8**	**–4.78**	**0.26**	**174**	**242**	**11.64**	**3.10**	**7**	**8**	**–7.08**	**0.37**
Ghana	0	0	n.a.	n.a.	5	7	36.65	3.13	0	0	n.a.	0.00
Mozambique	0	0	n.a.	n.a.	0	0	n.a.	n.a.	0	0	n.a.	n.a.
Nigeria	0	0	n.a.	n.a.	50	74	30.37	3.94	0	0	n.a.	0.00
Tanzania	0	0	n.a.	n.a.	1	1	–0.25	3.33	0	0	n.a.	0.00
Zambia	0	0	n.a.	n.a.	1	1	–6.49	0.00	0	0	n.a.	n.a.
Other Sub-Saharan Africa	*8*	*8*	*–4.78*	*0.26*	*117*	*159*	*7.73*	*2.74*	*7*	*8*	*–7.89*	*0.39*
LATIN AMERICA and CARIBBEAN	**917**	**1 369**	**3.52**	**3.37**	**253**	**339**	**–4.04**	**2.04**	**263**	**574**	**14.15**	**5.93**
Argentina	244	562	4.39	6.98	1	0	n.a.	n.a.	168	475	12.48	7.70
Brazil	311	390	3.28	2.12	26	51	–19.37	4.97	13	14	36.18	0.05
Chile	64	67	0.14	0.09	10	10	–0.08	0.43	10	9	5.62	–0.91
Colombia	54	78	6.66	1.63	0	0	–39.35	3.90	26	16	74.47	–4.61
Mexico	161	163	4.18	0.16	40	40	1.57	–0.18	10	10	16.10	–0.11
Paraguay	0	0	n.a.	n.a.	2	2	–12.50	0.00	0	0	n.a.	n.a.
Uruguay	26	41	14.40	2.57	0	0	n.a.	1.50	25	37	15.35	2.53
Other Latin America	*55*	*69*	*–1.57*	*1.35*	*173*	*236*	*1.01*	*2.03*	*11*	*13*	*8.03*	*1.20*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.26. **Whole milk powder projections** *(cont.)*

	PRODUCTION (kt)		Growth (%)[b]		IMPORTS (kt)		Growth (%)[b]		EXPORTS (kt)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**769**	**1 064**	**10.94**	**3.10**	**726**	**1 002**	**5.31**	**2.37**	**165**	**184**	**15.53**	**0.27**
Bangladesh	0	0	n.a.	n.a.	21	50	9.94	6.81	0	0	n.a.	n.a.
China[c]	763	1 048	11.42	3.03	116	175	16.02	1.10	24	29	28.91	0.00
India	0	0	n.a.	n.a.	3	2	52.12	0.00	1	2	32.37	0.00
Indonesia	0	0	0.04	2.78	39	58	39.86	3.28	20	24	58.58	–0.12
Iran, Islamic Republic of	1	1	n.a.	0.50	0	1	n.a.	5.88	0	0	n.a.	0.00
Korea, Republic of	4	14	–1.07	11.58	2	3	28.89	4.32	0	0	n.a.	n.a.
Malaysia	0	0	0.04	2.70	67	86	2.83	2.26	12	12	0.98	2.70
Pakistan	0	0	0.00	0.00	2	1	–25.80	1.60	0	0	n.a.	0.00
Philippines	0	0	0.05	0.93	46	55	2.33	0.91	29	34	180.78	0.39
Saudi Arabia	0	0	n.a.	n.a.	79	110	10.54	3.59	1	2	15.20	0.00
Thailand	1	1	0.00	3.46	36	59	–5.97	3.96	5	5	6.50	3.46
Turkey	0	0	n.a.	n.a.	4	4	–2.04	2.09	0	0	14.27	0.00
Vietnam	0	0	n.a.	n.a.	52	70	30.19	1.27	0	0	n.a.	n.a.
Other Asia Pacific	*0*	*0*	*n.a.*	*n.a.*	*260*	*328*	*1.58*	*2.27*	*71*	*77*	*8.72*	*0.00*
LEAST DEVELOPED COUNTRIES (LDC)	**2**	**2**	**0.02**	**0.55**	**109**	**177**	**11.54**	**4.19**	**2**	**3**	**17.22**	**1.12**
DEVELOPING excluding LDC	**1 692**	**2 439**	**6.29**	**3.24**	**1 212**	**1 663**	**3.13**	**2.35**	**434**	**766**	**13.77**	**4.21**
OECD	**1 892**	**2 044**	**1.80**	**0.66**	**83**	**84**	**2.47**	**0.25**	**1 205**	**1 347**	**1.55**	**0.98**
NON-OECD	**1 690**	**2 443**	**5.93**	**3.32**	**1 311**	**1 856**	**3.18**	**2.60**	**464**	**803**	**13.60**	**4.19**

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.26. **Whole milk powder projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**3 303**	**4 274**	**3.09**	**2.20**	**0.52**	**0.59**	**1.85**	**1.09**
DEVELOPED	**729**	**764**	**2.36**	**0.32**	**0.55**	**0.56**	**2.01**	**0.09**
NORTH AMERICA	***61***	***62***	***–1.05***	***–1.24***	***0.18***	***0.17***	***–2.04***	***–2.09***
Canada	41	50	13.78	0.00	1.27	1.44	12.69	–0.81
United States	20	11	–12.19	–5.37	0.07	0.03	–13.07	–6.20
WESTERN EUROPE	**388**	**402**	**1.23**	**0.05**	**0.82**	**0.84**	**0.94**	**–0.07**
EU25	370	382	1.08	0.05	0.81	0.82	0.79	–0.06
Norway	1	1	–5.11	0.00	0.25	0.21	–5.65	–0.46
Switzerland	16	18	3.20	0.00	2.22	2.45	2.86	–0.10
Other Western Europe	*0*	*0*	*–0.22*	*–1.43*	*0.71*	*0.58*	*–1.17*	*–1.98*
EASTERN EUROPE	**11**	**13**	**–0.94**	**1.15**	**0.21**	**0.25**	**–0.76**	**1.43**
Other Eastern Europe	*11*	*13*	*–0.94*	*1.15*	*0.21*	*0.25*	*–0.76*	*1.43*
CIS	**141**	**173**	**–3.14**	**1.85**	**0.51**	**0.64**	**–2.91**	**2.03**
Russian Federation	105	138	–3.35	2.18	0.73	1.01	–3.00	2.66
Ukraine	11	10	1.95	–0.47	0.24	0.25	3.06	0.58
Other CIS	*24*	*25*	*–4.29*	*1.19*	*0.28*	*0.27*	*–4.73*	*0.49*
OCEANIA DEVELOPED	**70**	**70**	**2.90**	**1.98**	**2.93**	**2.65**	**1.75**	**1.04**
Australia	67	67	10.29	2.10	3.33	3.00	9.02	1.10
New Zealand	4	4	–23.08	0.00	0.92	0.85	–23.83	–0.63
OTHER DEVELOPED	**58**	**44**	**–0.63**	**–2.59**	**0.33**	**0.25**	**–1.07**	**–2.60**
Japan	50	34	–1.83	–3.32	0.39	0.27	–2.02	–3.30
South Africa	8	9	11.99	0.57	0.17	0.20	10.72	0.51
DEVELOPING	**2 574**	**3 510**	**3.93**	**2.66**	**0.51**	**0.60**	**2.39**	**1.33**
AFRICA	**339**	**497**	**9.55**	**3.16**	**0.40**	**0.47**	**7.05**	**0.94**
NORTH AFRICA	**167**	**256**	**7.49**	**3.21**	**1.10**	**1.42**	**5.70**	**1.60**
Algeria	158	245	9.33	3.21	4.87	6.42	7.74	1.70
Egypt	6	7	–9.15	3.24	0.08	0.08	–10.87	1.47
Other North Africa	*4*	*4*	*–6.72*	*2.73*	*0.08*	*0.07*	*–8.10*	*1.36*
SUB-SAHARAN AFRICA	**172**	**241**	**11.83**	**3.11**	**0.25**	**0.27**	**9.14**	**0.76**
Ghana	5	7	38.08	3.17	0.21	0.27	35.09	1.32
Mozambique	0	0	n.a.	n.a.	0.00	0.00	n.a.	n.a.
Nigeria	50	73	30.43	3.96	0.39	0.46	27.43	1.90
Tanzania	1	1	–0.37	3.41	0.03	0.03	–2.42	1.63
Zambia	1	1	–7.59	0.00	0.05	0.04	–9.36	–1.70
Other Sub-Saharan Africa	*115*	*158*	*7.96*	*2.75*	*0.25*	*0.26*	*5.25*	*0.23*
LATIN AMERICA and CARIBBEAN	**906**	**1 133**	**–0.70**	**1.90**	**1.64**	**1.79**	**–2.15**	**0.68**
Argentina	77	87	–5.55	3.68	2.00	2.04	–6.53	2.68
Brazil	325	428	–1.34	2.47	1.77	2.04	–2.75	1.31
Chile	64	68	–0.47	0.30	3.97	3.77	–1.65	–0.64
Colombia	29	63	–5.70	3.90	0.64	1.21	–7.25	2.55
Mexico	191	193	3.21	0.10	1.81	1.62	1.75	–0.95
Paraguay	2	2	–7.51	0.00	0.35	0.23	–9.72	–2.08
Uruguay	4	6	6.34	1.50	1.26	1.71	5.56	0.90
Other Latin America	*214*	*287*	*–0.16*	*1.94*	*1.38*	*1.58*	*–1.77*	*0.52*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.26. **Whole milk powder projections** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[b]		PER CAPITA (kg)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**1 330**	**1 881**	**7.02**	**3.01**	**0.36**	**0.45**	**5.61**	**1.87**
Bangladesh	21	50	9.94	6.81	0.15	0.30	7.82	5.02
China[c]	855	1 195	11.66	2.80	0.67	0.87	10.84	2.21
India	1	0	n.a.	n.a.	0.00	0.00	n.a.	n.a.
Indonesia	19	35	31.36	6.37	0.09	0.14	29.68	5.31
Iran, Islamic Republic of	1	2	n.a.	3.38	0.02	0.03	n.a.	1.91
Korea, Republic of	6	16	2.17	9.98	0.12	0.33	1.59	9.70
Malaysia	55	73	3.40	2.19	2.20	2.48	1.21	0.66
Pakistan	1	1	–28.93	2.54	0.01	0.00	–30.49	0.49
Philippines	16	21	–11.54	1.81	0.20	0.22	–13.22	0.28
Saudi Arabia	77	108	10.57	3.66	3.23	3.51	7.56	1.37
Thailand	32	56	–7.00	4.02	0.50	0.80	–7.87	3.28
Turkey	4	3	–2.22	2.13	0.05	0.04	–3.71	0.91
Vietnam	52	70	30.21	1.27	0.63	0.73	28.42	0.07
Other Asia Pacific	*189*	*251*	*–1.49*	*3.08*	*0.61*	*0.67*	*–3.45*	*1.36*
LEAST DEVELOPED COUNTRIES (LDC)	**106**	**176**	**11.31**	**4.22**	**0.14**	**0.19**	**8.68**	**1.91**
DEVELOPING excluding LDC	**2 468**	**3 334**	**3.70**	**2.59**	**0.57**	**0.68**	**2.30**	**1.43**
OECD	**769**	**780**	**2.20**	**0.08**	**0.65**	**0.63**	**1.53**	**–0.42**
NON-OECD	**2 534**	**3 494**	**3.44**	**2.75**	**0.49**	**0.59**	**2.01**	**1.49**

a) For EU25, World, Developed, OECD and Western Europe growth rate refers to 1999-2005.
b) Least-squares growth rate (see glossary).
c) Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Other Asia Pacific aggregate.
est.: Estimate.
n.a.: Not available.
Source: OECD and FAO Secretariats.

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Table A.27. **Milk projections**

	PRODUCTION (kt)		Growth (%)[b]		INVENTORIES ('000 hd)		Growth (%)[b]		YIELD (kg/ha/hd)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
WORLD	**622 902**	**732 022**	**1.48**	**1.48**	**506 075**	**534 571**	**0.43**	**0.40**	**123.1**	**136.9**	**1.05**	**1.08**
DEVELOPED	**357 579**	**388 215**	**0.58**	**0.70**	**86 526**	**83 897**	**–1.05**	**–0.35**	**413.3**	**462.7**	**1.65**	**1.06**
NORTH AMERICA	**86 651**	**99 612**	**1.31**	**1.05**	**10 104**	**9 801**	**–0.48**	**–0.46**	**857.6**	**1 016.3**	**1.80**	**1.52**
Canada	8 300	8 589	0.39	0.26	1 061	993	–1.59	–1.20	782.3	865.2	2.01	1.48
United States	78 351	91 023	1.41	1.13	9 043	8 809	–0.34	–0.37	866.5	1 033.3	1.76	1.51
WESTERN EUROPE	**148 962**	**151 161**	**–0.07**	**0.01**	**23 429**	**20 425**	**–2.10**	**–1.11**	**636.0**	**740.1**	**2.07**	**1.13**
EU25	143 248	145 434	–0.06	0.01	23 429	20 425	–2.10	–1.11	611.6	712.0	2.08	1.13
Norway	1 710	1 700	–1.49	0.00	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Switzerland	3 896	3 900	0.13	0.00	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other Western Europe	*109*	*127*	*0.51*	*1.51*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
EASTERN EUROPE	**21 414**	**24 714**	**0.45**	**1.31**	**15 757**	**16 053**	**–2.05**	**–0.16**	**135.9**	**153.9**	**2.55**	**1.48**
Other Eastern Europe	*21 414*	*24 714*	*0.45*	*1.31*	*15 757*	*16 053*	*–2.05*	*–0.16*	*135.9*	*153.9*	*2.55*	*1.48*
CIS	**64 435**	**72 099**	**–0.10**	**1.26**	**30 099**	**30 098**	**–2.21**	**–0.06**	**214.1**	**239.5**	**2.15**	**1.32**
Russian Federation	32 398	34 884	–0.69	1.00	10 830	11 054	–4.63	0.51	299.2	315.6	4.13	0.49
Ukraine	13 661	14 596	–0.71	0.83	5 841	5 353	–3.67	–1.06	234.0	272.7	3.07	1.91
Other CIS	*18 376*	*22 619*	*1.55*	*1.97*	*13 428*	*13 691*	*1.04*	*–0.10*	*136.9*	*165.2*	*0.50*	*2.07*
OCEANIA DEVELOPED	**25 147**	**29 604**	**3.34**	**1.61**	**5 945**	**6 483**	**1.89**	**0.69**	**423.0**	**456.6**	**1.42**	**0.91**
Australia	10 482	12 132	1.72	1.56	2 029	2 258	0.41	1.27	516.6	537.2	1.30	0.29
New Zealand	14 664	17 473	4.65	1.64	3 916	4 225	2.73	0.39	374.5	413.6	1.86	1.24
OTHER DEVELOPED	**10 972**	**11 025**	**–0.56**	**0.12**	**1 193**	**1 036**	**–1.17**	**–1.39**	**919.8**	**1 064.2**	**0.62**	**1.53**
Japan	8 323	8 375	–0.52	0.17	1 193	1 036	–1.17	–1.39	697.7	808.4	0.66	1.58
South Africa	2 648	2 650	–0.66	–0.03	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
DEVELOPING	**265 323**	**343 807**	**3.09**	**2.45**	**419 549**	**450 674**	**1.23**	**0.55**	**63.2**	**76.3**	**1.83**	**1.89**
AFRICA	**26 730**	**32 586**	**2.45**	**1.80**	**156 217**	**159 308**	**2.05**	**–0.18**	**17.1**	**20.5**	**0.39**	**1.98**
NORTH AFRICA	**8 270**	**10 351**	**3.50**	**2.20**	**21 717**	**22 716**	**1.24**	**0.27**	**38.1**	**45.6**	**2.23**	**1.93**
Algeria	1 553	1 993	3.14	1.97	8 040	8 656	0.29	0.35	19.3	23.0	2.84	1.62
Egypt	4 200	5 035	3.66	1.89	6 994	6 878	2.99	–0.17	60.1	73.2	0.64	2.06
Other North Africa	*2 517*	*3 323*	*3.50*	*2.84*	*6 683*	*7 182*	*0.76*	*0.61*	*37.7*	*46.3*	*2.71*	*2.22*
SUB-SAHARAN AFRICA	**18 459**	**22 234**	**2.01**	**1.62**	**134 499**	**136 592**	**2.18**	**–0.25**	**13.7**	**16.3**	**–0.17**	**1.88**
Ghana	35	45	1.08	2.63	272	271	1.08	0.11	13.0	16.7	0.00	2.52
Mozambique	69	85	0.29	2.17	542	638	0.26	1.68	12.7	13.3	0.04	0.48
Nigeria	432	439	2.36	0.76	1 800	1 614	2.27	–0.73	24.0	27.2	0.09	1.50
Tanzania	944	1 237	4.22	2.84	7 428	7 805	3.57	0.48	12.7	15.9	0.63	2.35
Zambia	64	71	–0.02	1.10	214	220	–0.02	0.21	30.0	32.5	0.00	0.89
Other Sub-Saharan Africa	*16 915*	*20 357*	*1.91*	*1.56*	*124 244*	*126 043*	*2.12*	*–0.30*	*13.6*	*16.2*	*–0.21*	*1.87*
LATIN AMERICA and CARIBBEAN	**64 062**	**79 846**	**1.96**	**1.87**	**47 691**	**52 562**	**1.73**	**0.77**	**134.3**	**151.9**	**0.23**	**1.10**
Argentina	8 947	13 919	–0.38	3.38	2 045	2 340	–2.90	1.08	437.0	594.7	2.59	2.28
Brazil	24 004	30 197	3.23	2.01	19 869	23 104	2.42	1.34	120.8	130.7	0.79	0.66
Chile	2 253	2 654	1.70	1.57	1 967	2 202	1.39	1.02	114.5	120.5	0.31	0.54
Colombia	6 050	6 953	1.38	1.26	6 677	6 929	2.82	0.21	90.6	100.3	–1.39	1.05
Mexico	9 900	10 347	3.21	0.29	6 797	6 796	0.60	0.01	145.6	152.3	2.60	0.28
Paraguay	380	436	–1.75	1.34	159	167	–1.84	0.49	239.0	260.3	0.09	0.84
Uruguay	1 495	1 610	1.33	0.60	893	936	1.78	0.08	167.5	172.1	–0.44	0.52
Other Latin America	*11 033*	*13 730*	*1.03*	*2.00*	*9 283*	*10 087*	*1.76*	*0.39*	*118.9*	*136.1*	*–0.72*	*1.61*

For notes, see end of the table.
Source: OECD and FAO Secretariats.

Table A.27. **Milk projections**

	PRODUCTION (kt)		Growth (%)[b]		INVENTORIES ('000 hd)		Growth (%)[b]		YIELD (kg/ha/hd)		Growth (%)[b]	
	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15	Average 2003-05 est.	2015	1996-2005[a]	2006-15
ASIA and PACIFIC	**174 531**	**231 375**	**3.63**	**2.75**	**215 641**	**238 804**	**0.57**	**1.02**	**80.9**	**96.9**	**3.04**	**1.71**
Bangladesh	2 175	2 690	0.52	2.10	20 885	22 683	0.51	0.69	10.4	11.9	0.01	1.40
China[c]	21 929	36 058	13.21	4.38	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
India	90 720	122 993	3.66	3.00	73 597	91 490	2.30	2.26	n.a.	n.a.	n.a.	n.a.
Indonesia	851	860	2.14	0.54	9 054	8 926	0.26	–0.16	9.4	9.6	1.88	0.71
Iran, Islamic Republic of	5 954	6 900	2.60	1.80	34 239	31 761	–0.69	–0.57	17.4	21.7	3.31	2.37
Korea, Republic of	2 306	2 849	1.94	2.17	299	333	–0.47	1.02	770.9	855.5	2.42	1.15
Malaysia	47	56	1.92	2.44	91	105	0.93	1.69	51.4	53.0	0.98	0.74
Pakistan	27 804	30 398	2.35	0.98	25 303	27 813	2.09	0.81	109.9	109.3	0.26	0.17
Philippines	14	15	4.60	0.26	5	5	4.34	–0.18	278.9	291.6	0.25	0.44
Saudi Arabia	985	1 271	4.07	2.80	4 179	4 329	1.31	0.47	23.6	29.4	2.72	2.32
Thailand	620	721	7.00	1.06	295	342	11.83	0.38	214.6	210.9	–4.32	0.67
Turkey	9 495	11 937	–1.20	2.39	21 202	20 657	–3.85	–0.30	44.8	57.8	2.76	2.69
Vietnam	158	239	13.24	4.75	115	167	6.45	2.95	140.6	142.8	6.37	1.75
Other Asia Pacific	*11 471*	*14 387*	*0.47*	*2.27*	*26 377*	*30 192*	*0.77*	*1.16*	*43.5*	*47.7*	*–0.29*	*1.10*
LEAST DEVELOPED COUNTRIES (LDC)	**21 856**	**26 474**	**1.23**	**1.70**	**131 991**	**135 245**	**2.15**	**–0.15**	**16.6**	**19.6**	**–0.89**	**1.85**
DEVELOPING excluding LDC	**243 467**	**317 334**	**3.27**	**2.52**	**287 558**	**315 428**	**0.83**	**0.87**	**84.7**	**100.6**	**2.42**	**1.63**
OECD	**290 784**	**313 885**	**0.49**	**0.59**	**68 969**	**65 531**	**–1.87**	**–0.47**	**421.6**	**479.0**	**2.40**	**1.07**
NON-OECD	**332 118**	**418 137**	**2.33**	**2.21**	**437 106**	**469 039**	**1.14**	**0.53**	**76.0**	**89.1**	**1.18**	**1.67**

a) For EU25, World, Developed, OECD and Western Europe growth rate refers to 1999-2005.
b) Least-squares growth rate (see glossary).
c) Refers to mainland only. The economies of Chinese Taipei, Hong Kong (China) and Macau (China) are included in the Other Asia Pacific aggregate.
est.: Estimate.
n.a.: Not available.
Source: OECD and FAO Secretariats.

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Table A.28. **Whey powder and casein projections**

Calendar year		Average 2003-05 est.	2015	Growth (%)[b]	
				1996-2005[a]	2006-15
AUSTRALIA					
Net trade, whey	*kt pw*	77.1	82.3	12.2	0.4
Exports, casein	*kt pw*	7.4	7.0	3.8	0.0
CANADA					
Net trade, whey	*kt pw*	0.4	–0.6	n.a.	0.0
EU25					
Net trade, whey	*kt pw*	310.6	379.9	10.9	1.1
Casein EU15					
production	*kt pw*	177.0	250.7	3.5	3.2
consumption	*kt pw*	163.8	223.7	3.5	2.6
net trade	*kt pw*	13.2	27.1	2.3	9.8
JAPAN					
Net trade, whey	*kt pw*	–48.4	–72.0	4.3	3.6
Imports, casein	*kt pw*	17.1	14.2	–2.0	–0.7
KOREA					
Net trade, whey	*kt pw*	–38.5	–39.3	6.7	0.8
MEXICO					
Net trade, whey	*kt pw*	–56.2	–56.1	1.5	0.0
NEW ZEALAND					
Net trade, whey	*kt pw*	9.6	9.6	12.4	0.0
Exports, casein	*kt pw*	137.5	178.8	6.4	2.0
UNITED STATES					
Whey					
production	*kt pw*	480.2	575.2	–1.1	1.7
consumption	*kt pw*	320.5	400.0	–3.4	2.3
exports	*kt pw*	168.3	183.7	5.1	0.6
Imports, casein	*kt pw*	69.6	56.6	–0.2	–2.3
ARGENTINA					
Net trade, whey	*kt pw*	7.5	19.0	n.a.	0.0
BRAZIL					
Net trade, whey	*kt pw*	–24.8	–30.4	2.6	2.0
CHINA					
Net trade, whey	*kt pw*	–176.2	–310.2	14.7	4.8
RUSSIA					
Net trade, whey	*kt pw*	–38.0	–45.0	44.7	0.0

a) Growth rate refers to 1999-2005 for Russia, and to 1998-2005 for the EU25.
b) Least-squares growth rate.
est.: Estimate.
Source: OECD and FAO Secretariats.

Statlink: *http://dx.doi.org/10.1787/233840101021*

Table A.29. **Main policy assumptions for sugar markets**

Crop year[a]		04/05	05/06 est.	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
MAIN ASSUMPTIONS FOR SUGAR MARKETS													
ARGENTINA													
Tariff, sugar	%	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
BRAZIL													
Tariff, raw sugar	%	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
Tariff, white sugar	%	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
CANADA													
Tariff, raw sugar	CAD/t	27.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7	27.7
Tariff, white sugar	CAD/t	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4	35.4
CHINA[b]													
TRQ sugar	kt	1 954	1 954	1 954	1 954	1 954	1 954	1 954	1 954	1 954	1 954	1 954	1 954
Tariff, in-quota, raw sugar	%	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Tariff, in-quota, white sugar	%	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Tariff, over-quota	%	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
EU													
Reference price, white sugar[c]	EUR/t	632	632	632	632	524	404	404	404	404	404	404	404
Total quota, white sugar[d]	kt rse	18 957	18 957	16 356	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Subsidised export limits													
Quantity Limit	kt rse	1 431	1 431	1 431	1 431	1 431	1 431	1 431	1 431	1 431	1 431	1 431	1 431
Value Limit	000 EUR	531 660	531 660	531 660	531 660	531 660	531 660	531 660	531 660	531 660	531 660	531 660	531 660
Tariff, raw sugar	EUR/t	339	339	339	339	339	339	339	339	339	339	339	340
Tariff, white sugar[e]	EUR/t	419	419	419	419	419	419	419	419	419	419	419	419
INDIA													
Intervention price, sugar cane	INR/t	750	750	750	750	750	750	750	750	750	750	750	750
Applied tariff, raw sugar	%	60	60	60	60	60	60	60	60	60	60	60	60
INDONESIA													
Tariff, white sugar	%	25	25	25	25	25	25	25	25	25	25	25	25
JAPAN													
Minimum stabilisation price, raw sugar	JPY/kg	152	152	152	152	152	152	152	152	152	152	152	152
Tariff, raw sugar	JPY/kg	71.8	71.8	71.8	71.8	71.8	71.8	71.8	71.8	71.8	71.8	71.8	71.8
Tariff, white sugar	JPY/kg	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1
KOREA													
Tariff	%	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
MEXICO													
Mexico common external tariff, raw sugar	MXN/t	4 456	4 304	4 215	4 246	4 306	4 384	4 468	4 554	4 643	4 733	4 825	4 919
Mexico common external tariff, white sugar	MXN/t	4 456	4 304	4 215	4 246	4 306	4 384	4 468	4 554	4 643	4 733	4 825	4 919
RUSSIA													
Tariff, raw sugar[f]	%	87.2	18.9	14.4	40.9	50.8	52.5	54.1	55.8	57.5	59.3	61.1	62.9
Tariff, white sugar	USD/t	340.0	340.0	340.0	340.0	340.0	340.0	340.0	340.0	340.0	340.0	340.0	340.0

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.29. **Main policy assumptions for sugar markets** *(cont.)*

Crop year[a]		04/05	05/06 est.	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
UNITED STATES[e]													
Loan rate, cane sugar	USD/t	397	397	397	397	397	397	397	397	397	397	397	397
Loan rate, beet sugar	USD/t	504.9	504.9	504.9	504.9	504.9	504.9	504.9	504.9	504.9	504.9	504.9	504.9
TRQ, raw sugar	kt rse	1 523	2 191	1 482	1 484	1 242	1 244	1 280	1 332	1 364	1 386	1 399	1 427
TRQ, refined sugar	kt rse	49	49	49	49	49	49	49	49	49	49	49	49
Raw sugar high tier tariff, over quota	USD/t	339	339	339	339	339	339	339	339	339	339	339	339
White sugar high tier tariff, over quota	USD/t	357	357	357	357	357	357	357	357	357	357	357	357
White sugar NAFTA 2nd tier tariff	USD/t	141	106	71	35	0	0	0	0	0	0	0	0
SOUTH AFRICA													
Tariff, raw sugar	%	105	105	105	105	105	105	105	105	105	105	105	105

a) Beginning crop marketing year – see the Glossary of Terms for definitions.
b) Refers to mainland only.
c) Reference price for consumers.
d) Production that receives official support. Includes the 10 new member countries from May 2004.
e) In addition, price based special safeguard actions may apply.
f) Assumes a wholesale price target of USD 470 per tonne as the basis for setting the floating tariff duty.
The for tariffs (except United States and Russia) is AMAD. The source for Russia and United States tariffs is ERS, USDA.
rse.: Raw sugar equivalent.
est.: Estimate.
Source: OECD and FAO Secretariats.

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Table A.30. **World sugar projections (in raw sugar equivalent)**

Crop year[a]		Average 00/01-04/05	05/06 est.	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
OECD													
Production	kt rse	42 039	42 503	39 077	37 346	37 635	37 782	37 176	37 247	37 318	37 457	37 575	37 641
Consumption	kt rse	40 291	41 362	41 490	41 673	41 890	42 087	42 282	42 484	42 646	42 818	42 953	43 104
Closing stocks	kt rse	17 384	19 949	20 055	18 416	17 626	17 214	16 222	15 199	14 371	14 108	14 022	14 140
NON-OECD													
Production	kt rse	99 986	106 356	112 441	117 245	119 518	122 582	126 407	129 685	133 058	136 110	138 823	142 068
Consumption	kt rse	101 143	108 760	110 891	113 060	114 963	117 468	120 404	123 344	126 433	129 502	132 327	135 391
Closing stocks	kt rse	44 938	40 166	39 196	40 693	41 782	43 004	44 894	47 021	49 146	50 655	51 859	52 956
WORLD													
Production	kt rse	142 025	148 860	151 518	154 591	157 152	160 364	163 583	166 932	170 376	173 567	176 398	179 709
Consumption	kt rse	141 434	150 122	152 382	154 732	156 853	159 555	162 686	165 828	169 079	172 321	175 280	178 495
Closing stocks	kt rse	62 322	60 115	59 251	59 109	59 409	60 218	61 115	62 219	63 517	64 763	65 881	67 095
Price, raw sugar[b]	USD/t	226.0	370.4	385.8	308.6	286.6	283.3	280.0	276.7	273.4	270.1	266.8	263.5
Price, white sugar[c]	USD/t	268.6	392.4	418.9	352.7	330.7	327.4	324.1	320.8	317.5	314.2	310.9	307.5

a) Beginning crop marketing year – see the Glossary of Terms for definitions.
b) Raw sugar world price, New York, No. 11, f.o.b. stowed Caribbean port (including Brazil), bulk spot price, Sep./Aug.
c) Refined sugar price, London, No. 5, f.o.b. Europe, spot, Sept/Aug.
est.: Estimate.
Source: OECD and FAO Secretariats.

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Table A.31. **World sugar projections (in raw sugar equivalent)**

	PRODUCTION (kt)		Growth (%)[a]		IMPORTS (kt)		Growth (%)[a]		EXPORTS (kt)		Growth (%)[a]	
	Average 2003-05 est.	2015	1996-2005	2006-15	Average 2003-05 est.	2015	1996-2005	2006-15	Average 2003-05 est.	2015	1996-2005	2006-15
WORLD	**145 646**	**179 709**	**1.89**	**1.91**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**
OECD	**42 817**	**37 641**	**–0.24**	**–0.21**	**9 084**	**11 933**	**1.07**	**2.98**	**9 718**	**6 417**	**–3.51**	**–0.39**
NORTH AMERICA												
Canada	106	102	–3.45	0.12	1 335	1 480	3.02	0.80	13	11	–2.22	0.00
United States	7 301	7 617	0.15	0.65	1 966	2 283	–1.57	0.19	178	78	–5.81	–2.64
Mexico	5 838	6 433	2.15	1.15	202	94	14.52	–0.82	413	823	–12.85	1.49
WESTERN EUROPE												
EU25	20 990	14 281	–0.81	–1.71	1 965	3 943	1.13	8.68	4 772	159	–4.86	–24.62
OCEANIA												
Australia	5 609	5 732	–0.45	0.44	8	6	18.70	3.83	4 009	4 620	–0.60	1.21
ASIA												
Japan	958	941	1.91	0.31	1 463	1 631	–1.29	0.61	2	6	–19.19	8.77
Korea	0	0	n.a.	n.a.	1 603	2 045	1.79	2.44	334	407	0.71	1.99
OTHER OECD	**2 280**	**2 685**	**–1.09**	**1.40**	**775**	**725**	**3.99**	**–0.51**	**133**	**335**	**–14.28**	**12.02**
NON OECD	**102 829**	**142 068**	**2.86**	**2.55**	**9 718**	**6 417**	**–3.51**	**–0.39**	**9 084**	**11 933**	**1.07**	**2.98**
OTHER DEVELOPED												
Russian Federation	2 370	3 117	5.33	0.76	3 806	4 369	0.01	1.89	122	248	11.29	4.61
Other CIS	*1 854*	*2 442*	*–3.03*	*0.76*	*412*	*357*	*13.23*	*1.89*	*182*	*377*	*–8.06*	*4.61*
South Africa	2 377	2 845	–1.21	0.86	262	263	21.94	0.29	1 121	1 206	0.09	0.93
DEVELOPING												
AFRICA												
Congo	55	56	1.36	–1.31	52	38	3.45	5.95	43	15	0.08	–2.57
Ivory Coast	144	156	1.51	–0.32	86	189	–0.70	7.08	32	44	–8.02	–0.31
Kenya	556	514	2.27	–1.31	198	311	5.96	6.05	11	13	16.80	–2.07
Madagascar	34	52	–13.82	0.93	115	175	18.25	3.92	22	26	–7.01	–0.56
Malawi	261	316	3.39	1.97	2	2	n.a.	0.00	115	132	10.58	1.43
Mauritius	582	582	–0.44	–0.48	27	0	n.a.	n.a.	559	538	–1.07	–1.31
Mozambique	242	360	29.02	3.38	92	162	n.a.	6.76	175	305	n.a.	4.32
Swaziland	649	579	3.41	–0.83	0	0	n.a.	n.a.	618	554	5.38	–0.94
Tanzania	242	340	11.52	2.57	155	314	–1.27	7.81	13	24	18.14	–2.28
Zambia	247	280	4.77	1.19	3	3	2.13	0.00	140	153	8.53	–0.29
Zimbabwe	454	542	–2.16	2.54	0	1	n.a.	0.00	148	141	–4.29	2.02
LATIN AMERICA and CARIBBEAN												
Argentina	2 015	2 532	1.88	1.40	5	1	–17.49	–5.77	358	534	9.73	0.10
Barbados	38	12	–5.48	–10.68	19	19	13.28	0.14	41	13	–3.13	–10.05
Belize	112	86	–1.99	–2.12	0	0	n.a.	n.a.	102	74	–1.12	–2.44
Brazil	28 657	42 125	7.13	3.29	0	0	n.a.	n.a.	17 659	28 306	11.52	4.01
Guyana	300	228	0.64	–2.48	5	5	–2.19	0.00	292	208	1.41	–3.07
Jamaica	152	129	–5.32	–2.17	110	163	5.44	2.41	144	123	–3.36	–2.67
Trinidad and Tobago	64	64	–5.96	–2.64	59	35	4.56	–5.45	45	46	–4.41	–1.60
ASIA and PACIFIC												
China[c]	10 220	12 330	3.89	1.96	1 620	4 011	12.68	4.59	214	209	–10.81	6.94
Fiji	344	268	–1.03	–2.49	8	33	2.47	4.57	304	231	–1.10	–3.03
India	15 979	27 004	1.89	2.64	1 540	0	18.67	n.a.	430	2 003	13.16	7.48
Indonesia	2 342	2 805	2.80	1.05	1 811	2 255	3.80	3.58	1	1	–26.41	0.00
Thailand	5 902	6 590	1.54	1.74	0	0	n.a.	n.a.	3 727	3 706	1.07	1.32
ACP	**4 478**	**4 564**	**1.35**	**0.01**	**931**	**1 451**	**1.48**	**4.68**	**2 805**	**2 639**	**1.45**	**–0.88**
REST OF WORLD[b]	**24 662**	**34 099**	**2.21**	**3.13**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**n.a.**

For notes, see end of the table.
Source: OECD and FAO Secretariats.

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Table A.31. **World sugar projections (in raw sugar equivalent)** *(cont.)*

	CONSUMPTION (kt)		Growth (%)[a]		PER CAPITA (kg)		Growth (%)[a]	
	Average 2003-05 est.	2015	1996-2005	2006-15	Average 2003-05 est.	2015	1996-2005	2006-15
WORLD	**148 229**	**178 495**	**2.41**	**1.79**	**21.7**	**23.2**	**1.2**	**0.8**
OECD	**41 007**	**43 104**	**0.78**	**0.43**	**35.2**	**34.9**	**0.11**	**–0.07**
NORTH AMERICA								
Canada	1 443	1 591	2.29	0.91	45.2	45.4	1.32	0.10
United States	8 917	9 800	–0.04	0.58	30.2	30.1	–1.04	–0.30
Mexico	5 389	5 704	2.73	1.09	51.0	47.9	1.03	0.03
WESTERN EUROPE								
EU25	18 009	17 850	0.53	–0.14	39.3	38.4	0.26	–0.24
OCEANIA								
Australia	1 194	1 282	2.56	0.73	59.9	57.6	1.41	–0.25
ASIA								
Japan	2 421	2 565	–0.15	0.49	18.9	20.0	–0.35	0.51
Korea	1 251	1 638	2.77	2.04	26.3	33.4	2.20	1.78
OTHER OECD	**2 799**	**3 077**	**0.36**	**0.82**	**31.8**	**31.0**	**–0.99**	**–0.24**
NON OECD	**107 222**	**135 391**	**3.09**	**2.27**	**18.9**	**21.0**	**1.80**	**1.12**
OTHER DEVELOPED								
Russian Federation	6 397	7 238	1.88	1.32	44.5	52.9	2.25	1.78
Other CIS	*2 155*	*2 422*	*0.43*	*0.42*	*45.9*	*57.9*	*1.51*	*1.47*
South Africa	1 607	2 020	1.22	1.91	34.1	42.2	0.08	1.85
DEVELOPING								
AFRICA								
Congo	60	79	4.46	2.00	15.4	14.6	0.00	–1.11
Ivory Coast	204	302	2.60	3.77	11.4	14.0	0.64	2.04
Kenya	718	816	2.42	1.01	21.5	18.5	0.19	–1.56
Madagascar	127	201	4.85	3.63	7.0	8.4	1.98	1.19
Malawi	151	186	–1.22	1.66	11.9	11.6	–3.69	–0.50
Mauritius	43	45	0.04	0.52	34.9	33.6	–0.95	–0.24
Mozambique	148	218	n.a.	4.25	7.6	9.3	0.00	2.54
Swaziland	20	26	–19.62	1.99	19.8	26.0	–20.31	2.41
Tanzania	385	630	5.56	4.20	10.2	13.8	3.49	2.47
Zambia	111	127	–0.18	1.48	9.7	9.2	–2.11	–0.24
Zimbabwe	326	398	–0.18	1.72	28.4	28.8	–2.11	0.00
LATIN AMERICA and CARIBBEAN								
Argentina	1 628	1 887	1.58	1.38	42.4	44.2	0.54	0.41
Barbados	17	18	0.81	0.53	62.8	63.8	0.54	0.31
Belize	12	12	–3.58	0.19	44.4	37.2	–5.85	–1.52
Brazil	10 711	13 716	2.41	2.29	58.2	65.5	0.97	1.14
Guyana	23	25	–0.96	0.97	31.1	34.2	–1.21	1.11
Jamaica	123	163	1.10	2.15	46.8	59.2	0.48	1.79
Trinidad and Tobago	71	77	–1.34	0.88	54.4	57.8	–1.67	0.64
ASIA and PACIFIC								
China[c]	12 337	16 132	5.14	2.42	9.6	11.8	4.40	1.84
Fiji	59	71	3.63	1.98	69.6	79.0	2.66	1.36
India	19 767	24 982	3.10	2.05	18.2	19.8	1.47	0.73
Indonesia	3 941	5 138	2.96	2.55	17.9	20.8	1.67	1.54
Thailand	2 279	2 869	3.33	2.10	35.8	41.5	2.39	1.39
ACP	**2 598**	**3 396**	**1.97**	**2.35**	**14.9**	**15.7**	**–0.17**	**0.37**
REST OF WORLD[b]	**42 689**	**54 377**	**3.38**	**2.61**	**19.2**	**20.8**	**1.83**	**1.16**

a) Least-squares growth rate (see glossary).
b) Refers to all the other countries not specified.
c) Refers to mainland only.
est.: Estimate.
n.a.: Not available.
Source: OECD and FAO Secretariats.

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ANNEX B

Glossary of Terms

Agenda 2000

A CAP reform package proposed by the European Commission in 1998. After a number of modifications, the European Union Heads of State agreed to a package of reforms in March 1999. Beginning in 2000, the package reduces price supports and increases direct payments for cereals and beef, while lowering oilseed direct payments (by harmonising them with cereals) and raising the milk quota. Dairy support price reductions and the introduction of new dairy direct payments are delayed until 2005, along with a second round of milk quota increase. The package is sometimes referred to as the "Berlin Agreement" to distinguish the agreement from the initial European Commission proposals.

AMAD

Agricultural Market Access database. A co-operative effort between Agriculture and Agri-food Canada, EU Commission-Agriculture Directorate-General, FAO, OECD, The World Bank, UNCTAD and the United States Department of Agriculture, Economic Research Service. Data in the database is obtained from countries' schedules and notifications submitted to the WTO.

Avian influenza

Avian influenza is an infectious disease of birds caused by type A strains of the influenza virus. The disease, which was first identified in Italy more than 100 years ago, occurs worldwide. The quarantining of infected farms, destruction of infected or potentially exposed flocks, and recently inoculation are standard control measures.

Atlantic beef/pigmeat market

Beef/pigmeat trade between countries in the Atlantic Rim.

Baseline

The set of market projections used for the outlook analysis in this report and as a benchmark for the analysis of the impact of different economic and policy scenarios. A detailed description of the generation of the baseline is provided in the chapter on Methodology in this report.

Berlin Agreement

This is an alternative term used to describe the Agenda 2000 CAP reform package of the European Union agreed by European Union Heads of State in March 1999.

Biofuels

In the wider sense defined as all solid, fluid or gaseous fuels produced from biomass. More narrowly, the term biofuels comprises those that replace petroleum-based road-transport fuels, *i.e.* bioethanol produced from sugar crops, cereals and other starchy crops that can be used as an additive to, in a blend with or as a replacement of gasoline, and biodiesel produced mostly from vegetable oils, but also from waste oils and animal fats, that can be used in blends with or as a replacement of petroleum-based diesel.

Biomass

Biomass is defined as any plant matter used directly as fuel or converted into other forms before combustion. Included are wood, vegetal waste (including wood waste and crops used for energy production), animal materials/wastes and industrial and urban wastes, used as feedstocks for producing bioproducts.

Bovine Spongiform Encephalopathy (BSE)

A fatal disease of the central nervous system of cattle, first identified in the United Kingdom in 1986. On 20 March 1996 the UK Spongiform Encephalopathy Advisory Committee (SEAC) announced the discovery of a new variant of Creutzfeldt-Jacob Disease (vCJD), a fatal disease of the central nervous system in humans, which might be linked to consumption of beef affected by exposure to BSE.

Cereals

Defined as wheat, coarse grains and rice.

CAFTA

CAFTA is a comprehensive trade agreement between Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and the United States.

Common Agricultural Policy (CAP)

The European Union's agricultural policy, first defined in Article 39 of the Treaty of Rome signed in 1957.

CAP reform

The EU Commission has published a Communication on the Mid-Term Review on the Common Agricultural Policy in July 2002, in January 2003 the Commission adopted a formal proposal. A formal decision on the "CAP reform – a long-term perspective for sustainable agriculture" was taken by the EU farm ministers. The reform includes far-reaching amendments of current policies, including further reductions in support prices, partly offset by direct payments, and a further decoupling of most direct payments from current production.

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Coarse grains

Defined as barley, maize, oats, sorghum and other coarse grains in all countries except Australia, where it includes triticale and in the European Union where it includes rye and other mixed grains.

Conservation Reserve Program (CRP)

A major provision of the United States' Food Security Act of 1985 and extended under the Food and Agriculture Conservation and Trade Act of 1990, the Food and Agriculture Improvement and Reform Act of 1996, and the Farm Security and Rural Investment Act of 2002 is designed to reduce erosion on 40 to 45 million acres (16 to 18 million hectares) of farm land. Under the programme, producers who sign contracts agree to convert erodable crop land to approved conservation uses for ten years. Participating producers receive annual rental payments and cash or payment in kind to share up to 50% of the cost of establishing permanent vegetative cover. The CRP is part of the *Environmental Conservation Acreage Reserve Program*. The 1996 FAIR Act authorised a 36.4 million acre (14.7 million hectares) maximum under CRP, its 1995 level. The maximum area enrolled in the CRP was increased to 39.2 million acres in the 2002 FSRI Act.

Commonwealth of Independent States (CIS)

The heads of twelve sovereign states (except the Baltic states) have signed the Treaty on establishment of the Economic Union, in which they stressed that the Azerbaijan Republic, Republic of Armenia, Republic of Belarus, Republic of Georgia, Republic of Kazakhstan, Kyrgyz Republic, Republic of Moldova, Russian Federation, Republic of Tajikistan, Turkmenistan, Republic of Uzbekistan and Ukraine on equality basis established the Commonwealth of Independent States. OIS is used in the Outlook tables to refer to all these states excluding the Russian Federation

Common Market Organisation (CMO) for sugar

The common organisation of the sugar market (CMO) in the European Union was established in 1968 to ensure a fair income to community sugar producers and self-supply of the Community market. At present the CMO is governed by Council Regulation (EC) No. 1260/2001 (the basic regulation) which are applicable until 30 June 2006.

Crop year, coarse grains

Refers to the crop marketing year beginning 1 April for Japan, 1 July for the European Union and New Zealand, 1 August for Canada and 1 October for Australia. The US crop year begins 1 June for barley and oats and 1 September for maize and sorghum.

Crop year, oilseeds

Refers to the crop marketing year beginning 1 April for Japan, 1 July for the European Union and New Zealand, 1 August for Canada and 1 October for Australia. The US crop year begins 1 June for rapeseed, 1 September for soyabeans and for sunflower seed.

Crop year, rice

Refers to the crop marketing year beginning 1 April for Japan, Australia, 1 August for the United States, 1 September for the European Union, 1 October for Mexico, 1 November for Korea and 1 January for other countries.

Crop year, sugar

A common crop marketing year beginning 1 September and extending to 31 August, used by FO Licht, the primary data source for sugar supply and demand balances for the OECD's World Sugar Model.

Crop year, wheat

Refers to the crop marketing year beginning 1 April for Japan, 1 June for the United States, 1 July for the European Union and New Zealand, 1 August for Canada and 1 October for Australia.

Decoupled payments

Budgetary payments paid to eligible recipients who are not linked to current production of specific commodities or livestock numbers or the use of specific factors of production.

Direct payments

Payments made directly by governments to producers.

Doha Development Agenda

The current round of multilateral trade negotiations in the World Trade Organisation that were initiated in November 2001, in Doha, Qatar

Domestic support

Refers to the annual level of support, expressed in monetary terms, provided to agricultural production. It is one of the three pillars of the Uruguay Round Agreement on Agriculture targeted for reduction.

Double-zero agreement

In the double zero agreements, the EU and the CEEC typically agree to offer duty free quotas for a specific quantity of a given agricultural product, while anything above the quota is subject to duty. Further the EU and the CEEC agree not to use any export subsidies for the given agricultural product. Every agreement has been concluded bilaterally between the EU and each CEEC country and that, consequently, the contents of the agreements vary from one case to another.

Ethanol

A bio-fuel that can be used as a fuel substitute (hydrous ethanol) or a fuel extender (anhydrous ethanol) in mixes with petroleum, and which is produced from agricultural feed-stocks such as sugar cane and maize.

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Everything-But-Arms (EBA)

The Everything-But-Arms (EBA) Initiative eliminates EU import tariffs for numerous goods, including agricultural products, from the least developed countries. The tariff elimination is scheduled in four steps from 2006/07 to 2009/10.

Export credits (with official support)

Government financial support, direct financing, guarantees, insurance or interest rate support provided to foreign buyers to assist in the financing of the purchase of goods from national exporters.

Export restitutions (refunds)

EU export subsidies provided to cover the difference between internal prices and world market prices for particular commodities.

Export subsidies

Subsidies given to traders to cover the difference between internal market prices and world market prices, such as for example the EU *export restitutions* and the US *Export Enhancement Program* (see above). Export subsidies are now subject to value and volume restrictions under the *Uruguay Round Agreement on Agriculture*.

FAIR Act, 1996

Officially known as the Federal Agriculture Improvement and Reform Act of 1996. This US legislation replaces the 1990 Farm Act and governs almost all aspects of food and agriculture policy during the period 1996-2002.

Foot and Mouth Disease (FMD)

Foot and mouth disease is a highly contagious disease, which chiefly affects cloven-hoofed animal species (cattle, sheep, goats and pigs). Its symptoms are the appearance of vesicles (aphthae) on the animals' mouths (with a consequent reduction in appetite) and feet. It is caused by a virus which may be found in the animals' blood, saliva and milk. The virus is transmitted in a number of ways, via humans, insects, most meat products, urine and faeces, feed, water or soil. Although the mortality rate in adult animals from this disease is generally low and the disease presents no risk for humans, because it is highly contagious, infected animals in a given country are generally put down and other countries place an embargo on imports of live animals and fresh, chilled or frozen meat from the country of infection; in that case, only smoked, salted or dried meat and meat preserves may be imported from the country concerned. In addition, given the possibility of contagion between different species of cloven-hoofed animals, when foot and mouth disease breaks out in one species in a given country, exports of meat from all four types of animal are suspended

FSRI Act, 2002

Officially known as the Farm Security and Rural Investment Act of 2002. This US farm legislation replaces the FAIR Act of 1996, covering a wide range of commodity programs and policies for US agriculture for the period 2002-2007.

Industrial oilseeds

A category of oilseed production in the European Union for industrial use (*i.e.* biofuels).

Intervention purchases

Purchases by the EC Commission of certain commodities to support internal market prices.

Intervention purchase price

Price at which the European Commission will purchase produce to support internal market prices. It usually is below 100% of the intervention price, which is an annually decided policy price.

Intervention stocks

Stocks held by national intervention agencies in the European Union as a result of *intervention* buying of commodities subject to market price support. Intervention stocks may be released onto the internal markets if internal prices exceed intervention prices; otherwise, they may be sold on the world market with the aid of *export restitutions*.

Inulin

Inulin syrups are extracted from chicory through a process commercially developed in the 1980s. They usually contain 83 per cent fructose. Inulin syrup production in the European Union is covered by the sugar regime and subject to a production quota.

Isoglucose

Isoglucose is a starch-based fructose sweetener, produced by the action of glucose isomerase enzyme on dextrose. This isomerisation process can be used to produce glucose/fructose blends containing up to 42% fructose. Application of a further process can raise the fructose content to 55%. Where the fructose content is 42%, isoglucose is equivalent in sweetness to sugar. Isoglucose production in the European Union is covered by the sugar regime and subject to a production quota.

Least squares growth rate

The **least-squares growth rate**, r, is estimated by fitting a linear regression trend line to the logarithmic annual values of the variable in the relevant period, as follows : $Ln(xt) = a + r * t$.

Loan deficiency payments (United States)

Loan deficiency payments are a type of support whereby, for wheat, feed grain, upland cotton, rice and oilseeds, a producer may agree to forgo loan eligibility and receive an output subsidy, the rate of payment of which is the amount by which the applicable county's loan rate exceeds the marketing loan repayment rate. Producers may elect to apply for this payment during the loan availability period on a quantity of the programme crop not exceeding their loan-eligible production. This, combined with marketing loan gains, represent the benefits made available to US farmers when commodity prices fall relative to loan rates.

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Loan rate

The commodity price at which the *Commodity Credit Corporation* (CCC) offers *non-recourse loans* to participating farmers. The crops covered by the programme are used as collateral for these loans. The loan rate serves as a floor price, with the effective level lying somewhat above the announced rate, for participating farmers in the sense that they can default on their loan and forfeit their crop to the CCC rather than sell it in the open market at a lower price.

Luxembourg agreement

A formal decision on further "CAP reform – a long-term perspective for sustainable agriculture" was taken by the EU Council of farm ministers meeting in Luxembourg on 26 June 2003. The reform includes far-reaching amendments of current policies, including further reductions in support prices, partly offset by direct payments and a further decoupling of most direct payments, such as the new single farm payment from current production. The different elements of the reform will enter into force in 2004 and 2005. A single farm payment will enter into force in 2005. If a Member State needs a transitional period due to its specific agricultural conditions, it may apply the single farm payment from 2007 at the latest.

Market access

Governed by provisions of the *Uruguay Round Agreement* on *Agriculture* which refer to concessions contained in the country schedules with respect to bindings and reductions of tariffs and to other minimum import commitments.

Marketing Assistance Loan Programme

US loan programme, in operation since 1986 and designed to provide producers of certain crops with financial assistance when prices are low while avoiding a disadvantage of the traditional loan programme (*see loan rate*), *i.e.* the accumulation of government stocks that depress prices when disposed of. The programme effectively guarantees farmers a minimum price. Farmers can obtain payments in two ways. They can sell the crop and repay the loan at the posted county price (a USDA estimate of the local market price) and keep the difference known as "marketing gain". They can also obtain a payment without taking out a loan – see *loan deficiency payments*.

Marketing year, oilseed meal

Refers to the marketing year beginning 1 October.

Marketing year, oilseed oil

Refers to the marketing year beginning 1 October.

MERCOSUR

A multilateral agreement on trade, including agricultural trade between Argentina, Brazil, Paraguay and Uruguay. The agreement was signed in 1991 and came into effect on 1 January 1995. Its main goal is to create a customs union between the four countries by 2006.

Market Price Support (MPS) Payment

Indicator of the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers arising from policy measures creating a gap between domestic market prices and *border prices* of a specific agricultural commodity, measured at the farm gate level. Conditional on the production of a specific commodity, MPS includes the transfer to producers associated with both production for domestic use and exports, and is measured by the price gap applied to current production. The MPS is net of financial contributions from individual producers through producer levies on sales of the specific commodity or penalties for not respecting regulations such as production quotas (*Price levies*), and in the case of livestock production is net of the market price support on domestically produced coarse grains and oilseeds used as animal feed (*Excess feed cost*).

Mid-Term Review

See Luxembourg agreement on CAP reform.

Milk quota scheme

A supply control measure to limit the volume of milk produced or supplied. Quantities up to a specified quota amount benefit from full *market price support*. Over-quota volumes may be penalised by a levy (as in the European Union, where the "super levy" is 115% of the target price) or may receive a lower price. Allocations are usually fixed at individual producer level. Other features, including arrangements for quota reallocation, differ according to scheme.

Modulation

A partial transfer of support from the first (support to agriculture) to the second pillar (support to other rural activities) of the EU Common Agricultural Policy (CAP). With the latest reform of the CAP, modulation was made compulsory, resulting in a gradual reduction of payments directly to farmers with the aim of boosting rural development.

North American Free Trade Agreement (NAFTA)

A trilateral agreement on trade, including agricultural trade, between Canada, Mexico and the United States, phasing out tariffs and revising other trade rules between the three countries over a 15-year period. The agreement was signed in December 1992 and came into effect on 1 January 1994.

Oilseed meal

Defined as rapeseed meal (canola), soyabean meal, and sunflower meal in all countries, except in Japan where it excludes sunflower meal.

Oilseeds

Defined as rapeseed (canola), soyabeans, and sunflower seed in all countries, except in Japan where it excludes sunflower seed.

Pacific beef/pigmeat market

Beef/pigmeat trade between countries in the Pacific Rim where foot and mouth disease is not endemic.

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PROCAMPO

A programme of direct support to farmers in Mexico. It provides for direct payments per hectare on a historical basis.

Producer Support Estimate (PSE)

Indicator of the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at farm gate level, arising from policy measure, regardless of their nature, objectives or impacts on farm production or income. The PSE measure support arising from policies targeted to agriculture relative to a situation without such policies, *i.e.* when producers are subject only to general policies (including economic, social, environmental and tax policies) of the country. The PSE is a gross notion implying that any costs associated with those policies and incurred by individual producers are not deducted. It is also a nominal assistance notion meaning that increased costs associated with import duties on inputs are not deducted. But it is an indicator net of producer contributions to help finance the policy measure (*e.g.* producer levies) providing a given transfer to producers. The PSE includes implicit and explicit payments. The percentage PSE is the ration of the PSE to the value of total gross farm receipts, measured by the value of total production (at farm gate prices), plus budgetary support. The nomenclature and definitions of this indicator replaced the former Producer Subsidy Equivalent in 1999.

Purchasing Power Parity (PPP)

Purchasing power parities (PPPs) are the rates of currency conversion that eliminate the differences in price levels between countries. The PPPs are given in national currency units per US dollar.

Recourse loan programme

Programme to be implemented under the US FAIR Act of 1996 for butter, non-fat dry milk and cheese after 1999 in which loans must be repaid with interest to processors to assist them in the management of dairy product inventories.

Scenario

A model-generated set of market projections based on alternative assumptions than those used in the baseline. Used to provide quantitative information on the impact of changes in assumptions on the outlook.

Set-aside programme

European Union programme for cereal, oilseed and protein crops that both requires and allows producers to set-aside a portion of their historical base acreage from current production. Mandatory set-aside rates for commercial producers are set at 10% until 2006.

Single Farm Payment

With the 2003 CAP reform, the EU introduced a farm-based payment largely independent of current production decisions and market developments, but based on the level of former payments received by farmers. To facilitate land transfers, entitlements are calculated by dividing the reference amount of payment by the number of eligible hectares (incl. forage area) in the reference year. Farmers receiving the new SFP are obliged to keep their land in

good agricultural and environmental condition and have the flexibility to produce any commodity on their land except fruits, vegetables and table potatoes.

SPS Agreement

WTO Agreement on Sanitary and Phyto-sanitary measures, including standards used to protect human, animal or plant life and health.

Support price

Prices fixed by government policy makers in order to determine, directly or indirectly, domestic market or producer prices. All administered price schemes set a minimum guaranteed support price or a target price for the commodity, which is maintained by associated policy measures, such as quantitative restrictions on production and imports; taxes, levies and tariffs on imports; export subsidies; and public stockholding.

Tariff-rate quota (TRQ)

Resulted from the Uruguay Round Agreement on Agriculture. Certain countries agreed to provide minimum import opportunities for products previously protected by non-tariff barriers. This import system established a quota and a two-tier tariff regime for affected commodities. Imports within the quota enter at a lower (in-quota) tariff rate while a higher (out-of-quota) tariff rate is used for imports above the concessionary access level.

Uruguay Round Agreement on Agriculture (URAA)

The terms of the URAA are contained in the section entitled the "Agreement on Agriculture" of the Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations. This text contains commitments in the areas of *market access*, domestic support (see *AMS*), and *export subsidies*, and general provisions concerning monitoring and continuation. In addition, each country's schedule is an integral part of its contractual commitment under the URAA. There is a separate agreement entitled the Agreement on the Application of Sanitary and Phyto-sanitary Measures. This agreement seeks establishing a multilateral framework of rules and disciplines to guide the adoption, development and the enforcement of sanitary and phyto-sanitary measures in order to minimise their negative effects on trade. See also *Phyto-sanitary regulations* and *Sanitary regulations*.

Vegetable oil

Defined as rapeseed oil (canola), soyabean oil, sunflower seed oil and palm oil, except in Japan where it excludes sunflower seed oil.

WTO

World Trade Organisation created by the Uruguay Round agreement.

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Luxembourg	10.2	10.8	11.0	10.6	9.9	11.2	8.9	9.0	9.5	10.9	8.3	2.5	5.9	4.6
Mexico	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Netherlands	4.0	4.2	3.8	3.9	2.4	2.1	2.8	3.1	3.9	3.8	4.5	4.3	3.3	2.3
New Zealand	2.7	1.8	1.3	3.9	5.5	7.7	6.6	2.0	-1.7	-2.3	-2.9	2.5	9.7	8.7
Norway	0.5	1.9	2.3	3.0	1.6	1.4	1.4	2.5	3.2	4.3	2.0	1.8	3.7	2.4
Poland	-0.4	-0.4	-0.3	-0.4	-0.5	-0.5	-0.3	-0.3	-0.3	-0.4	-0.5	-0.4	-0.5	-0.4
Portugal	-5.6	-2.5	-1.0	1.5	1.0	0.5	1.0	1.5	1.5	..	..	..	..	..
Slovak Republic	0.4	0.2	0.4	0.3	0.9	0.5	0.4	0.3	0.2	0.3	0.3	0.2	0.2	0.2
Spain	0.9	0.9	0.9	0.9	0.9	0.9	1.3	1.6	3.1	4.9	9.0	10.2	16.1	14.3
Sweden	4.1	2.8	2.3	3.7	5.8	1.2	0.7	0.7	1.2	1.6	2.8	3.3	3.5	3.2
Switzerland	8.4	9.0	5.8	5.7	4.4	2.1	-0.8	-1.0	0.2	2.3	2.8	5.6	6.6	5.7
Turkey	5.1	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.4	1.4
United Kingdom	1.2	1.3	0.8	1.5	1.4	2.0	1.8	1.5	1.2	..	..	..	..	..
United States	2.2	3.8	3.9	3.4	3.1	3.3	3.5	3.6	3.2	3.1	3.1	4.5	4.5	4.4

StatLink: http://dx.doi.org/10.1787/414217837336

Net migration
Per 1 000 population, average 1990-2003

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OECD-FAO Agricultural Outlook 2006-2015

This is the second occasion that the *Agricultural Outlook* has been prepared jointly by the Organisation for Economic Co-operation and Development (OECD) and the Food and Agriculture Organization of the United Nations (FAO). The report benefits from the commodity, policy and country expertise of both organisations. This annual report analyses world commodity market trends and medium term prospects for the main agricultural products. It shows how these markets are influenced by economic developments and government policies and highlights some of the risks and uncertainties that may influence market outcomes. In addition to OECD countries, the market projections in the report cover a large number of other countries and regions including the agricultural giants of India, China, Brazil and Russia as well as Argentina, South Africa and several least developed countries.

The twelfth edition of the *Agricultural Outlook* provides an assessment of agricultural market prospects based on projections that extend to 2015 for production, consumption, trade, stocks and prices of mainly temperate zone agricultural commodities. These projections are based on specific assumptions regarding global macroeconomic conditions, population growth, national agricultural and trade policies as well as production technologies. In addition, the projections have been established under the assumption of average weather conditions. Collectively these assumptions help to determine a representative scenario of how agricultural markets could evolve over the coming decade.

World agricultural production is projected to continue to grow to 2015, but at a slower pace than in the last decade. Sustained economic growth in many OECD and non-OECD countries and moderate gains in population strengthen global demand for agricultural products. Expanding bio energy production is underpinning demand in particular for certain crop products that are used in ethanol and bio diesel production. Increased global demand for agricultural products provides the foundation for increasing production and agricultural trade over the projection period, particularly in developing countries. At the same time, competition is expected to intensify between traditional OECD and emerging agricultural exporters in international markets as production expands in many countries.

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