

HIGHLIGHTS

OECD-FAO Agricultural Outlook 2006-2015



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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.

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Acronyms and Abbreviations

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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	Type 5 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 Industrializada
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

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.

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

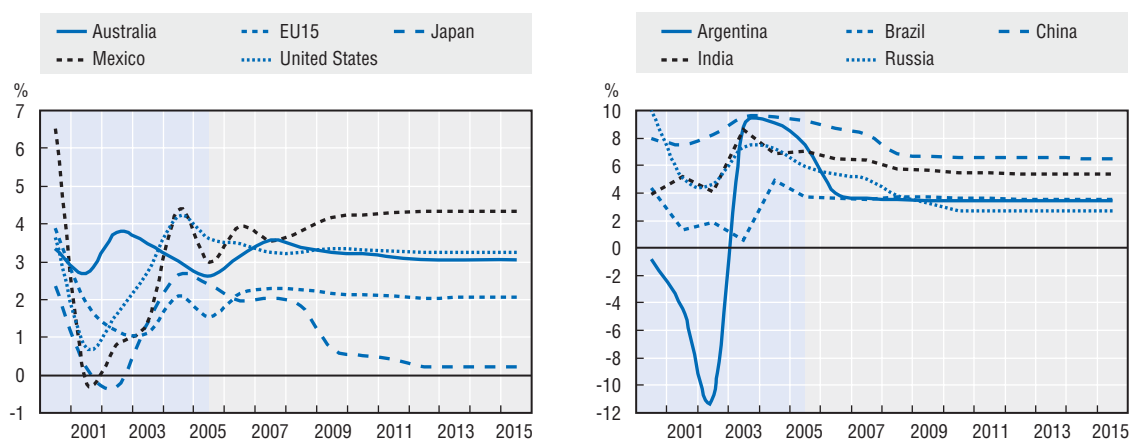
The macroeconomic climate prevailing for this year's Outlook is one of sustained optimism. Output growth is generally robust in the OECD area and near-term growth prospects are strong, in particular in North America and Asia. Growth is vigorous in the United States and expected to remain solid for the 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

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).

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).

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

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

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.

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.

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 underperform 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

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.

Sugar trade is increasingly dominated by Brazil

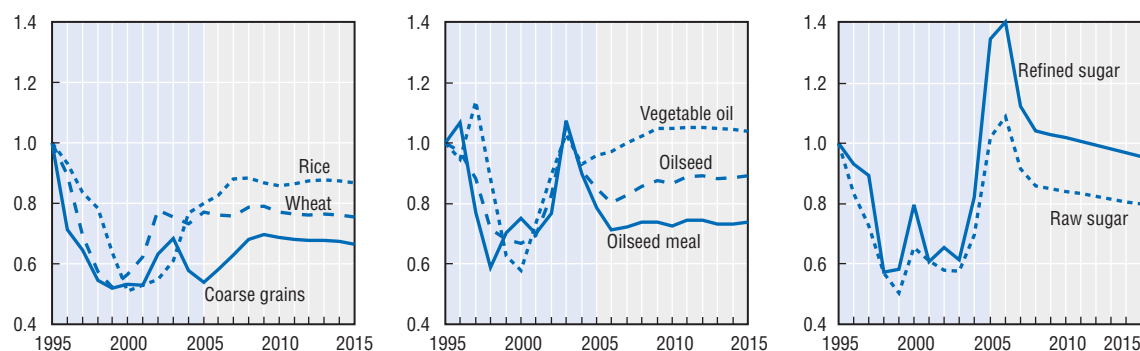
Brazil currently accounts for around 40% of world sugar exports. Rising exports of raw and refined sugar are projected for Brazil over the period to 2015 and these will increase the country's dominance of the world sugar economy and be an important moderating factor on future world sugar price prospects. 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

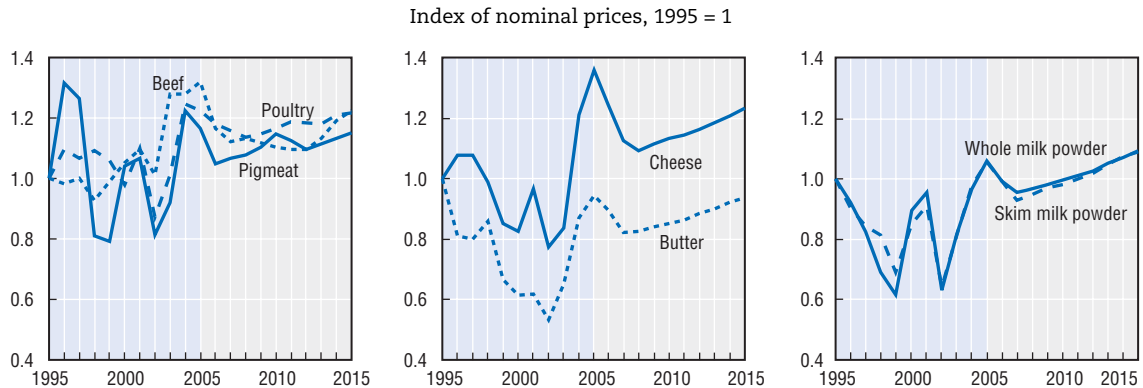
Trends in nominal world indicator prices for the different commodities are shown in Figure 1.2 for crop commodities and Figure 1.3 for livestock products. Nominal world prices for wheat are projected to show little change between 2005 and 2015, as supply and demand is maintained in relative balance. 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.

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

Source: OECD and FAO Secretariats.

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

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 CO₂ 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.

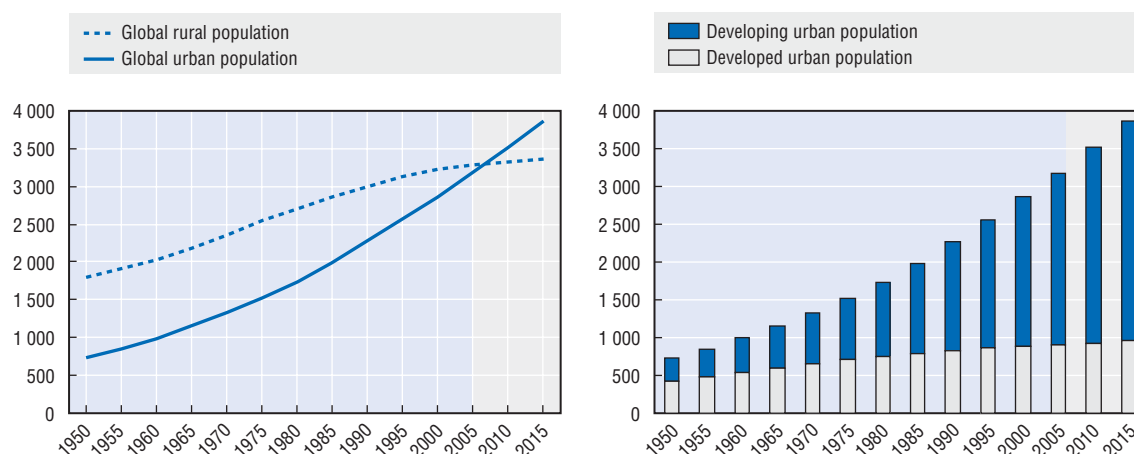
Emerging issues: demographic challenges to the global food system

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.

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



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

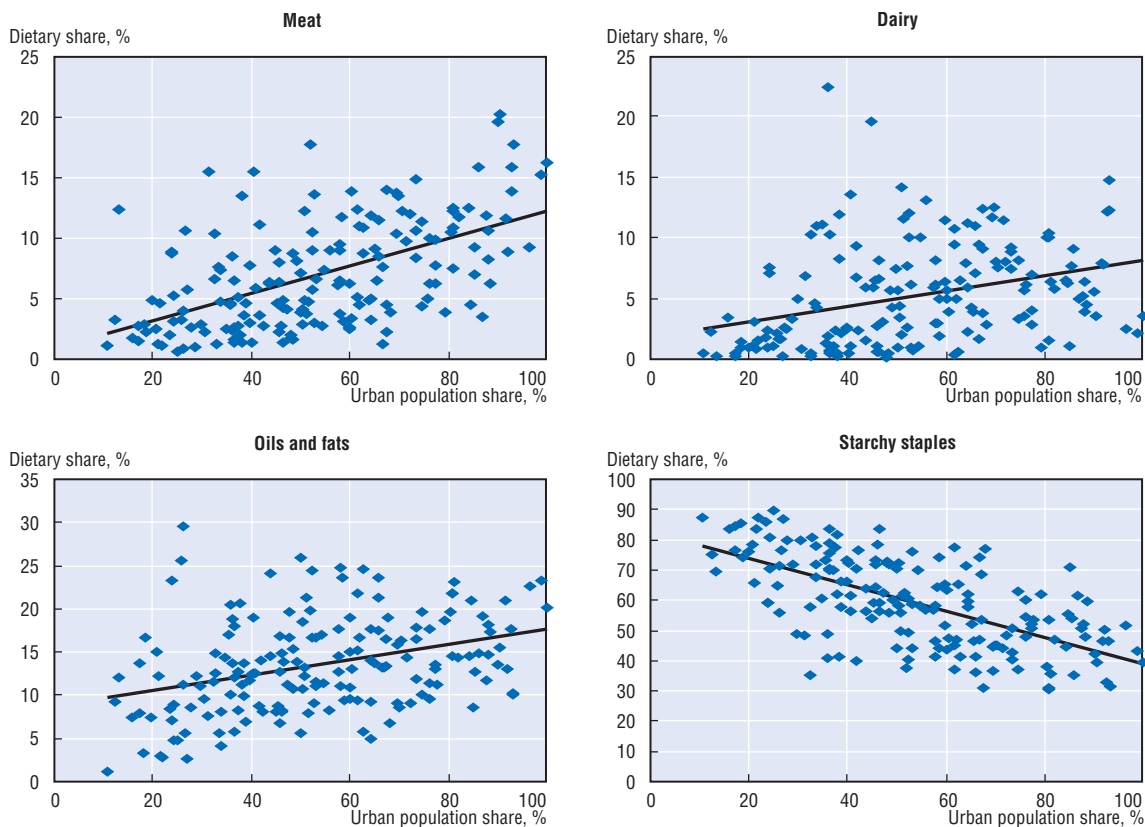
The spatial distribution of populations affects food supply and demand¹

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, dairy, 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.

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.

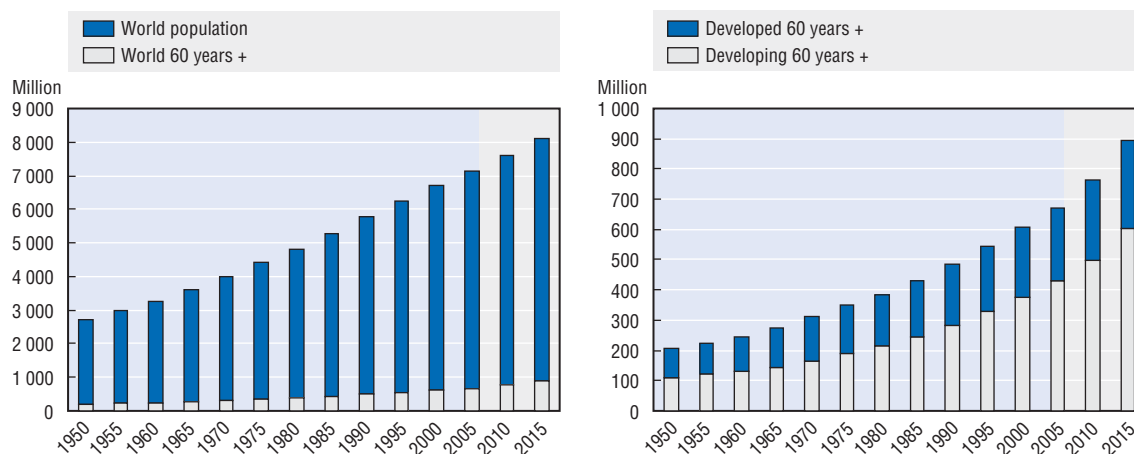
Urbanisation in developing countries: from the fire into the frying pan?

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.

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).

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.

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.

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.

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.

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.

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.

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.

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.

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.

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	<i>MXN/ha</i>	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	<i>MXN mn</i>	684	0	0	0	0	0	0	0	0	0	0	0
Tortilla consumption subsidy	<i>MXN mn</i>	0	0	0	0	0	0	0	0	0	0	0	0
Maize tariff-quota	<i>kt</i>	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	<i>kt</i>	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	<i>USD/t</i>	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	<i>USD/t</i>	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	<i>USD/t</i>	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	<i>USD/t</i>	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	<i>mha</i>	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	<i>mha</i>	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	<i>mha</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>USD/t</i>	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	<i>CNY/t</i>	270	0	0	0	0	0	0	0	0	0	0	0
Coarse grains support price	<i>CNY/t</i>	232	0	0	0	0	0	0	0	0	0	0	0
Rice support price	<i>CNY/t</i>	880	0	0	0	0	0	0	0	0	0	0	0
Wheat tariff-quota	<i>kt</i>	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	<i>kt</i>	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 ^b	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 ^b	R/T	768	719	719	719	719	719	719	719	719	719	719	719
Input subsidy rate wheat ^b	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 electricity, 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.

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.

Table A.6. 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 ^h													
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.

Table A.6. 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 electricity, 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.

Table A.7. **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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>USD/t</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>USD/t</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>mt</i>	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	<i>USD/t</i>	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.

Table A.8. 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 ^d	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 ⁱ	kt cwe	990	990	990	990	990	990	990	990	990	990	990	990
pig meat ⁱ	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.8. 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	<i>kt pw</i>	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	<i>kt pw</i>	..	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	<i>kt pw</i>	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	<i>kt pw</i>	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	<i>kt pw</i>	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.

Table A.9. 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	<i>kt cwe</i>	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	<i>kt cwe</i>	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	<i>kt cwe</i>	904	686	682	568	557	556	535	524	523	522	521	520
Per capita consumption	<i>kg rwt</i>	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	<i>AUD/100 kg dw</i>	279	322	264	250	238	239	239	240	243	253	267	277
Price, EU ^d	<i>EUR/100 kg dw</i>	242	247	245	247	251	254	256	260	261	262	262	262
Price, USA ^e	<i>USD/100 kg dw</i>	269	310	275	264	267	263	260	258	259	267	280	288
Price, Argentina ^a	<i>ARS/100 kg dw</i>	257	397	390	397	415	430	458	477	478	474	480	486
PIG MEAT^g													
Production	<i>kt cwe</i>	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	<i>kt cwe</i>	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	<i>kt cwe</i>	797	813	777	736	721	683	663	666	667	654	646	640
Per capita consumption	<i>kg rwt</i>	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	<i>EUR/100 kg dw</i>	134	134	137	140	145	148	150	147	145	149	153	155
Price, USA ⁱ	<i>USD/100 kg dw</i>	133	153	138	140	142	145	151	148	144	146	149	151
POULTRY MEAT													
Production	<i>kt rtc</i>	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	<i>kt rtc</i>	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	<i>kt rtc</i>	-4	..	..	..	..	..	..	..	..	..	..	..
Per capita consumption	<i>kg rwt</i>	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	<i>EUR/100 kg rtc</i>	102	104	102	103	105	107	107	108	108	108	109	110
Price, USA ^k	<i>USD/100 kg rtc</i>	135	158	148	146	144	145	147	150	149	148	151	151
SHEEP MEAT													
Production	<i>kt cwe</i>	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	<i>kt cwe</i>	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	<i>kt cwe</i>	10	23	23	23	23	24	24	24	25	25	25	26
Per capita consumption	<i>kg rwt</i>	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	<i>AUD/100 kg dw</i>	295	351	339	328	316	306	295	284	274	264	254	244
Price, Australia ^m	<i>AUD/100 kg dw</i>	153	182	177	173	169	165	161	157	154	150	147	143
Price, New Zealand ⁿ	<i>NZD/100 kg dw</i>	373	389	373	370	378	387	394	401	401	402	403	403
TOTAL MEAT													
Per capita consumption	<i>kg rwt</i>	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.9. 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	<i>kt cwe</i>	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	<i>kt cwe</i>	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	<i>kg rwt</i>	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	<i>kt cwe</i>	-26	4	1	1	1	1	1	1	1	1	1	1
PIG MEAT													
Production ^o	<i>kt cwe</i>	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	<i>kt cwe</i>	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	<i>kg rwt</i>	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	<i>kt cwe</i>	-14	3	0	0	0	0	0	0	0	0	0	0
POULTRY MEAT													
Production	<i>kt rtc</i>	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	<i>kt rtc</i>	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	<i>kg rwt</i>	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	<i>kt rtc</i>	42	-83	-13	0	0	0	0	0	0	0	0	0
SHEEP MEAT													
Production ^o	<i>kt cwe</i>	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	<i>kt cwe</i>	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	<i>kg rwt</i>	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	<i>kt cwe</i>	-1	0	0	0	0	0	0	0	0	0	0	0
TOTAL MEAT													
Per capita consumption	<i>kg rwt</i>	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.

Table A.10. **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

For notes, see end of the table.

Source: OECD and FAO Secretariats.

Table A.10. **Main policy assumptions for dairy markets (cont.)**

		Average 2000-04	2005 est.	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
KOREA													
Tariff-quotas													
Butter	<i>kt pw</i>	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	<i>kt pw</i>	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	<i>kt pw</i>	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
MEXICO													
Butter tariff	%	2	0	0	0	0	0	0	0	0	0	0	0
Tariff-quotas													
cheese	<i>kt pw</i>	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	<i>kt pw</i>	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
Licons social program	<i>MXN mn</i>	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/													
Milk support price ^b	<i>USDC/litre</i>	22	22	22	22	22	22	22	22	22	22	22	22
Target price ^k	<i>USDC/litre</i>	..	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	<i>USD/t</i>	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	<i>USD/t</i>	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	<i>kt pw</i>	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	<i>kt pw</i>	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	<i>kt pw</i>	21	21	21	21	21	21	21	21	21	21	21	21
SMP	<i>kt pw</i>	68	68	68	68	68	68	68	68	68	68	68	68

For notes, see end of the table.

Source: OECD and FAO Secretariats.

Table A.10. **Main policy assumptions for dairy markets (cont.)**

		Average 2000-04	2005 est.	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
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	<i>kt pw</i>	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.

Table A.11. **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	<i>kt pw</i>	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	<i>kt pw</i>	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	<i>kt pw</i>	11	-30	-43	-33	-7	-4	-1	1	0	0	1	2
Non-OECD													
Production	<i>kt pw</i>	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	<i>kt pw</i>	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	<i>kt pw</i>	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	<i>kt pw</i>	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	<i>kt pw</i>	6	-26	-37	-29	-3	0	3	5	4	4	5	6
Price ^d	<i>USD/100 kg</i>	142	204	193	177	178	182	184	186	191	194	199	202
CHEESE													
OECD^b													
Production	<i>kt pw</i>	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	<i>kt pw</i>	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	<i>kt pw</i>	-13	-17	-13	-6	3	2	1	1	0	0	0	0
Non-OECD													
Production	<i>kt pw</i>	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	<i>kt pw</i>	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	<i>kt pw</i>	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	<i>kt pw</i>	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	<i>kt pw</i>	-8	-16	-11	-4	5	7	7	8	7	7	8	8
Price ^e	<i>USD/100 kg</i>	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.

Table A.12. 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	<i>kt pw</i>	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	<i>kt pw</i>	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	<i>kt pw</i>	43	-239	13	0	-5	-5	-5	0	0	0	0	0
Non-OECD													
Production	<i>kt pw</i>	760	742	770	800	822	841	862	885	907	932	955	979
Consumption	<i>kt pw</i>	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	<i>kt pw</i>	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	<i>kt pw</i>	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	<i>kt pw</i>	42	-240	12	-1	-6	-6	-6	-1	-1	-1	-1	-1
Price ^d	<i>USD/100 kg</i>	180	223	209	201	204	206	210	213	216	222	225	230
WHOLE MILK POWDER													
OECD^b													
Production	<i>kt pw</i>	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	<i>kt pw</i>	717	808	772	776	778	778	778	778	779	779	779	780
Non-OECD													
Production	<i>kt pw</i>	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	<i>kt pw</i>	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	<i>kt pw</i>	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	<i>kt pw</i>	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	<i>USD/100 kg</i>	182	229	215	202	206	210	213	217	221	227	233	236
WHEY POWDER													
Non-OECD													
Wholesale price, USA ^f	<i>USD/100 kg</i>	46	67	56	54	53	54	55	56	57	59	60	61
CASEIN													
Price ^g	<i>USD/100 kg</i>	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.

Table A.13. 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
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.

Table A.13. **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.

Table A.14. **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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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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