

# **OECD-FAO Agricultural Outlook 2007-2016**



ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT  
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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Also available in French under the title:

**Perspectives agricoles de l'OCDE et de la FAO 2007-2016**

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## Foreword

**T**his is the third 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 2007 to 2016. It takes account of the enlargement of the European Union, from twenty-five to twenty-seven member states and for the first time includes explicitly assumptions on biofuel production. The market assessments are based on a set of projections that are conditional on specific assumptions regarding macroeconomic conditions, agricultural and trade policies and production technologies; it also assumes average weather conditions. Using the underlying assumptions, the Agricultural Outlook presents a plausible scenario for the evolution of agricultural markets over the next decade and provides 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 backdrop of a steady global economic growth over the medium term, slowing population growth, continuing low inflation, and markets that globally are responding to the challenge of a rapidly changing biofuel industry. Global economic growth is propelled mainly by fast growing economies of large developing countries. In particular, the emerging economies of China, India, Brazil and Russia are key to global and agricultural market developments. Over the projection period, the countries in the non-OECD region are expected to continue to experience a much stronger increase in consumption of agricultural products than countries in the OECD area. This trend is driven by population and, above all, income growth – underpinned by rural migration to higher income urban areas. The strong growth in demand in many developing and emerging economies is also expected to spur expansion in imports and provide the impetus to the development of domestic production capacity. But exports are growing strongly in a number of developing countries as well. As a result, OECD countries as a group are projected to lose production and export shares in many commodities to non-OECD countries. Growth in the use of agricultural commodities as feedstock to a rapidly increasing biofuel industry is one of the main drivers in the outlook and one of the reasons for international commodity prices to attain a significantly higher plateau over the outlook period than has been reported in the previous reports. However, new production technologies, changes in biofuel policies, or unexpected price changes in crude oil and feedstock prices could significantly alter market developments in the future.

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. The fully documented outlook database, including historical data and projections, is available through the OECD-FAO joint Internet site [www.agri-outlook.org](http://www.agri-outlook.org). Within the OECD, this publication is prepared by the Trade and Agriculture Directorate, while at FAO, the Trade and Markets Division was responsible for the report.

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

At the OECD, the team of economic and market analysts of the OECD Trade and Agriculture Directorate that contributed to this report consisted of Loek BOONEKAMP (team leader), David DOWEY, Céline GINER, Garry SMITH, Pavel VAVRA (baseline co-ordinator) and Martin VON LAMPE.

Research and statistical assistance were provided by David DOWEY, Armelle ELASRI, Alexis FOURNIER and Claude NENERT. Secretarial services and co-ordination in report preparation was provided by Christine CAMERON. Technical assistance in the preparation of the Outlook database was provided by Eric ESPINASSE and Frano ILICIC. Many other colleagues in the OECD Secretariat and member country delegations furnished useful comments on earlier drafts of the report.

At FAO, the team of economists and commodity officers from the Commodities and Trade Division contributing to this edition consisted of Abdolreza ABBASSIAN, El Mamoun AMROUK, Concepcion CALPE, Kaison CHANG, Merritt CLUFF, Piero CONFORTI, Cheng FANG, David HALLAM (team leader), Holger MATTHEY (baseline co-ordinator), Jennifer NYBERG, Adam PRAKASH, Grégoire TALLARD, Peter THOENES, Koji YANAGISHIMA and Carola FABI from the Statistics Division. AliArslan GURKAN and Alexander SARRIS initiated support for FAO's Cosimo modelling project.

Research assistance and database preparation was provided by Claudio CERQUILINI, Daniela CITTI, Berardina FORZINETTI, John HEINE, Massimo IAFRATE, Marco MILO and Barbara SENFETER. Secretarial services were provided by Rita ASHTON and Silvia RIPANI.

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## Acronyms and Abbreviations

### Acronyms and abbreviations

<b>AAFC</b>	Agriculture and agri-food Canada
<b>ACP</b>	African, Caribbean and Pacific countries
<b>AMAD</b>	Agricultural Market Access Database
<b>AI</b>	Avian influenza
<b>BRIC</b>	Brazil, Russia, India, China
<b>BSE</b>	Bovine Spongiform Encephalopathy
<b>CAFTA</b>	Central American Free Trade Agreement
<b>CAP</b>	Common Agricultural Policy (EU)
<b>CCC</b>	Commodity Credit Corporation
<b>CET</b>	Common External Tariff
<b>CIS</b>	Commonwealth of Independent States
<b>CPI</b>	Consumer Price Index
<b>CRP</b>	Conservation Reserve Program of the United States
<b>CMO</b>	Common Market Organisation for sugar (EU)
<b>CO<sub>2</sub></b>	Carbon dioxide
<b>Cts/lb</b>	Cents per pound
<b>cwe</b>	Carcass weight equivalent
<b>DBES</b>	Date-based Export Scheme
<b>DDA</b>	Doha Development Agenda
<b>DDG</b>	Dried Distiller's Grains
<b>dw</b>	Dressed weight
<b>EBA</b>	Everything But Arms Initiative (EU)
<b>ECOWAP</b>	West Africa Regional Agricultural Policy
<b>ECOWAS</b>	Economic Community of West African States
<b>EPAs</b>	Economic Partnership Agreements (between EU and ACP countries)
<b>ERS</b>	Economic Research Service of the US Department for Agriculture
<b>est.</b>	Estimate
<b>EU</b>	European Union
<b>EU15</b>	Fifteen member states of the European Union
<b>EU10</b>	Ten new member states of the European Union from May 2004
<b>EU27</b>	Twenty seven member states of the European Union (including Bulgaria and Romania from 2007)
<b>FAO</b>	Food and Agriculture Organisation of the United Nations
<b>FMD</b>	Foot and Mouth Disease
<b>FOB</b>	Free on board (export price)
<b>FSRI ACT</b>	Farm Security and Rural Investment Act (US) of 2002
<b>FTA</b>	Free Trade Agreement
<b>GDP</b>	Gross Domestic Product

<b>G10</b>	Group of 10 countries (see Glossary)
<b>G20</b>	Group of 20 developing countries (see Glossary)
<b>GDPD</b>	Gross Domestic Product Deflator
<b>GM</b>	Genetically modified
<b>HFCS</b>	High Fructose Corn Syrup
<b>HS</b>	Harmonised Commodity Description and Coding System
<b>kt</b>	Thousand tonnes
<b>LAC</b>	Latin America and the Caribbean
<b>LDCs</b>	Least Developed Countries
<b>LICONSA</b>	Leche Industrializada
<b>lw</b>	Live weight
<b>MERCOSUR</b>	Common Market of the South
<b>MFN</b>	Most Favoured Nation
<b>Mha</b>	Million hectares
<b>MPS</b>	Market Price Support
<b>Mt</b>	Million tonnes
<b>MTBE</b>	Methyl Tertiary Butyl Ether
<b>NAFTA</b>	North American Free Trade Agreement
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>OIE</b>	World Organisation for Animal Health
<b>PCE</b>	Private Consumption Expenditure
<b>PROCAMPO</b>	Mexican Farmers Direct Support Programme
<b>PPP</b>	Purchasing Power Parity
<b>PSE</b>	Producer Support Estimate
<b>pw</b>	Product weight
<b>rse</b>	Raw sugar equivalent
<b>rtc</b>	Ready to cook
<b>RFS</b>	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
<b>rw</b>	Retail weight
<b>SEAC</b>	Spongiform Encephalopathy Advisory Committee
<b>SFP</b>	Single Farm Payment
<b>SMP</b>	Skim milk powder
<b>SPS</b>	Sanitary and Phytosanitary measures
<b>STRV</b>	Short Tons Raw Value
<b>t</b>	Tonnes
<b>t/ha</b>	Tonnes/hectare
<b>TRQ</b>	Tariff rate quota
<b>UK</b>	United Kingdom
<b>UN</b>	The United Nations
<b>URAA</b>	Uruguay Round Agreement on Agriculture
<b>UNCTAD</b>	United Nations Conference on Trade and Development
<b>US</b>	United States of America
<b>USDA</b>	United States Department of Agriculture
<b>VAT</b>	Value added tax
<b>vCJD</b>	New Creutzfeld-Jakob-Disease



<b>WAEMU</b>	West African Economic and Monetary Union
<b>WMP</b>	Whole milk powder
<b>WTO</b>	World Trade Organisation

## Symbols

<b>AUD</b>	Dollars (Australia)
<b>ARS</b>	Pesos (Argentina)
<b>bn</b>	Billion
<b>BRL</b>	Real (Brazil)
<b>CAD</b>	Dollars (Canada)
<b>CNY</b>	Yuan (China)
<b>EUR</b>	Euro (Europe)
<b>gal</b>	Gallons
<b>ha</b>	Hectare
<b>hl</b>	Hectolitre
<b>INR</b>	Indian rupees
<b>KRW</b>	Korean won
<b>lb</b>	Pound
<b>Mn</b>	Million
<b>MXN</b>	Mexican pesos
<b>NZD</b>	Dollars (New Zealand)
<b>p.a.</b>	Per annum
<b>RUB</b>	Ruble (Russia)
<b>THB</b>	Thai baht
<b>USD</b>	Dollars (United States)
<b>ZAR</b>	South African rand

## Outlook in Brief

- Currently strong world market prices for many agricultural commodities in international trade are, in large measure, due to factors of a temporary nature, such as drought related supply shortfalls, and low stocks. But, structural changes such as increased feedstock demand for biofuel production, and the reduction of surpluses due to past policy reforms, may keep prices above historic equilibrium levels during the next 10 years.
- Higher commodity prices are a particular concern for net food importing developing countries as well as the poor in urban populations, and will evoke on-going debate on the “food versus fuel” issue. Furthermore, while higher biofuel feedstock prices support incomes of producers of these products, they imply higher costs and lower incomes for producers that use the same feedstock in the form of animal feed.
- The expectation that world market prices have attained a higher plateau may facilitate further policy reform away from price support. This would reduce the need for border protection and would provide flexibility for tariff reductions.
- Growing use of cereals, sugar, oilseeds and vegetable oils to satisfy the needs of a rapidly increasing biofuel industry, is one of the main drivers in the outlook. Over the outlook period, substantial amounts of maize in the US, wheat and rapeseed in the EU and sugar in Brazil will be used for ethanol and bio-diesel production. This is underpinning crop prices and, indirectly through higher feed costs, the prices for livestock products as well.
- Given that in most temperate zone countries ethanol and bio-diesel production are not economically viable without support, a different combination of production technologies, biofuel policies and crude oil prices than is assumed in this Outlook could lead to lower prices than are projected in this Outlook.
- The assumed strong growth in demand in many developing and emerging economies will spur expansion in imports as well as provide the impetus to the development of domestic production capacity. As a result, OECD countries as a group are projected to lose production and export shares in many commodities to non-OECD countries over the outlook period.
- Measured by global imports, world trade is projected to grow for all commodities reviewed in this report, without exception. By 2016, and compared to the average for 2001-05, trade expansion remains modest for SMP (7%), is situated at 13% to 17% for coarse grains and wheat respectively, but grows by between over 50% for beef, pigmeat and WMP and by close to 70% for vegetable oils.
- Imports grow more strongly in developing countries than in OECD countries for all products except vegetable oils. And for all products except wheat and coarse grains, these growing markets are increasingly satisfied through larger exports from other developing countries. Agricultural world markets are thus characterised by growing south-south trade, raising the competition for exporting countries within the OECD.
- The growing presence on export markets of Argentina and Brazil is staggering. While Brazil's growth is mostly concentrated in sugar, oilseeds and meats, Argentina's export performance also covers cereals and many dairy products. Other growing exporters in the developing and transition economies include Russia and the Ukraine for coarse grains, Viet Nam and Thailand for rice, Indonesia and Thailand for vegetable oils, and Thailand, Malaysia, India and China for poultry.
- Import growth is much more widely spread across countries. However, China's dominance of oilseeds and oilseed products trade is striking. By 2016, China will have become the world's largest importer of oilseed meals and it will have further consolidated its leading position in imports of oils and oilseeds. For the latter product, its share in global imports will have risen to almost 50%.

## Chapter 1

# Overview

## Introduction

The *Agricultural Outlook* is a collaborative effort of the OECD in Paris and the *Food and Agriculture Organisation (FAO) of the United Nations* in Rome. Its main purpose is to produce an updated annual 10-year assessment of global commodity markets that includes analysis of recent developments and emerging issues, bringing together the commodity, policy and country expertise of both Organisations. The projections for production, consumption, stocks, trade and prices described and analysed in this report cover the years 2007 to 2016. The projections are presented in the Statistical Annex, and can be viewed in more detail at the website [www.agr-outlook.org](http://www.agr-outlook.org). They reflect many specific assumptions concerning key external factors such as macroeconomic performance, agricultural and trade policies, and trends in technologies as well as consumer preferences. The projections do not take account of weather shocks and related impacts on crop yields and livestock production, nor are changes considered to agricultural and trade policies – anticipated or otherwise – that have yet to be adopted by legislation or international agreements. Such deviations from these assumptions constitute some of the important uncertainties in the Outlook, the potential impacts of which are also assessed in this report.

## The main underlying assumptions

### **Global economic growth may be the strongest in decades**

Brightened prospects prevail in the macroeconomic climate for this year's Outlook. Global economic growth has remained vigorous through 2006. Demand continues to be strong in OECD countries with output growth in the OECD area remaining robust and near-term prospects optimistic, in particular in OECD member countries in Europe, Australia and Asia. GDP growth for the OECD area increased to 3.2% in 2006 and is expected to remain buoyant at close to 2.5% throughout the outlook horizon. In per capita terms, economic growth is anticipated to be the strongest in recent times, due to, among other factors, the spread of technology and globalization of markets as well as an income dividend due to declining population growth.<sup>1</sup>

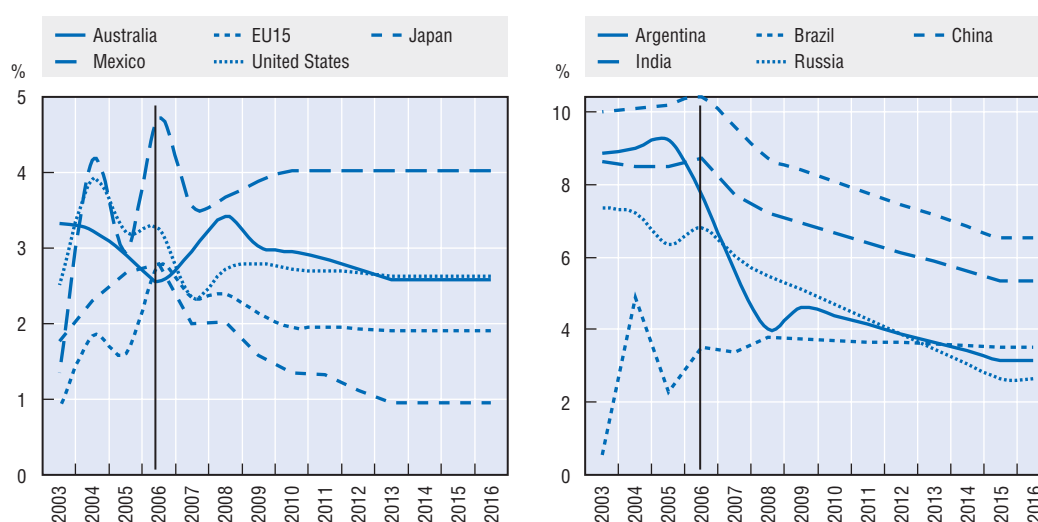
The recent downturn of activity in the United States is not expected to last beyond the short-term, and thereafter growth is assumed to remain solid. Conversely, short-term prospects are bright for Canada, the US's main trading partner, given the stable economic climate in this country as well as expanding trade reinforced by high commodity prices. In the European Union (EU), confidence prevails now that solid growth seems to finally have taken root, even though output is assumed to moderate over the outlook period. The recovery is also established in Japan, but with weakening potential over the longer term coming chiefly from its ageing workforce. In the short term, interest rates are expected to notch upwards in both of these latter countries while the euro and yen continue to appreciate against the dollar, diminishing the prospects for EU agricultural exports but boosting import demand in Japan. Activity has surged back in Mexico with GDP growth rates beyond 2009 expected to exceed 4%, and the dynamic economies of Korea and Turkey

continue to steam ahead. In the near-term, a rebound is also expected in Australia, which, if it eventually spreads to New Zealand, will bring renewed optimism in this latter country as well after several years of declining performance.

Because of their growth potential, the large emerging economies of China, India, Brazil and Russia are key drivers of global economic growth. Moreover, the relative significance and growth potential of their agricultural sectors mean that they play an expanding role in world trade of agricultural commodities. Higher responsiveness of food demand to income growth imply that income gains in Russia and the high growth developing countries will translate directly into increased consumption, in particular for high value-added food items such as meat and dairy products.

**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. 80 (December 2006), World Bank Global Economic Prospects 2007 (November 2006).

With rising investment, surging demand and expanding trade prospects, output growth is expected to remain strong in China and India over the outlook period, providing the dynamic behind activity throughout much of Asia. Export demand, in particular for agricultural commodities, is essential to continued GDP growth in the main South American economies. Exports should spur a return to solid growth in Brazil which is expected to remain strong thereafter at near 4%. In Argentina, however, the rapid growth of the past few years should slow somewhat. Likewise, economic growth in Russia, as in other CIS countries, should dampen slightly amid concerns over fiscal discipline, but growth rates in both countries are assumed to remain higher than in most OECD countries. Even though economic growth in the BRIC countries is expected to remain high by OECD standards, the assumed growth rates are nevertheless lower than they were in the recent past.

Population and income growth assumptions constitute the principal elements of the global economic outlook in that they are the key drivers in demand developments, but also because with globalisation, differences in regional growth prospects increasingly determine both the future landscape of the world agricultural markets and global trade patterns. While recent fluctuations have some impact on short term economic growth expectations, over the longer term, projected growth rates are based on broad assumptions

about the trends of such diverse underlying factors as fertility, ageing, urbanisation, land use and production technology, not to mention the structure and evolution of labour and capital markets. In general, these factors change slowly over time, and in any case they are not specifically taken into account in the present projections.

### **Growth in developing countries should increase potential for south-south agricultural trade**

As illustrated in Table 1.1, income growth is closely related to population growth. The regions where income growth is the highest, like Africa, Asia and Latin America, are also those where population growth is the highest, at rates close to or exceeding 4% on average over the next decade. Countries in these regions often have a comparative advantage in the production of labour-intensive agricultural commodities such as fruits and vegetables due to a substantial supply of low-cost labour and relatively limited resources of arable land. Nevertheless, available crop land in these countries is usually utilised for year-round cultivation of products such as sugar and rice or other staples. As shown later in this section in the review of historical patterns of agricultural trade flows, exports of semi-processed and processed agricultural and horticultural product have been much larger in lower middle-income countries than they have been in low-income countries.<sup>2</sup> For higher value agricultural commodities such as meat and dairy products, demand is more responsive to the rising incomes in emerging economies than it is in the mature markets of OECD countries. In high growth developing countries this will continue to lead growth in imports not only of processed products, but also of bulk agricultural commodities destined for budding domestic processing industries.

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

Population in 2006, million. Average annual growth over 10 year period and income share, percentage

	Population			Income		
	1997-2006	2007-2016	2006 million	1997-2006	2007-2016	2006 income share
World	1.23	1.08	6 530	2.86	3.05	100
Africa	2.20	2.04	923	4.21	4.32	1.8
Latin America and Caribbean	1.40	1.17	564	2.27	3.79	5.9
North America	1.02	0.86	332	2.81	2.62	32.3
Europe	0.29	0.06	527	2.20	2.13	27.6
Asia	1.15	0.98	4 150	3.55	4.02	30.3
Oceania	1.36	1.08	33	3.33	2.72	2.0

Note: Income is measured by GDP at USD 2000 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 2007 (November 2006).

Much of the uncertainty in constructing a global economic outlook comes from projecting the nominal elements such as price indices and exchange rates. It is more difficult to gauge the long-term dynamics of these variables which are influenced by a wide variety of economic and political factors, particularly when in some countries their recent trends have been unstable. Interest rate differentials, unprecedented global liquidity in financial markets and high volatility commodity prices, in particular oil and energy prices, contribute to the inherent uncertainties related to making assumptions for a ten year outlook horizon.

***Inflation is assumed to remain low in OECD countries, despite high commodity prices***

Inflation expectations remain low in most developed countries, as governments are assumed to enforce low inflation targets through the use of appropriate monetary policies. Throughout the OECD, consumer prices have shown substantial resilience over recent years to oil price movements despite being subjected to upward pressure from strong commodity price increases. Nevertheless, in most OECD countries consumer price inflation is anticipated to remain below 3%, and in many is closer to 2% in the medium term. For the OECD as a whole, inflation was contained at 2.4% in 2006; it is assumed to fall and to remain below 2% by 2010. In the recent past, monetary policy responses in major OECD countries have been swift as inflation measures neared the upper thresholds of established targets. Although several years of sustained tightening in the United States have ended, interest rates in the euro area and Britain have risen over the past year and seem to have contained price pressures. Even in Japan, positive but low inflation at the end of 2006 has led to the Bank of Japan to abandon its five-year long zero interest rate policy. The observed effectiveness of these measures in developed OECD economies has led to longer-term expectations that prices will remain under control in these countries.

***Food price inflation is an increasing concern in emerging economies***

Conversely, in many rapidly growing developing countries, inflation has become more and more of a concern over the past year. Whereas large increases in the prices of non-agricultural commodities have widely been attributed to the strong demand and accelerating growth in these emerging economies, more and more, price pressure is being felt in markets through increased demand for food products. This pressure can be either direct, through growing demand and changes in consumption patterns as incomes rise, or indirect as alternative uses of food crops, such as inputs for biofuels, have led to higher domestic prices. As energy prices have subsided over the past year, food price inflation has been increasingly accused of driving higher headline inflation. In India, inflation rates above 6% have led to both fears of an overheating economy and concern that surging demand for wheat will continue to exceed supply. In Argentina, where beef consumption per capita is the highest in the world, beef exports were temporarily banned in an attempt to lower domestic beef prices and help cut economy-wide inflation levels. Mexico too, despite moderate inflation expectations, has experienced dramatic increases in maize flour prices.

***World oil prices remain high relative to historical levels***

The world benchmark Brent crude oil price assumption underlying this year's *Agricultural Outlook* is based on the assumption for the (real) average price of OECD crude oil imports of the International Energy Agency's 2006 *World Energy Outlook*. The nominal Brent price is assumed to decline over the medium term to about USD 55 by 2012, rising again slowly thereafter to finish just over USD 60 by the outlook horizon. This price path is significantly higher than in last year's outlook reflecting the sustained tightness of oil markets. Price pressure has been maintained as geopolitical tensions combine with processing capacity constraints to keep global supply from the major oil producers below demand. With the easing of this tightness, the world price should decline. However, in the longer term beyond 2012, rising marginal production costs of non-OPEC producers may tend to impart market power to a small number of dominant, Middle East OPEC members whose collective investment and production policies are generally expected to push prices higher.

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

The depreciation of the US dollar against several major currencies, including the euro, Japanese yen, the Chinese yuan and the Brazilian real that began in 2006, is not expected to persist beyond the near term. While a stronger euro may dampen the euro area's export prospects the weaker dollar is not expected to substantially impact Brazil's and China's booming export markets. The renewed strength of the yen will improve the import position of Japan, a major importer of US agro-food products. Likewise, the continuing appreciation of the Korean won throughout the outlook period, in the context of strong domestic growth and rising incomes, would help drive an expansion in Korean agricultural imports.

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 5% since the adoption of a more flexible management system in July 2005 and is expected to appreciate further over the outlook period. In strong growth countries like Argentina, Brazil, India, Mexico and Russia, export markets are expanding solidly. Yet over the longer term to 2016, projected inflation rates are higher than in the United States, amid strong demand growth, in particular for imports. 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. More and more, agricultural policies are directed towards achieving specific objectives (*e.g.* environmental performance or biofuel development) and beneficiaries (*e.g.* specific groups of farmers) within broader goals with respect to national, regional or global concerns (*e.g.* domestic and trade policy reform, income inequality, food quality and safety, global warming, etc.). At the same time, non-agricultural policies, such as energy, environment and rural development policies, have a growing impact on the agri-food sector. Policies influence the composition and levels of both production and consumption, thereby creating (or sometimes correcting) market distortions and influencing prices.

No conjecture as to the future outcome of negotiations for the completion of the *Doha Development Agenda* is incorporated in the *Outlook* projections and consequently, it is assumed that trade policies as agreed in the *Uruguay Round Agreement on Agriculture (URAA)* will hold for the entire period to 2016. As noted later in this chapter in the review of trade flows, despite the *URAA*, trade in agricultural products continues to be dominated by a relatively small number of countries. Trade flows are increasingly influenced by policies that have been negotiated as part of regional 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. The policy assumptions of the *Outlook* take into account the provisions of these agreements, in addition to existing bilateral preferential trade provisions covering specific agricultural commodities. Regional or bilateral trade agreements have not always been explicitly taken into account in the underlying modeling system but allowance for such agreements has been made where they are expected to have an impact on growth in trade. This is the case for both the *Central American Free Trade Agreement (CAFTA)* and the *Australia-US FTA*, which is expected to have a substantial impact on Pacific region beef trade.



This Outlook makes no anticipation of changes to agricultural policies which may be part of forthcoming farm legislation in the United States. Although current legislation is slated for expiry in 2007, the programmes and provisions of the *Farm Security and Rural Investment Act (FSRI)* of 2002 are assumed to continue for the entire Outlook period and moreover, no changes are anticipated in crop loan rates which are extended at constant levels through to 2016. The requirements of the *Renewable Fuels Standard* (the *Energy Policy Act* of 2003, modified 2005) have been taken into account, as discussed later in this section under the assumptions related to biofuel production. The main policy elements of the EU *Common Agricultural Policy Reform* of 2003, as described in previous editions 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. Where well-defined termination dates exist, they are factored into the projections; otherwise payments, provisions and other policy measures are assumed to continue through 2016.

For sugar, projections take into account the EU sugar reform implemented as of 1 July 2006, which includes a progressive cut in price support of 36% over four years and the reduction of EU sugar subsidised exports from the current level of 7.6 Mt to the agreed URAA limit of 1.4 Mt. The provisions also include a progressive reduction of duties followed by unrestricted sugar exports to the EU from LDC countries under the EBA Initiative from 2009. Another important development which has been taken into account in the sugar projections is the resolution of a long standing sweetener dispute between the US and Mexico under NAFTA which has resulted in an elimination of both the consumption tax on Mexican beverages manufactured with HFCS and, from 2008, of export restrictions and duties which should spur exports of Mexican sugar to the US.

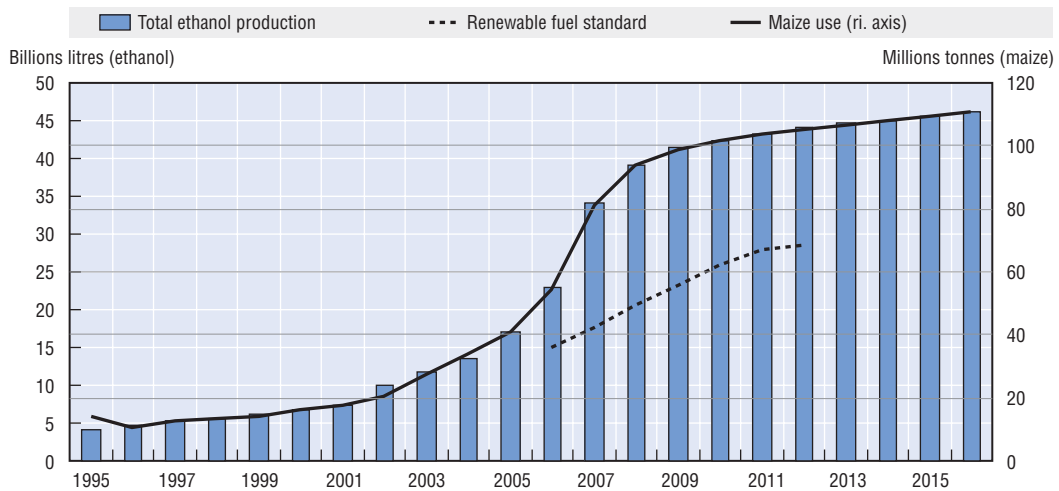
## Assumptions related to evolving biofuel production

World markets for cereals, sugar and, increasingly, oilseeds and palm oil, are strongly influenced by developments in biofuels. Production of renewable energy, in general, and biofuels in particular, has risen rapidly to the top of the policy agendas in many countries and has become a major issue for markets. There are numerous motives behind political support for biofuels and the composition and priorities of objectives differ across countries. Most of the objectives can be grouped within three broad categories. First, concerns about future energy supplies; in particular expectations of finite availability of crude oil and increasing reliance on oil imports from countries considered as less reliable suppliers; second, environmental concerns – most notably the increased emissions of carbon dioxide (CO<sub>2</sub>) as one of the main causes for climate change; and finally, the development of new markets for agricultural produce and hence increased revenues for farmers.

This Outlook does not analyse the developments in the biofuels sector, but treats biofuel production through implicit and exogenous assumptions in a number of countries. In particular these include the US, the EU, Canada and China, while ethanol production in Brazil is an explicit part of the sugar baseline.

### US

The US is assumed to substantially increase its ethanol production, which predominantly is based on domestic maize. Ethanol output and corresponding maize use is assumed to grow by almost 50% in 2007, and while growth rates are assumed to decline thereafter, US ethanol production is still assumed to double between 2006 and 2016 (Figure 1.2). This expansion would exceed the requirements stated in the Renewable Fuel

Figure 1.2. **Expansion of US ethanol production and corresponding use of maize**

Source: ERS.

Standard (RFS) by far. In consequence, maize use for fuel production, which has doubled from 2003, would increase from some 55 Mt or one-fifth of maize production in 2006 to 110 Mt or 32% at the end of the projection period.

Bio-diesel production, in contrast, is assumed to remain relatively limited in the US, due to lower profitability caused by high feedstock costs. Soya oil use for bio-diesel production is expected to reach 2 Mt in 2007 and to further increase to 2.3 Mt in 2011, with no growth assumed for the remaining projection years.

## EU

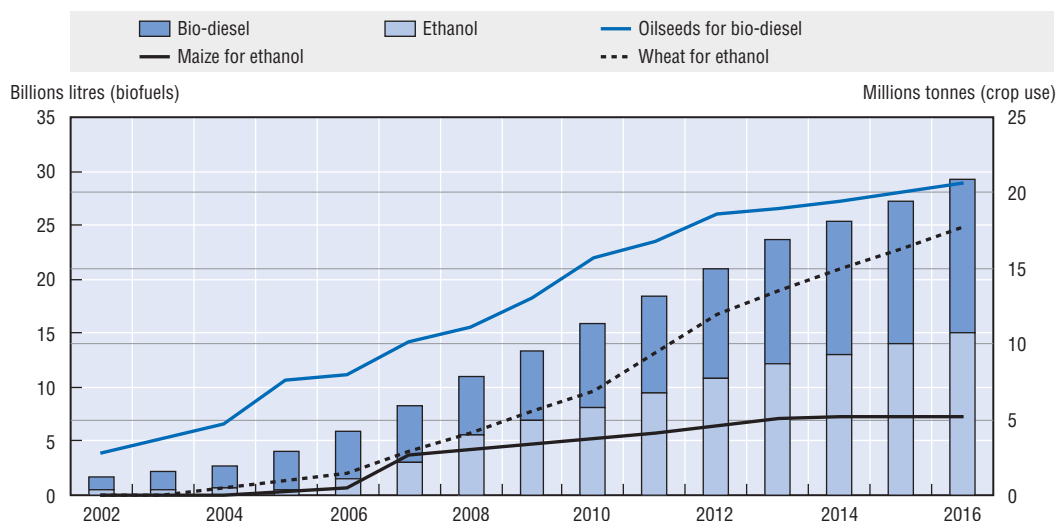
Biofuel production and use in the EU was historically for bio-diesel based on oilseeds, mostly rapeseed. Increasingly it is assumed that ethanol, made mostly from wheat and maize, will become important on EU markets. Despite growth in total biofuel use by some 170% between 2006 and 2010, however, it is assumed that the share of biofuels in total transport fuel consumption will not exceed 3.3% in energy terms, rather than the 5.75% target envisaged by the EU Biofuels Directive. Further growth is, however, expected throughout the projection period (Figure 1.3).

Despite some increased imports of biofuels, this growth in biofuel markets translates into strongly increased demand for feedstock products. Use of wheat in particular is set to increase twelvefold and to reach some 18 million tonnes by 2016. Growth in the use of oilseeds (largely rapeseed) and maize is less dramatic, but would still reach 21 Mt and 5.2 Mt by 2016, respectively.

## Canada

Compared to both the US and the EU, biofuel production in Canada (a country with large fossil-based energy resources) is small in absolute terms. In 2006, ethanol production doubled and bio-diesel production commenced. In addition to this, the Canadian government announced its intention to regulate biofuel by mandating a 5% ethanol blend in gasoline by 2010 and a 2% bio-diesel blend in on-road diesel and heating-oil by 2012. In this report projections it is assumed that these mandates are met. In compliance with the 5% target, ethanol production, based to a larger extent on maize and to a smaller part on wheat,

Figure 1.3. **Ethanol and bio-diesel use in the EU to increase – based on wheat, rapeseed and imports**



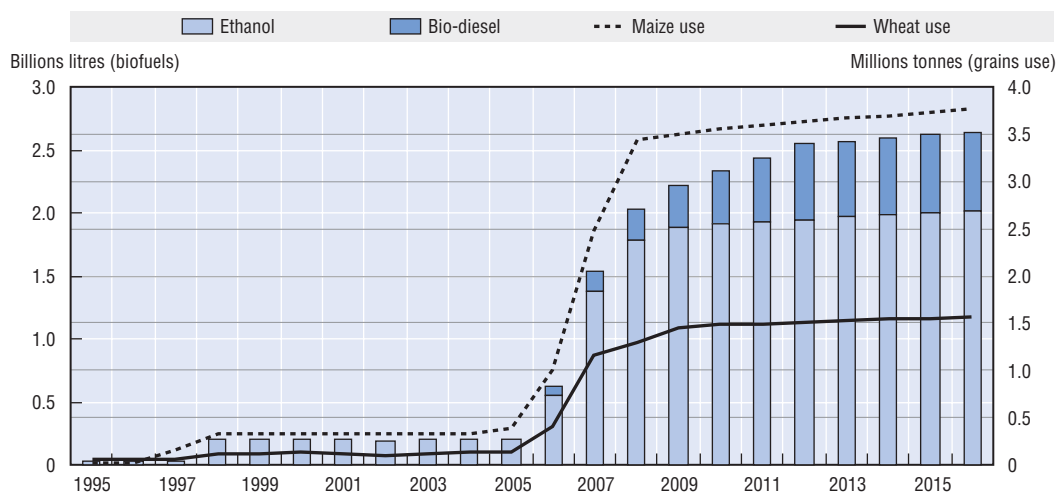
Note: Ethanol and bio-diesel data before 2006 refer to production, from 2006 to 2016 to consumption.

Source: EU Commission, OECD Secretariat.

is assumed to grow by another 150% in 2007 to reach almost 1.9 billion litres in 2009, compared to 550 million litres in 2006. Little growth, following the increased gasoline use, is assumed for the remainder of the projection period. Bio-diesel production is assumed to see an even stronger growth in relative terms, though at much lower levels. Standing at 70 million litres in 2006, bio-diesel production is assumed to reach 600 million litres by 2012, with little growth thereafter (Figure 1.4).

About half the growth in bio-diesel production is expected to be derived from oilseed oils; the remainder should be made from yellow grease and tallow. The assumed growth in ethanol production would consume significant quantities of maize and wheat. Maize use for ethanol is assumed to increase from 1 Mt or 4% of domestic production in 2006 to

Figure 1.4. **Canadian ethanol and bio-diesel production to expand, using growing cereal quantities in particular**



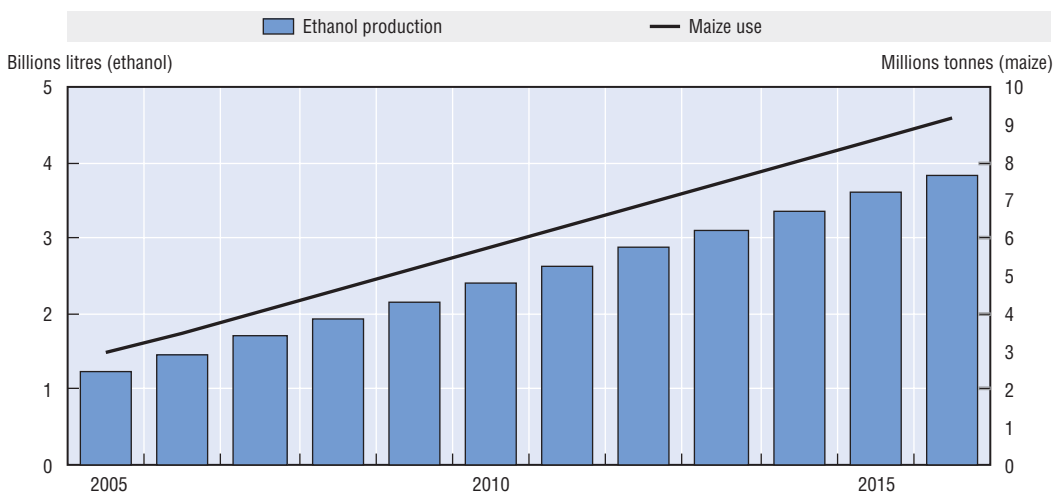
Source: AAFC.

almost 3.4 Mt or more than 13% in 2008 before growing at a slow pace only for the rest of the projection period. Wheat use will remain less important, but with an increase to close to 1.5 Mt from 2009, ethanol production is still assumed to consume some 5.5% of domestic production by 2016.

### China

Fuel ethanol production in China is assumed to grow steadily and to reach some 3.8 billion litres by 2016, up from 1.5 billion litres in 2006. Most of the fuel ethanol is expected to be based on maize, even though other feedstocks are being used or their use is currently under exploration. Maize use for fuel ethanol should exceed 9 Mt in 2016, compared to 3.5 Mt in 2006 (Figure 1.5).

Figure 1.5. **Expanding Chinese ethanol industry to increase maize use for biofuels**



Source: ERS.

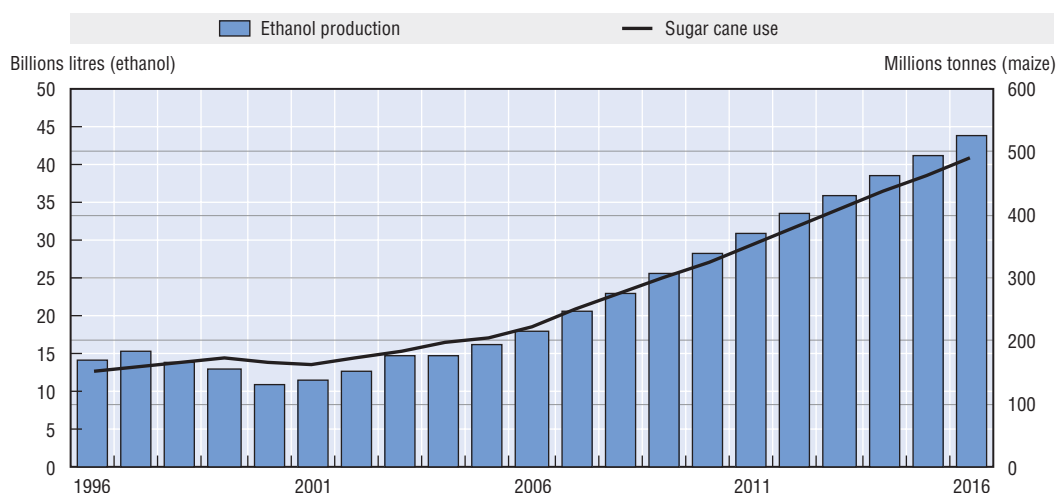
### Brazil

In contrast to the other countries, ethanol production in Brazil is not based on an assumption, but explicitly projected. Ethanol production in Brazil is expected to continue its growth at increased rates, and to reach some 44 billion litres by 2016, 145% more than what was produced in 2006. As ethanol yields per tonne of sugar are expected to increase, sugar cane used in ethanol production would grow less in relative terms, but would still grow by 120% over the 10 years projected (Figure 1.6) and would represent some 60% of total sugar cane output, up from less than 50% today.

## Main trends in commodity markets

Compared with previous editions of the *Agricultural Outlook*, developments in bioenergy policy, technology, and feedstock production have become even more important factors in future outcomes for commodity markets. While the run-up in commodity prices in 2006 is only partially due to increased demand for bioenergy feedstocks, this *Outlook* presents projections that show some considerable changes in price projections from past reports. Agricultural markets have been reacting to higher energy prices since 2000 in that commodity production costs have increased. But increased demand for agricultural products

Figure 1.6. Continued growth in Brazil cane-based ethanol production



Source: OECD and FAO Secretariats.

in the form of bioenergy feedstocks, largely from sugar, maize, vegetable oils and wheat, constitute an important change from previous market situations. While the emergence of these prospects has been noted in past editions of this report, it is now a major point of discussion and analysis worldwide. What remains to be seen is whether bioenergy constitutes a lasting structural change for agricultural markets, and a change which is revealed by a higher plateau for real prices. Another question is whether there will be increased uncertainty and more price variability with higher dependence on developments in the energy market, including the policies that affect them.

Globalisation and the rising importance of key emerging economies are having diverse effects on world agricultural markets. The assumed strong growth in demand will initially spur expansion in import demand of processed products as well as agricultural raw materials. Subsequently, growing demand provides the impetus to the development of domestic production capacity, especially given the unprecedented level of global liquidity and the acceleration of foreign direct investment flows towards emerging markets. For example, investment in processing capacity is expected to be particularly strong in India and China, and it is a shared priority of many governments in high growth developing countries to capture a larger share of the added value in domestically consumed agricultural products. Trade patterns are also changing. In the context of growing global markets, larger export shares are not only gained by displacing competitors, but more importantly by growing faster than others. Against this background, OECD countries as a whole are projected to lose export shares in many commodities to non-OECD countries over the outlook period.

These developments taken together lead to the projection of lower production and consumption growth prospects in the OECD region than in the developing and former transition countries for all of the 15 agricultural commodities listed in Table 1.2, but wheat. The largest growth differentials occur in the high value added products such as beef, pigmeat, butter and SMP, but also sugar. They affect production and consumption equally. The bulk of the global production growth for these products, and most of the consumption growth as well, will originate in developing countries and transition economies.

Table 1.2. **Consumption and production annual (least squares) growth rates, 2007-16**

	Production			Consumption		
	%			%		
	Total	OECD	Non-OECD	Total	OECD	Non-OECD
Wheat	0.7	1.0	0.5	0.8	0.9	0.8
Rice	0.9	0.1	1.0	0.9	0.1	1.0
Coarse grains	1.2	1.2	1.3	1.2	0.9	1.5
Coarse grains used for feed	1.0	0.5	1.5	1.0	0.5	1.5
Oilseeds	2.1	1.3	2.6	1.9	1.3	2.2
Oilseed meal	2.1	1.4	2.5	2.1	0.9	3.2
Beef	1.5	0.2	2.4	1.5	0.2	2.4
Pig meat	1.7	0.4	2.3	1.7	0.5	2.2
Poultry meat	1.9	1.0	2.6	1.9	1.1	2.4
Milk	1.8	0.7	2.8	..	..	..
Butter	2.2	-0.2	3.6	2.3	0.0	3.4
Cheese	1.3	1.1	2.1	1.3	1.1	2.0
Skim milk powder	1.0	0.6	2.1	1.1	1.0	1.3
Whole milk powder	2.4	2.2	2.6	2.5	1.0	2.8
Vegetable oils	2.5	1.6	2.8	2.5	2.4	2.6
Sugar	1.8	0.3	2.2	1.8	0.5	2.2

Source: OECD and FAO Secretariats.

As a result, Table 1.3 shows that developing and transition countries will take a growing share of total world production and consumption over the outlook period – and that the share of OECD countries is consequently declining – for the majority of products. The exceptions are for wheat and coarse grains, where the OECD's share in global production is increasing. OECD shares in milk powders are much larger for production than they are for consumption and the production shares decline initially before stabilising. The largest losses in shares over the outlook period are for butter and milk, but also for meat products, especially beef. These products have much larger growth potential in developing countries, in particular in the largest amongst them such as Brazil, China and India, than in the mature markets of the OECD. While the OECD's coarse grains production share is increasing and the consumption share is stable, that for feed use is declining, reflecting the growing importance of biofuel use in OECD countries. Production and consumption shares are decreasing only slightly for cheese, for which OECD countries remain dominant market players.

### **Cereal markets recover from production shortfalls while biofuel use of maize increases**

Under the assumption of a return to normal yields, and the incentive of currently higher prices, global cereal production is projected to recover from the shortfalls experienced in the past year. The unprecedented demand for maize coming from rapidly growing biofuel production in the United States is in the process of transforming the coarse grain market. The impact of these changes on cereal markets may gradually ease over the years, but that will much depend on the evolution of renewable fuel policies and further development of the biofuel industry, particularly from a technological perspective. Driven by current low stocks and high prices there will be a shift towards more area planted in cereals, either from reallocation of land from other crops in the main OECD producers (Australia, Canada and the US), from land taken out of set aside (EU) or out of CRP reserves (US) or from cultivation of new land in many developing countries, particularly in South and Latin America.

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

	Production			Consumption		
	%			%		
	2006	2011	2016	2006	2011	2016
Wheat	39.6	43.0	43.3	33.6	34.3	34.2
Rice	5.0	4.9	4.7	5.2	5.1	4.8
Coarse grains	50.8	52.6	52.5	50.2	50.9	50.0
Coarse grains used for feed	..	..	..	54.7	53.0	51.8
Oilseeds	42.1	38.5	37.7	39.4	38.4	36.9
Oilseed meal	40.0	38.6	37.0	53.6	49.6	46.8
Beef	41.1	37.7	36.3	41.5	38.6	37.1
Pig meat	34.9	32.5	30.2	33.6	31.4	29.5
Poultry meat	45.5	43.1	41.8	43.8	41.2	40.2
Milk	46.6	44.0	41.6	..	..	..
Butter	41.3	36.1	32.4	35.8	31.3	28.3
Cheese	78.4	77.6	76.9	76.0	75.7	74.9
Skim milk powder	76.7	73.0	73.7	54.6	54.0	54.1
Whole milk powder	46.1	43.6	43.8	19.5	17.7	16.7
Vegetable oils	26.0	25.4	23.8	35.4	35.8	35.2
Sugar	24.0	22.4	21.0	26.9	24.7	23.3

Source: OECD and FAO Secretariats.

Nevertheless, beyond the initial years of the outlook, much of the growth in output is expected to stem from area productivity gains as world prices decline from current highs. The bulk of wheat and coarse grain production will continue to be concentrated with the largest producers, the EU, China and the United States, along with India for wheat, dominating over half of total world output. By 2016 global production will reach 673 million tonnes of wheat and 1.2 billion tonnes of coarse grains.

Exports have been substantially reduced in recent years in several important countries, in particular because of severe drought in Australia, but also because of poor harvests in the EU and the United States. But global cereal trade is projected to rebound and grow at close to 1.5% annually over the outlook period. The EU is expected to surpass Canada and Australia as the second largest wheat exporter after the United States. However, the recuperation of traditional export sources will be supplemented by export expansion in Russia, the Ukraine and Argentina and in Brazil for coarse grains, while Chinese exports of both cereals are expected to diminish.

### **Developing countries cereal imports set to grow**

Significant import demand for wheat will continue to develop in India, and will grow further in Brazil and Egypt as well as in an increasing number of developing countries. Although the Outlook projects expanding exports from the CIS countries and Argentina, most of the growth in import demand will be satisfied through larger shipments from OECD countries. Rising per capita incomes and developing food markets are behind the swelling demand that has outpaced domestic production capacity. More generally growth in per capita food consumption of wheat is expected to remain modest in most countries.

Despite the prospects of increased biofuel use of maize, which will be largely grown domestically, demand growth for coarse grains in world markets will be predominantly driven by increased feed demand from thriving livestock industries in emerging economies

such as China, India and Argentina. Import growth in China will augment its position as a major coarse grain importer. While the quantities of coarse grains destined for dominant importers such as Japan, Korea, Mexico and Saudi Arabia remain broadly stable throughout the outlook, a rising share will be headed for key importers such as China, Egypt and the Islamic Republic of Iran as well as Colombia and Chile.

### ***Rice production set to expand***

More than cereals, rice is an essential crop for many developing countries because its cultivation is particularly suited to their climate and arable land characteristics, and consequently, rice has been a staple food in their traditional diet. While growth in wheat and coarse grain consumption is linked to increases in per capita incomes, growth in rice consumption remains tied to underlying population growth, with per capita consumption expected to rise only slightly over the outlook period, mostly because of growth in Africa. Nevertheless, rice production is set to expand, in part because of policies in many developing countries to promote rice cultivation as a means of supporting farmer incomes and limiting rural emigration, as well as both national and regional efforts to encourage food self-sufficiency, especially in Sub-Saharan Africa. Still, the largest production gains will come from the major rice producers, such as India, Indonesia, Thailand and Viet Nam.

Rice stocks throughout the world have declined dramatically from their high levels of the past decade and there has been a significant increase in global rice trade. At the same time rice export prices have risen, with particularly sharp escalations in recent years. The trend in trade expansion is expected to persist, with prices climbing even higher in the short-term before beginning a gradual decline. Underlying this expansion is the higher import dependency projected for Asian producers such as China and Indonesia, along with growing demand in Turkey and in Middle East countries like Saudi Arabia. In addition, changes to trade policy in some OECD countries, like scaled back import duties in the EU and an enlarged quota in Korea, will also spur imports. In terms of exports, despite recent contractions, steady growth in the longer term will continue to be driven by the small number of dominant market players in Asia, principally Thailand, but also Viet Nam and India, with only moderate export growth expected in the United States.

### ***Global oilseed production and oilseed meal exports to expand***

Biofuels are also strong drivers of oilseeds markets both directly through demand for oilseed oils in the bio-diesel production process and indirectly through the impact of the relative prices of oilseeds and maize which affect the competition for arable land between these crops, particularly in the US. Furthermore, because of rapidly rising maize prices relative to those for oilseeds, there is an increasing demand for oil meals to replace maize in livestock feed rations as a source for energy. In the current context of high cereal prices, oilseed meals are cheaper than coarse grain sourced feed – but this relative cost advantage may be short lived as maize-based ethanol production develops, feed will become available from low-cost distiller by-products, creating new sources of competition for oilseed derived protein meals, particularly in the United States. OECD oilseed production will remain broadly stable with most of the changes taking place through crop reallocation and a geographical redistribution of production.

Oilseed production in Brazil and Argentina will intensify as arable land is diverted from pasture to oilseed crops. With Brazilian production growing by 3.9% per year on average over the outlook period, it will overtake the United States by 2009 as the world's largest oilseed



exporter. Argentina will cultivate its position as a regional hub for oilseed crushing with differential export tax enticements and investment in processing capacity contributing to promote the domestic crushing industry. This will lead to a 33% rise in protein meal exports as well as higher exports of both meal and oil to satisfy growing import demand in China. By 2016, China will have become the world's largest importer of oilseed meals and it will have further consolidated its leading position in imports of oils and oilseeds. For the latter product, its share in global imports will have risen to almost 50%.

Increasing world livestock production will continue to drive the consumption of oilseed-derived protein meal, with most of the growth taking place in developing countries. Oilseed meal consumption in the non-OECD region will swell by over 55% with over two-thirds of the growth attributed to Brazil and China alone because of expanding livestock production. While the EU should continue to hold its position as the largest importer of oilseed meals, its import dependency will diminish as a growing proportion of the region's protein meal consumption comes from domestically produced and crushed oilseeds, in particular rapeseed meal. The nurturing of bio-diesel production capacity will stimulate oilseed oil demand in the EU which, when combined with the growing demand for oilseed and palm oil for food use, will almost double EU imports of vegetable oils over the outlook period. Despite strong investment led growth in China's domestic oilseed oil production capacity, expanding demand for food oils will continue to spur imports in this country as well as in India.

Largely driven by income growth, vegetable oils, both from oilseed crops and from palm, will remain the fastest growing commodity in terms of consumption covered in this *Outlook*. Within this overall context, growth rates of the developing countries almost double those of developed countries. Over time, increased vegetable oil consumption has made a large contribution to increased calorie consumption. Use of vegetable oils for bioenergy purposes is expected to grow strongly, and may alter trade patterns and the consumption mix in diets in some countries/regions depending on policies in place. This may be particularly the case in the EU where bioenergy use of vegetable oils has been mostly oriented to the use of rapeseed oil.

### ***A closer link between sugar and ethanol***

Brazil is the world's leading sugar and ethanol producer and currently accounts for around 40% of world sugar trade. Demand for sugarcane-based ethanol by domestic motorists and for export is expected to continue to rise at a rapid rate and to account for a larger share of Brazil's sugar cane crop. However, these developments are not expected to unduly constrain the amount of cane available for sugar production and sugar exports projected to rise strongly and to exert a moderating influence on world price prospects over the coming decade. Further production and trade growth is also expected in other leading sugar exporting countries, such as Australia and Thailand. Following reform of its sugar regime, the EU is expected to reduce production in a context of rising imports and tight controls on subsidized exports and may eventually challenge the Russian Federation for its role as the leading sugar importer. Mexican sugar exports to the US should increase when duties and restrictions are eliminated under NAFTA in 2008, although rising consumption is expected to reduce its exportable surplus. Countries in Asia are expected to experience the fastest growth in sugar consumption, with China, Indonesia, Korea and Japan remaining significant sugar importers.

### **Developing countries increasingly dominant in the meat outlook**

The global outlook for meat is increasingly characterised by rising production and consumption trends of developing countries and a more stable and mature path of development for markets of OECD countries. Still, animal disease outbreaks in recent years have affected established trade patterns for meat products, led to short-term perturbations to supply and demand in major trading countries and an increased market share of disease-free exporting countries. In response to these outbreaks, consumption decisions in OECD countries will be to a greater extent driven by quality assurances such as traceability, meat-packing requirements and processing controls which reinforce an underlying preference for premium quality meats. While per capita consumption in high income countries is expected to increase only marginally over the outlook period, rising incomes and the ensuing diversification of diets will lead to a shift towards significantly higher meat consumption in developing countries, representing more than 80% of expected world growth. Much of this expansion will take place in Asia and the Pacific region, and will reflect in particular the rise in consumption of pigmeat.

Over the outlook period, world meat production is expected to grow by 1.7% per year, mostly because of expanding markets in Brazil, China and India. As a result, the production share of major OECD producers will continue to fall, despite expectations of renewed growth in the United States. With trade recovering from the effects animal disease outbreaks, a small number of major exporters, namely Brazil, the US, Canada, Argentina and Australia, will remain dominant in world markets with export growth particularly strong in South America. By 2016, net exports of Brazil are expected to surpass those of the four others combined to take a 28% share of total world meat exports. Beef trade is continuing to recover between the US and Canada ensuring that the United States remains the world's largest meat importer at the end of the outlook period followed by Japan and Russia.

The burgeoning economies and strong income growth in Korea, Saudi Arabia, Mexico and the Philippines will contribute to a considerable rise in meat imports in these countries, increasing their importance in regional markets. Import dependency in meat products is likewise expected to grow in many other dynamic developing countries as nascent demand surpasses the domestic capacity for meat production throughout the duration of the outlook period.

### **Growing importance of developing countries in dairy supply and demand**

One of the most prominent trends in the *Agricultural Outlook* is the increasing importance of developing countries in the supply and demand for dairy products. Milk production gains over the outlook period will be overwhelmingly driven by output growth in non-OECD countries. Expansion in India, the largest individual producing country in the world, where surging demand growth will stimulate a strong increase in milk and butter production, will be especially marked. Driven by substantial yield gains, strong growth in milk production is also expected in China. This contrasts the moderate growth in the OECD area where milk production mainly increases due to gains in Oceania and the United States and is chiefly constrained by domestic production controls in many other countries.

The escalation of world dairy prices of recent years may now be regarded as symptoms of broader structural changes. First, urbanisation and higher incomes have shifted diets in emerging economies towards higher consumption of not only butter and cheese, but also to increasingly more versatile milk powders. These trends have been encouraged by

growth in dairy marketing as retailing channels develop and through government programs in some countries. Second, with technological advances and wider global investment there is a shift towards higher value-added processing of dairy products. In developing countries this includes improvements in storage and processing capacity which allows the production of more fresh dairy products, but also improved processing of WMP. In the mature markets of developed countries, value-added innovation means increased convenience and a wider variety of products, in particular cheeses and flavoured fresh dairy products, which cater to specific consumer tastes. Lastly, but indeed not least importantly, with dairy market reform, intervention stocks have broadly ceased to be systematically unloaded onto world markets while at the same time, subsidised exports have diminished significantly. Both of these distortionary policy practices, which traditionally had the effect of holding down international dairy prices, are thus likely to be much less prevalent over the outlook period than in previous years.

### ***Dairy exports continue to be dominated by OECD countries***

Nevertheless, trade in world dairy markets will continue to be dominated by the traditional OECD exporters of Australia, New Zealand and the EU, with growth expected for all products except butter. Trade remains regional, with for example, intra-EU trade larger than all remaining global trade put together. Still, non-OECD countries gain export share in butter and SMP, filling the place left by declining EU exports in light of diminished intervention stocks. Argentina's surging milk production is behind its emergence as an up-and-coming WMP and cheese exporter, while exports of these products from the EU should remain roughly stable. Rising exports of all dairy products are expected from New Zealand. Russia, Japan and the US will continue to be key cheese importers while more and more milk powders are destined for milk reconstitution in developing countries, most notably in the Middle East and North Africa but also in Mexico. China's strong increase in consumption of dairy products will be largely met by a sharp growth in domestic production with only a marginal growth in imports, in particular of whole milk powder.

### ***High world prices for most products at the beginning of the outlook period***

Actual world prices rose much more strongly in 2006 than earlier anticipated for cereals and dairy products, and to a lesser extent also for oilseeds, but weakened markedly for sugar. Are these unexpected price developments the result of systemic changes in commodity markets, leading to longer term price strength? Or are they the result of short term factors, such as weather-related production shocks, with prices in the longer term returning to their historical equilibrium levels?

In looking at the price developments that have taken place in 2006, a number of factors have been identified as contributing to the observed price changes for the agricultural products covered by the *Agricultural Outlook*.

- For cereals, weather-related shortfalls in production have occurred in a number of producing countries and regions such as the US, the EU, Canada, Russia, Ukraine and most notably in Australia, where production fell by more than 50%. In a global context of low global cereal stocks in recent years, these lower supplies have been a strong factor underpinning world prices.
- Reduced global stocks and production were confronted with stronger than expected demand for cereals for biofuel production, notably in North America and Europe. This additional demand compounded the already tight supply situation and contributed to

further strengthening of world cereal prices. It is noteworthy, however, that the combined cereal supply shortfall in North America, Europe and Australia in 2006 of over 60 Mt was nearly four times larger than the 17 Mt increase in cereal use for ethanol in these countries.

- Growing cereal use for ethanol led to a reduction in planted acreage to oilseeds, particularly in the US, in favour of maize. Increasing cereal prices relative to those for oilseeds caused this land reallocation. As a knock-on effect, oilseed prices then also increased as a result of tightening supplies and this price strength was enhanced by rising demand for meals as a cereal feed substitute and increasing demand for vegetable oils for bio-diesel production.
- World sugar prices surged in late 2005 and early 2006 to reach 25-year highs under the pressure of tight global supplies and growing linkages between international sugar and oil prices, but then fell back again later in the year. Sugar prices remained below earlier expectations for 2006-07, reflecting abundant supplies, higher stocks and an emerging global surplus. Sugar reform in the EU and the retraction of large white sugar supplies from the international market contributed to a widening white sugar premium in 2006.
- Continuing solid demand for dairy products in combination with rising feed costs and reduced overall supplies, most notably in the European Union and Australia, accounted for most of the price increase for these products, particularly for milk powders. Policy reforms in the EU are behind the reduction in EU dairy surpluses and the drop in subsidised exports. This may constitute a more permanent element of price strength in world dairy markets.
- World meat prices stayed in line with earlier expectations for 2006. Abundant supplies and the demand-reducing impacts of Avian influenza continued to exert downward pressure on prices for pigmeat and poultry. A number of factors, including FMD in Brazil, drought induced slaughter in Australia, and export taxes in Argentina, offset each other to keep beef prices leveled. Lamb prices, however, fell more strongly than earlier expected for 2006 due to drought-induced slaughter in Australia.

### **World market prices in the medium term remain above previous projections**

The foregoing would suggest that much of the observed variation between actual and projected prices in 2006 can be explained largely by short-term production shocks and resulting supply/demand imbalances. But longer-term influences may also be at work, even though they may have been masked by the more traditional market fundamentals. For instance, policy reform leading to lower use of export subsidies may have lifted prices for dairy products and sugar. And maize prices in the US have undoubtedly been supported by increased biofuel production. There is obviously growing interest in many countries in the development of renewable energy supplies based on the use of agricultural feedstocks. This link is well established in the case of the US and Brazil, and is emerging as an important additional dimension to global demand for cereals, oilseeds and sugar products over the projection period.

In a context of generally lower global stocks in recent years, this additional demand is expected to underpin prices and to lead to price levels for field crops that are, on average, higher than in past projections. Nevertheless, cereal, oilseed and sugar prices are expected to fall below current or recent peak levels. Higher average crop prices and associated feed costs, in turn, lead to higher livestock product prices over the outlook period as well.

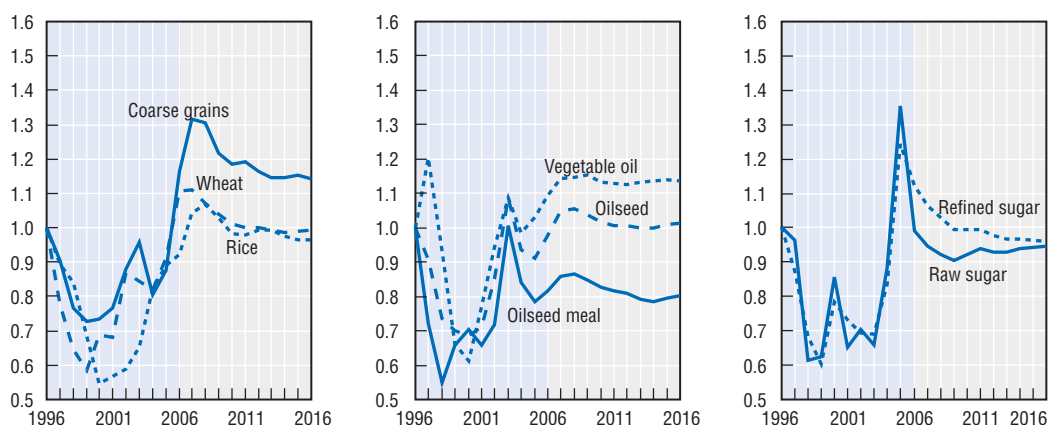
There are a number of uncertainties in relation to biofuel markets and how important they will prove to be in underpinning prices in agricultural markets in the future. These uncertainties include the nature of agricultural and trade policies that will be implemented to nurture biofuel production from domestic agricultural crops, the pace of technological progress in developing viable “second generation” biofuel production plants that utilise cellulosic feedstocks rather than food and feed crops, and the future price of oil. A different combination of these factors than is anticipated in this Outlook could lead to lower prices than are now projected.

### Cereal prices lose some of their current strength

Trends in nominal world indicator prices for the different commodities are shown, first for crop commodities in Figure 1.7, and then for livestock products in Figure 1.8. World cereal prices have been driven higher as the weather-related production shortfalls of the past year and dwindling global stocks have tightened supply on world markets. They should decline towards the end of the outlook horizon, but should stay substantially higher than prices

Figure 1.7. Outlook for world crop prices to 2016

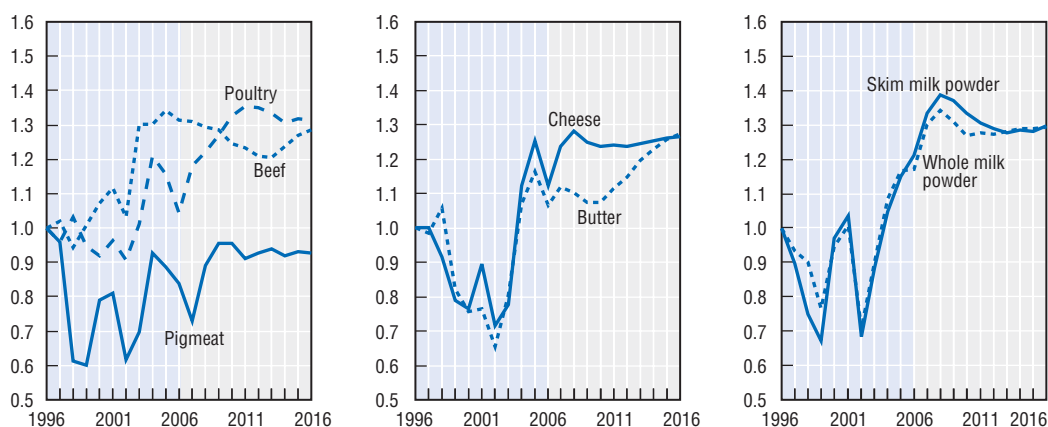
Index of nominal prices, 1996 = 1



Source: OECD and FAO Secretariats.

Figure 1.8. Outlook for world livestock product prices to 2016

Index of nominal prices, 1996 = 1



Source: OECD and FAO Secretariats.

observed over the past decade because of expanding food demand in developing countries as well as budding demand for maize in ethanol production. Very similar prospects are seen in rice markets, with expanding global food demand as incomes and populations grow pushing international prices to their highest levels in a decade, before falling back gradually.

### **Price strength in the oilseed sector dominated by vegetable oils**

Oilseeds and oilseed meals prices will continue to rise through 2007 partly as a result of the run-up in cereal prices that have made oilseed protein meals to become a more a cost-competitive animal feed. In subsequent years however prices will gradually fall back as supply and demand adjust. For the sugar market, world indicator prices had swelled to quarter-century highs during the 2005/06 marketing year, almost doubling in the space of two years. However, their subsequent decline in 2006/07 as sugar balances moved into surplus has been equally dramatic, particularly for raw sugar which fell 27%. Sugar prices will remain under pressure throughout the outlook period, with the white sugar margin remaining substantial, particularly in the first years, as high quality EU white sugar is pulled from world markets under reforms to the EU sugar regime.

### **Meat prices stay above recent averages**

A return to normal market conditions for meat products has brought about diminishing world prices. For beef, this trend will continue for most of the projection period, with prices moderately strengthening again during the outer years. Pigmeat prices rally in the first years of the outlook to 2009, but thereafter remain stable. A similar trend prevails for poultry prices, although they are expected to continue to rise for a longer period before stabilising, reflecting growing demand in North and Latin America and in Europe. World prices of dairy products, which had escalated strongly in 2006 and 2007, will remain at these elevated levels throughout the outlook, partly reflecting the structural changes that reforms have brought about on world markets.

## **Uncertainties**

Weather-related production shocks, future policy developments, animal diseases outbreaks and unstable macroeconomic performance are among the main uncertainties affecting the prospects for world agricultural markets over the medium term. The effects of recent drought in Australia attest to this degree to which such shocks may impact markets – wheat and coarse grain production fell by more than half in 2006, and in a context of global cereal production shortfalls, contributed to rising world prices. While economic growth seems to be firming up in Europe and Japan, recent years have shown that optimism about future output growth has sometimes been premature and does not necessarily mean that growth in demand, imports or exports will be forthcoming. Past experience has shown that it is very difficult to predict the future level of world oil prices, or even to correctly guess the direction in which they will move. Yet, the outlook projections are dependent upon a world oil price assumption – one that is felt to be the most consistent assumption available for the 10-year projection horizon.

### **Trade and domestic support policy**

The future of international trade policy is a key uncertainty in this outlook. If and when the Doha Development Agenda of multinational trade negotiations come to a conclusion, the agreement will result in generally lower barriers to trade in agricultural products and diminished levels of domestic support for agricultural production. The overall outcome would be less distortion to world markets, leading to a better distribution of production according to comparative advantages, implying increased trade in agricultural commodities and generally higher world prices; but there may be downward price pressure from increased competition in some specific markets where protection has traditionally shielded producers from declining world prices. While the effects of regional trade agreements, such as CAFTA, have been implicitly incorporated in the outlook projections, it is difficult to accurately gauge the response in the diverse range of agricultural sectors to increased liberalisation, particularly during implementation periods. Similarly, there is a general trend toward more bilateral agreements, which may both reinforce existing trade patterns as well as creating new and unanticipated trade channels.

A forthcoming United States' farm bill may have significant implications given the relative importance of US agricultural output and its dominant position in world markets. As any new policies will be likely implemented as soon as 2008, only the second year of the current outlook projections, any substantial changes to domestic support payments and crop loan rates would have consequential impacts on the present projections, which are based on policy assumptions according to the 2003 FSRI Act.

The future developments in the biofuel industry – in particular in terms of policy and technological developments – are unclear, and this implies uncertainty for agricultural markets, especially those for cereals, oilseeds and sugar crops. Earlier in this section an overview of biofuel assumptions were presented which set the foundations for the current outlook. However, public support measures are necessary in a majority of countries (and in almost all OECD countries) for biofuel production to be profitable. The form and substance of these biofuel policies can have significant implications for biofuel production but also for cereal, oilseed and sugar use, for feed prices and subsequently for livestock numbers and meat and dairy production. Moreover, most biofuel policies are new and it is not clear which measures are most effective in achieving the mix of objectives such as lower fossil fuel dependence or less greenhouse gas emissions, not to mention domestic support for farmers. It is natural to assume that these measures may be adjusted in unpredictable ways over the coming decade as biofuel production unfolds. In addition, even if this *Outlook* assumes crude oil prices in a range from USD 55 to USD 60, it is not excluded that lower prices may prevail, impacting on the profitability of ethanol/bio-diesel production and demand and prices for feedstocks.

### **Animal disease impacts**

As previously stressed, the current outlook has been produced within the context of “normal” conditions for the meat sector, which is to say an absence of animal disease outbreaks and no explicit accounting of animal disease restrictions on production, trade or consumption. At the same time, the projections anticipate a recovery from trade disruptions resulting from recent disease outbreaks. These recent occurrences include reduced beef trade in North America due to BSE, export restrictions on beef and pigmeat following FMD in Argentina and Brazil and the effects of Avian influenza in Asia and Europe. Any renewed occurrences would likely reduce the speed of recovery.

Since the magnitude and extent of potential epizootics is by nature unknown, the evolution of global meat markets could be dramatically different from the baseline anticipated in the outlook if either fresh outbreaks of known diseases occur or if a new epizootic of an unfamiliar disease strikes. Nevertheless, substantial international efforts have been made to limit the impacts of new outbreaks. On the supply side, these include the regionalisation of export embargoes, more stringent animal health and inspection regulations as well as implementation of vaccination policies. On the demand side, consumers have been reassured by measures to ensure early detection of infection, information on potential health risks, improved production control standards and efforts to ensure meat traceability. The implications of animal disease occurrences have been investigated in recent joint OECD-FAO work on animal disease scenarios.

### **Strong growth in emerging economies**

The projections have been produced under the assumption that the strong growth in countries such as China, India and Brazil will persist, in turn spurring broader growth in Asia and South America. All three countries have a growing presence in agricultural markets, albeit India is less of a trader than the other two. However, the robust growth in these countries is a relatively recent and unprecedented phenomenon, therefore it is difficult to foresee the consequences of expansion being plagued by what are commonly referred to as downside risks.

Inflation is one of these risks. There has been increasing speculation that the economy in India is overheating and that with demand outpacing supply, imports cannot keep up. Additionally, price pressure on commodities and food products is compounded by the lack of consolidation in markets. In Brazil, with historical bouts of high inflation, there are risks that strong export growth will, as in Argentina, drive domestic prices higher. While China does not currently have significant inflation worries – indeed its projected inflation rate is lower than that of the United States – there may be some risk inherent to the future path of the Yuan-US dollar exchange rate. The assumption in this report, in the aim of consistency, implies constant exchange rates in real terms from 2008 and thus, because of the differential in inflation rate *vis-à-vis* the United States, there is an appreciation of the Yuan in the medium term, before depreciation over the outer years of the outlook period. The Yuan is currently under a flexible, but managed system, yet it is widely anticipated that given the current size of Chinese dollar reserves, the Yuan might appreciate, perhaps over the entire period of the outlook. If this were the case, then Chinese agricultural imports may be even larger than projected in the outlook, and simultaneously, exports may be diminished. Lastly, past government policies in favour of self-sufficiency in both China and India have impeded the flow of imports of some agricultural commodities. While decisions in such a direction are not anticipated, further policies of this type would have an impact on the outlook for agricultural trade.



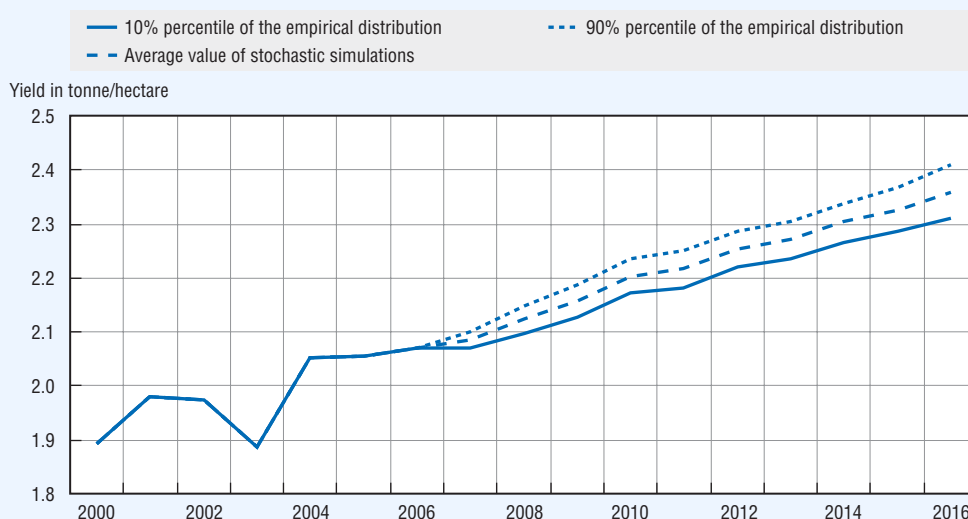
### Box 1.1. Partial stochastic analysis: Variability around deterministic projections

The projections presented in this Outlook are deterministic in the sense that they correspond to a particular market environment that is conditioned by specific assumptions on exogenous variables. However, there are uncertainties concerning that environment, notably with respect to key assumptions with regard to weather and macroeconomic conditions. Varying these assumptions would directly affect the outlook accordingly: the question is by how much and what would be the implications for the projections. If assumptions for these variables were to be at least partly defined by a range of possible values, then projection outcomes can be assessed for the many resulting different situations. The process is then partially stochastic rather than deterministic, in the sense that the range of assumptions defines a range of projection outcomes. Thus, a set of more robust projections can be generated where uncertainty can at least be described by a range around the specific deterministic baseline.

The analysis presented in this box is carried out with the use of the Aglink-Cosimo model that has been applied in the generation of the baseline projections. Details on the process of doing partial stochastic analysis are given in the methodology section of the Outlook. To carry out the stochastic experiments, the model is calibrated to the final set of baseline projections and is then simulated 500 times under different values for yields (to allow for weather variability) and for GDP and inflation (to allow for variability in key macroeconomic variables). These simulations provide a set of 500 different outcomes for all projection variables, in particular for the evolution of world market prices, which is assessed below.

Figure 1.9 illustrates the process of undertaking a stochastic analysis. It presents the evolution of world oilseed yields in the 500 stochastic simulations by three lines: The average value of the 500 stochastic simulations for the focus variable, the 10% percentile value, i.e. the value below which 10% of the simulations can be found and the 90% percentile, i.e. the value below which 90% of the simulations can be found. These three lines give an overview of the projected distribution of world oilseed yields for each year in the projection period. The world oilseed yield is an aggregate measure. It summarises the yield information from all producing countries and as such is a production weighted aggregate of the different yield simulations in producing countries. The figure underlines the fact that historical deviations from trend for world oilseed yields have been globally, and at least historically, relatively modest.

Figure 1.9. **The range of world oilseed yields in the stochastic simulations**

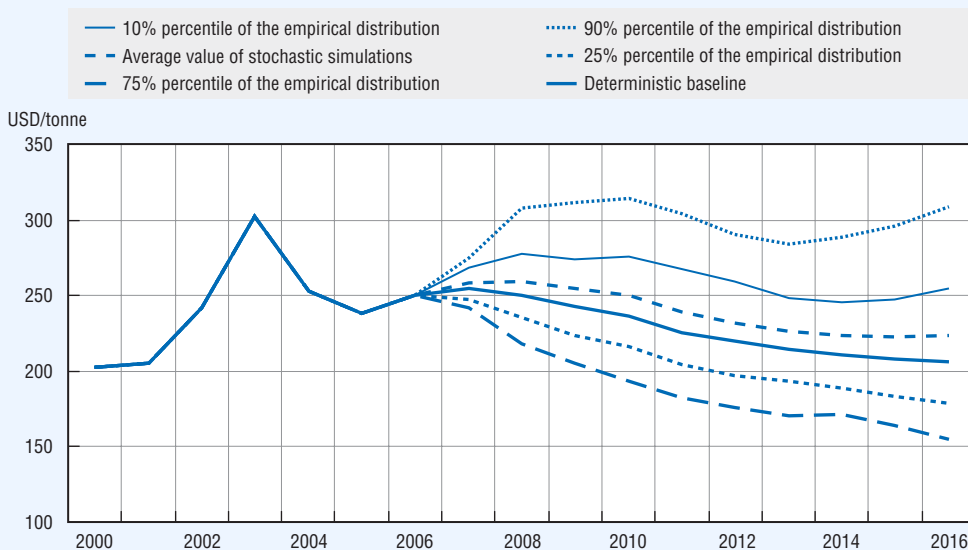


### Box 1.1. Partial stochastic analysis: Variability around deterministic projections (cont.)

#### Price impacts with partial stochastic simulations

Figure 1.10 presents the evolution of world oilseed prices expressed in real terms when deterministic assumptions on yields and macroeconomic variables are replaced by a range determined through stochastic simulations. The particular interest of Figure 1.10 is to see the combined effect of the different simulation assumptions on the world price of a given commodity. One first point to underline is that the evolution of the average of world oilseed prices expressed in real terms over the stochastic simulation is different from the evolution of the deterministic baseline. In 2016, the world oilseed price expressed in real terms in the deterministic baseline is 8% lower than the average of stochastic simulations. This is due to interactions between the different variables that are being shocked in the stochastic analysis in comparison to the benchmark scenario and to the non linearity of the Aglink-Cosimo model. Another interesting point regarding the distribution of outcomes of stochastic simulations for world oilseed prices is that there is a diversity of outcomes around the average of the stochastic simulation. At the end of the projection period, half of the stochastic outcomes are within a range of -20% to +15 % around the average stochastic outcome whereas the complete range of outcomes is much wider.

Figure 1.10. **Evolution range of the world oilseed price (expressed in real terms) in the stochastic simulations**



#### Drivers for world oilseed prices expressed in real terms

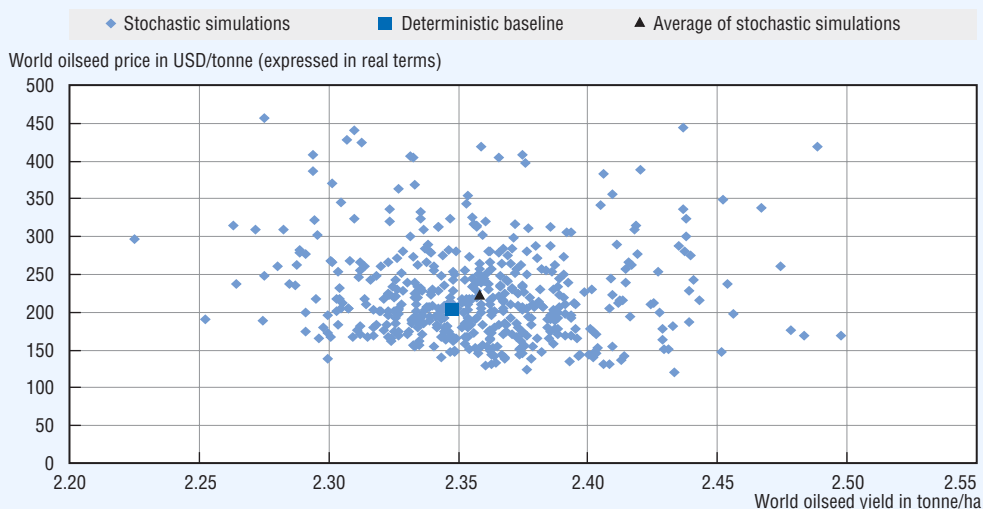
What drives the uncertainty in world oilseed price projections (expressed in real terms) that have been illustrated in Figure 1.10? Obviously many variables as well as interactions between variables influence the evolution of world commodity prices, but the focus here is on the relation between world yields and world price levels only.

To answer the question, a simple comparison is presented in the next four graphs. They show the respective projected distributions in 2016 of four variables: World oilseed yields, world coarse grains yields, the world maize price and the world oilseed price, both expressed in real terms. The deterministic baseline is also shown in the different figures.

**Box 1.1. Partial stochastic analysis:  
Variability around deterministic projections (cont.)**

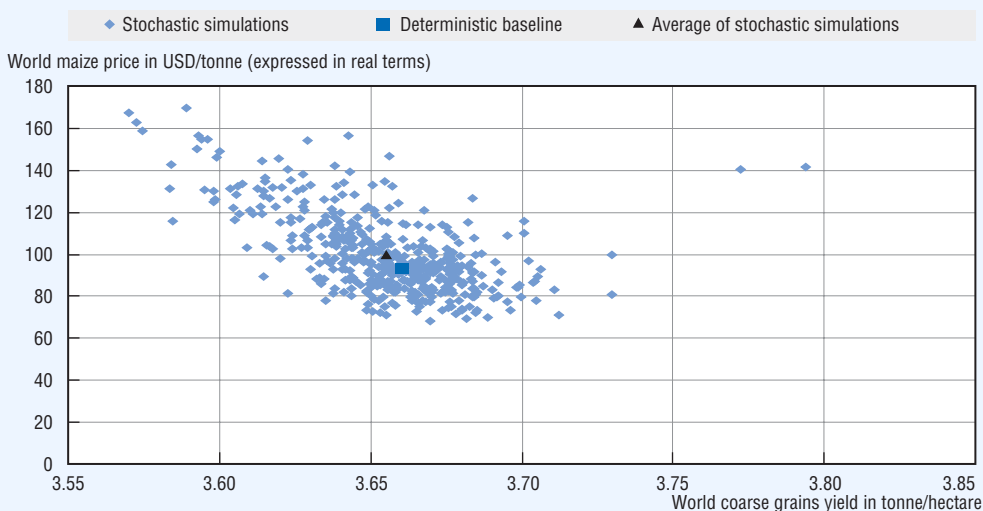
Figure 1.11 shows that the relationship between world oilseed prices and yields is not obvious. The distribution of prices expressed in real terms and yields is fairly strongly concentrated with relatively few outliers. The deterministic baseline outcomes are within that part of the stochastic distribution that is most heavily concentrated.

**Figure 1.11. Outcomes of stochastic simulations versus deterministic baseline in 2016: Relation between world oilseed price (expressed in real terms) and world oilseed yields**



The relationship between world coarse grains yields and the world maize price is presented in Figure 1.12. The negative correlation between yields and prices seems to be more obvious and stable than in the case of oilseeds. Again the deterministic baseline projection is in the most concentrated part of the cloud of points.

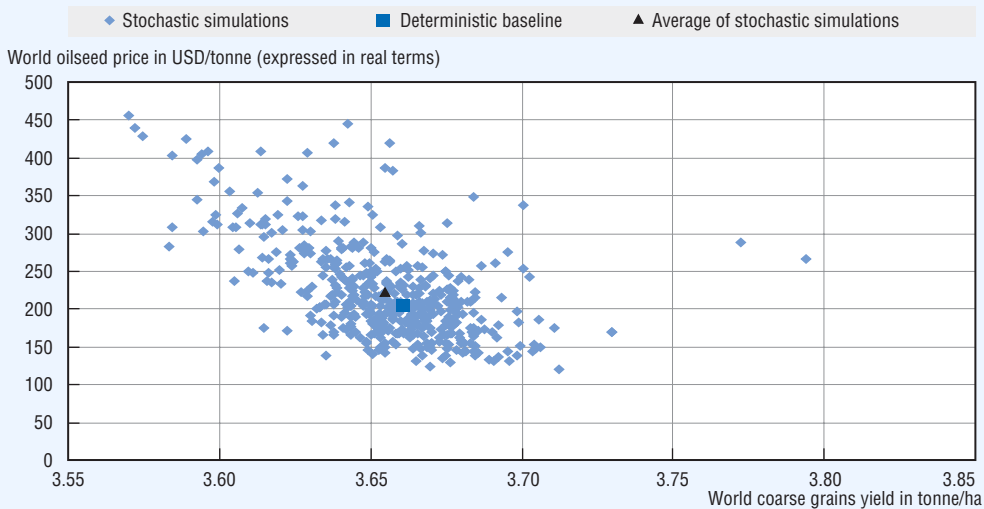
**Figure 1.12. Outcomes of stochastic simulations versus deterministic baseline in 2016: Relation between world maize price (expressed in real terms) and world coarse grains yields**



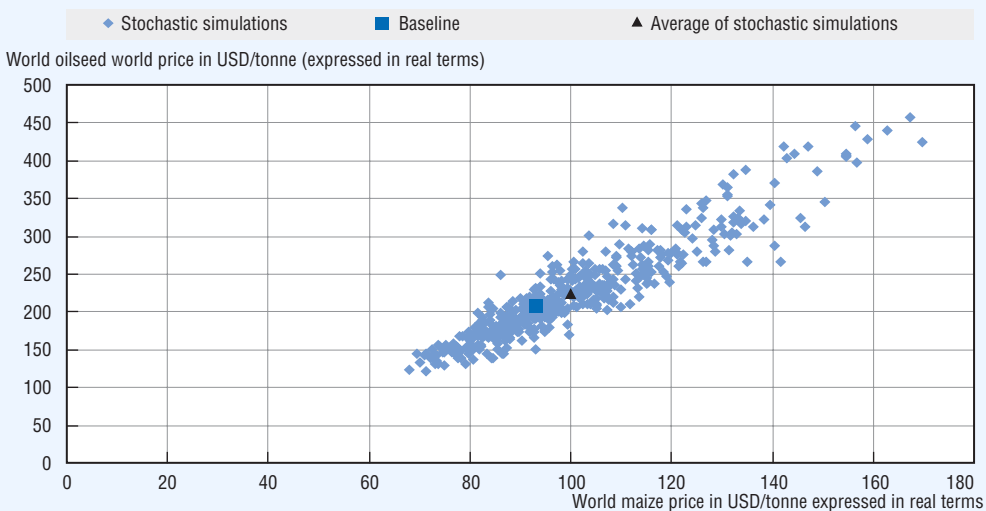
**Box 1.1. Partial stochastic analysis:  
Variability around deterministic projections (cont.)**

Figures 1.13 and 1.14 illustrate both the same point: World oilseed prices expressed in real terms are directly influenced by world coarse grain markets. If coarse grain yields are low then world maize prices tend to be high, and this in turn tends to push world oilseed prices higher too.

**Figure 1.13. Outcomes of stochastic simulations versus deterministic baseline in 2016: Relation between world oilseed price (expressed in real terms) and world coarse grains yields**



**Figure 1.14. Outcomes of stochastic simulations versus deterministic baseline in 2016: Relation between world oilseed and maize prices (both expressed in real terms)**



**Box 1.1. Partial stochastic analysis:  
Variability around deterministic projections (cont.)**

**Conclusion**

Partial stochastic analysis has only a partial coverage of uncertainties; this analysis focuses on exogenous uncertainties linked to climate and macroeconomic evolution. There are several other sources of uncertainty in the benchmark projections. In particular, there is an empirical uncertainty on the estimation of the parameters used in the model jointly developed by the OECD and the FAO and an endogenous uncertainty on the functioning of agricultural markets. Despite these limitations, the information that partial stochastic analysis is of interest for better assessing the evolution of agricultural commodity markets would be possible from the analysis of a deterministic baseline. This box has described how a partial stochastic analysis has been undertaken with the 2007 *Agricultural Outlook* projections. A number of conclusions emerge from this analysis using the Aglink-Cosimo model: First, the deterministic baseline projections differ slightly from the averages of stochastic simulations. Second, stochastic projections of world crop prices (expressed in real terms) are relatively highly concentrated around the average. And finally, the analysis underlines strong price correlations across commodities.

## A short review of historical patterns in trade flows for agricultural products

The *Agricultural Outlook* provides an assessment of the evolution of agricultural markets and trade over the next 10 years, assuming constant policies and “normal” weather conditions. As the focus of the *Outlook* is on selected temperate-zone products, occasionally it is useful to review the trade developments of the entire agriculture and food sectors in the recent past to place current and future developments in perspective. This section reviews agricultural and food trade over the twenty-year period from 1985 to 2004 and puts the spotlight on agriculture as defined at the WTO, i.e. including the whole gamut of produce from farm gate to dinner plate. In order to simplify the presentation, the commodity composition of agricultural trade has been segregated into four broad sub-sectors following the classification in Regmi *et al.* (2005). These categories are: 1) bulk commodities such as wheat or coffee; 2) horticultural commodities such as bananas or cut flowers; 3) semi-processed commodities such as live animals or vegetable oils; and 4) processed products, i.e. goods that require extensive transformation prior to consumption such as chocolates, beverages, and fresh or chilled meats. This classification is primarily based upon the relative dependence of production upon land and climatic conditions. While products in the first two categories depend disproportionately on land availability, geography, and climatic conditions, those in Categories 3 and 4 are less dependant upon those factors and in principle, can be produced almost anywhere.<sup>3</sup> A complete listing of the products and the concordance with the trade data is given in Table B.1. As the period that is reviewed ends before the enlargement of the EU to 27 member states, references to aggregate EU data in this section covers members prior to 2004, that is, EU15 only.

### **Evolution in total agricultural and merchandise trade**

During the twenty-year period 1985 to 2004, world agricultural exports (excluding intra-EU trade) increased more than threefold from USD 123 billion to USD 393 billion<sup>4</sup> resulting in an annual compound growth rate averaging 6.3% a year (Table 1.4). Over the same time period however, total world merchandise exports expanded at an even faster

**Table 1.4. Total merchandise and agriculture exports 1985-2004  
(with and without intra-EU trade)**

	Data exclude intra-EU			Data include intra-EU trade			No. of countries reporting
	Total agricultural exports	Total merchandise exports	Agriculture share of total	Total agricultural exports	Total merchandise exports	Agriculture share of total	
	Billion USD	Billion USD	Per cent	Billion USD	Billion USD	Per cent	
1985	123	1 071	11.5	175	1 477	11.9	88
1986	126	1 137	11.1	194	1 656	11.7	98
1987	134	1 335	10.1	218	1 980	11.0	95
1988	156	1 590	9.8	248	2 307	10.8	96
1989	179	1 858	9.6	274	2 628	10.4	102
1990	189	2 105	9.0	300	3 037	9.9	105
1991	190	2 208	8.6	308	3 137	9.8	103
1992	212	2 093	10.1	341	3 081	11.1	106
1993	212	2 573	8.2	327	3 411	9.6	111
1994	245	2 928	8.4	372	3 908	9.5	118
1995	290	3 464	8.4	438	4 661	9.4	134
1996	313	3 741	8.4	463	4 968	9.3	139
1997	316	3 899	8.1	456	5 124	8.9	146
1998	295	3 832	7.7	435	5 106	8.5	144
1999	277	4 006	6.9	416	5 301	7.9	152
2000	284	4 683	6.1	411	5 955	6.9	164
2001	292	4 425	6.6	423	5 719	7.4	161
2002	300	4 459	6.7	443	5 788	7.6	153
2003	352	5 166	6.8	527	6 742	7.8	149
2004	393	6 140	6.4	594	8 032	7.4	131
<b>Growth rate</b>	<b>6.29</b>	<b>9.63</b>		<b>6.63</b>	<b>9.32</b>		

rate, increasing more than fivefold from USD 1.1 trillion to USD 6.1 trillion, revealing an average compound growth rate of 9.6% a year. Given different growth rates in total merchandise exports and agricultural exports, the share of agricultural exports to total merchandise fell from almost 12% of the total in 1985 to about 7% of total merchandise exports in 2004 (Table 1.4).

The value of agriculture and total merchandise exports increased over the time period examined because countries exported more products and because more countries became engaged in trade (globalization). Between 1985 and 2004, the number of reporting countries or economic regions (all referred to as countries) increased from 88 to 130, with the number of reporting countries reaching 164 in 2000. Of this number, only 74 countries are considered consistent traders, defined as countries with at least 18 years of reported exports during the sample. These countries increased their merchandise exports more than fivefold during this period growing from USD 1 trillion in 1985 (96% of total merchandise exports) to USD 5.6 trillion (these figures and all figures in the rest of the section exclude intra-EU trade) in 2004 (92% of total). Agricultural exports by this group of countries grew from USD 119 billion USD 362 billion, representing 96% and 92% of total agricultural exports in 1985 and 2004 respectively.

This information suggests that exports are relatively concentrated; although globalisation has led to more countries participating in trade, they play a relatively minor role. Which countries are the major world exporters, how has this changed over time, and what share of agricultural exports do they control? In the 1985 to 1989 period, the **US** was the largest

agricultural exporter with an average of USD 34.3 billion in exports (about 23% of total), followed by the **EU15** with almost USD 30 billion (20% of total). **Australia**, with an average of USD 9.7 billion was the third largest exporter followed by the **Canada** and **Brazil**. These OECD countries exported, on average, some 54% of the world total in that period. Table 1.5 shows the remaining top exporters and indicates that eight of the leading exporting countries are not OECD countries and that the leading agricultural exporting countries exported on average about 80% of the world total during this time. Among the members of the EU15, France, Germany, the Netherlands and the United Kingdom are among the top 10 exporting countries.

Twenty years later, the leading exporting countries remained basically the same, except that **Colombia** and **Hong Kong (China)** were replaced by **Indonesia** and **Spain**, and even though the value of exports more than doubled, the market share of the leading exporters fell as other countries expanded their exports. The share of the leading countries listed in Table 1.5 fell to 75% of the total. In addition, individual ranking also changed. The **EU15** jumped ahead of the **US** to become the largest exporter while **Brazil** replaced **Australia** as the third largest exporter with an average market share of 5.5% a year. Although most of the leading exporters are OECD countries, developing countries increased their market share and the top exporting developing countries increased their share of trade slightly to 21% of the total.

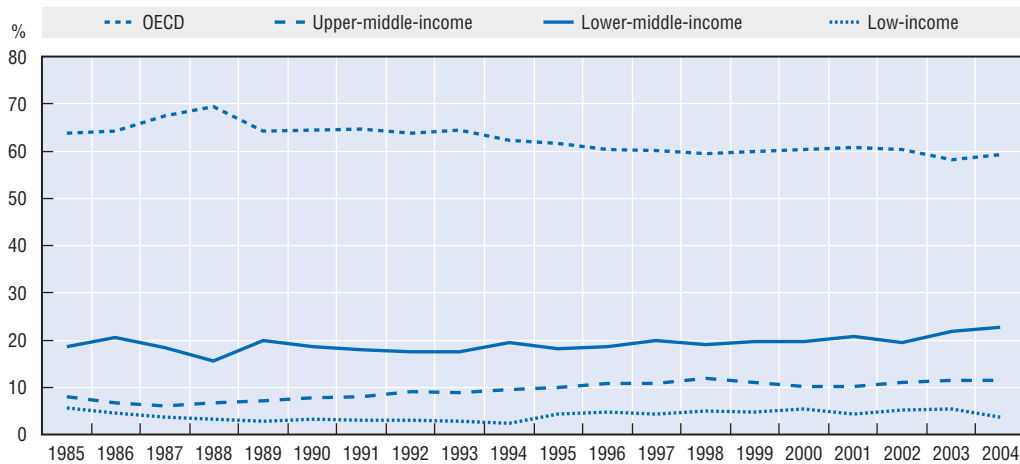
A more comprehensive representation of the relative dominance of OECD countries in world agricultural trade is shown in Figure 1.15 below. The figure breaks out world exports based on countries grouped by income and the 30 OECD countries.<sup>5</sup> Based on this level of

Table 1.5. **Leading agro-food exporting countries (average 1985-89 and 2000-04)**

Data exclude intra-EU trade Average 1985-89			Data exclude intra-EU trade Average 2000-04		
Economy	USD billion	Share (%)	Economy	USD billion	Share (%)
(1) United States	34.34	22.80	(1) EU15	61.78	18.68
(2) EU15	29.86	19.83	<i>of which:</i>		
<i>of which:</i>			<i>France</i>	<i>11.08</i>	<i>3.35</i>
<i>France</i>	<i>6.99</i>	<i>4.64</i>	<i>Netherlands</i>	<i>9.34</i>	<i>2.82</i>
<i>Netherlands</i>	<i>4.33</i>	<i>2.87</i>	<i>Germany</i>	<i>9.20</i>	<i>2.78</i>
<i>United Kingdom</i>	<i>3.95</i>	<i>2.63</i>	<i>United Kingdom</i>	<i>6.66</i>	<i>2.01</i>
<i>Germany<sup>a</sup></i>	<i>3.93</i>	<i>2.61</i>	<i>Italy</i>	<i>6.59</i>	<i>1.99</i>
<i>Italy</i>	<i>2.54</i>	<i>1.69</i>	<i>Denmark</i>	<i>4.56</i>	<i>1.38</i>
<i>Denmark</i>	<i>2.49</i>	<i>1.65</i>	<i>Spain</i>	<i>3.92</i>	<i>1.19</i>
(3) Australia	9.65	6.41	(2) United States	60.18	18.19
(4) Canada	7.38	4.90	(3) Brazil	18.18	5.49
(5) Brazil	6.61	4.39	(4) Canada	17.72	5.36
(6) China	6.12	4.06	(5) Australia	16.16	4.89
(7) New Zealand	4.40	2.92	(6) China	14.00	4.23
(8) Argentina	4.22	2.80	(7) Argentina	12.54	3.79
(9) Thailand	3.50	2.32	(8) Mexico	8.36	2.53
(10) Malaysia	2.76	1.83	(9) New Zealand	8.05	2.43
(11) Colombia	2.57	1.71	(10) Malaysia	7.45	2.25
(12) Mexico	2.47	1.64	(11) Thailand	7.38	2.23
(13) Turkey	2.35	1.56	(12) India	5.80	1.75
(14) Hong Kong (China)	2.31	1.53	(13) Indonesia	5.27	1.59
(15) India	2.28	1.51	(14) Turkey	4.15	1.25
<b>Total of above</b>	<b>120.81</b>	<b>80.22</b>	<b>Total above</b>	<b>247.02</b>	<b>74.67</b>

a) Excludes data for the German Democratic Republic.

Figure 1.15. **Agriculture export share (excludes intra-EU trade) by income group (1985-2004)**



aggregation, the share of agricultural exports of OECD countries peaked in 1987-88 at almost 70% of exports but fell from this high level to around 60% in the latter years (Figure 1.15).<sup>6</sup> The share of high income non-OECD countries (not shown in figure) also declined somewhat from around 4% in 1985 to 3% in 2004 and that of low income countries from around 6% in 1985 to around 4% in 2004. The declining share from OECD and high-income countries has been captured by the middle income countries. The upper-middle-income countries increased their share from around 8% in 1985 to around 11% in 2004, while lower middle income countries increased their share from 19% to 23% of the total during this time.

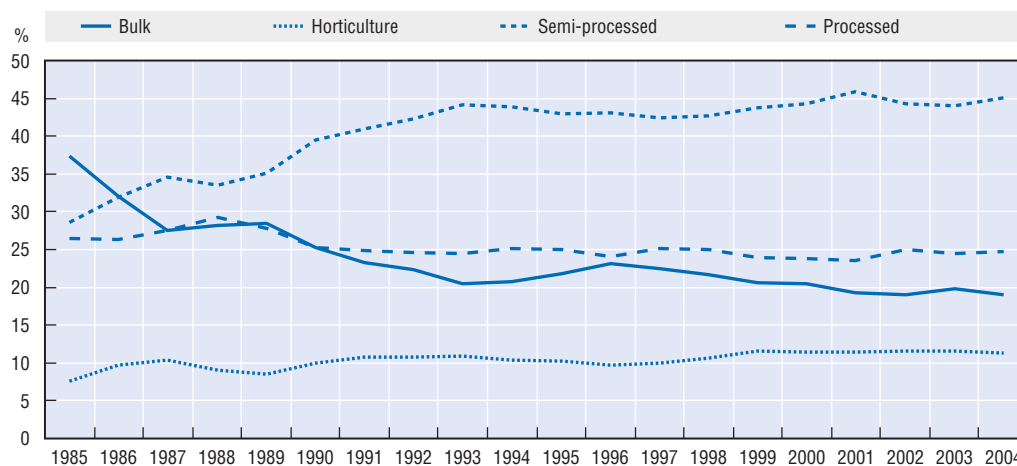
Shifting the focus to the **G20**<sup>7</sup> group of developing countries – countries with particularly strong views on agricultural trade in the Doha negotiations – the data reveals that total merchandise exports by this group increased almost 13 times to USD 1.3 trillion, representing 21% of world's total in 2004. The average growth rate of 14% per year considerably outpaced that of all exporting countries. Total agricultural exports by the G20 on the other hand increased only fourfold to USD 111 billion in 2004 or 28% of the world total. Reflecting the different growth rates of agricultural and merchandise exports, the export sector of this group of countries exhibited traits similar to all countries, namely, the share of agricultural goods to total merchandise exports declined. During the 20 years from 1985, the value of agricultural exports in total exports dropped by 19 percentage points to 9% in 2004.

### **Evolution in the exports of the four agricultural sub-sectors**

Within an overall growing agricultural export trade over the 20-year period, the value of exports in each of the four sub-sectors, bulk, horticultural, semi-processed and processed, also expanded, but at very different rates of growth. While exports of bulk commodities increased at an annual growth rate of 2.6% a year, the growth in exports of horticultural products was much faster at 8.6% a year. Nevertheless, the share of these two broad groups of commodities – both heavily dependant upon land and climatic conditions – in the value of total agricultural exports fell from 45% to 30% from 1985 to 2004 (Figure 1.16).



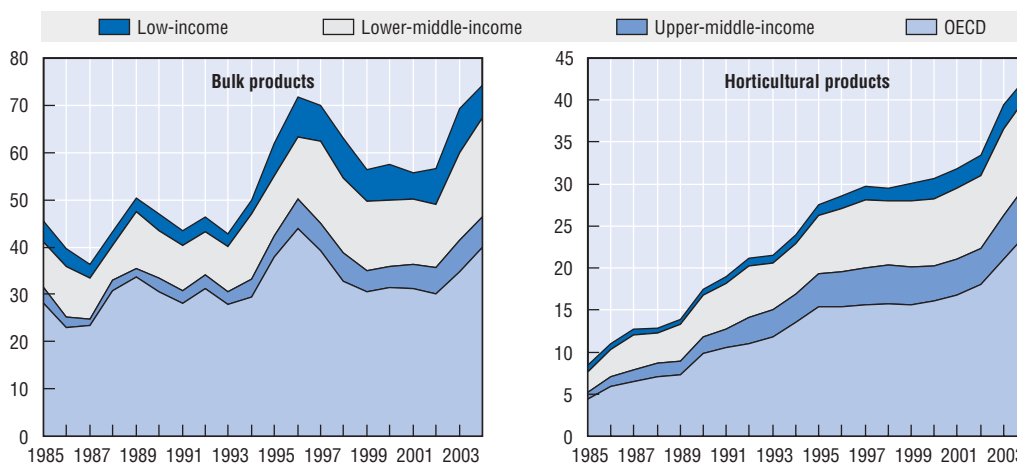
Figure 1.16. **Share of agriculture exports (excludes intra-EU trade) by stage (1985-2004)**



Within the group of goods that are less dependent on climatic conditions, exports of semi-processed products grew at 5.9% a year to more than USD 97 billion in 2004, with a little changed share in total agricultural exports. On the other hand, exports of highly processed products increased fivefold from USD 35 billion in 1985 to USD 177 billion in 2004, raising their share in total agricultural exports from 28% to 42%. The average annual growth rate of these products, 8.9% a year, is comparable to the annual average growth rate of total merchandise exports.

OECD countries are the largest exporters of bulk commodities but their share of the total declined during the 20-year period from 61% in 1985 to 54% in 2004 (Figure 1.17). Most of this was captured by lower-middle-income countries whose share in total bulk product exports more than doubled during the period to 28%. Bulk exports by low- and upper-middle-income countries are of lesser importance but nevertheless exhibited much stronger growth than the OECD countries.

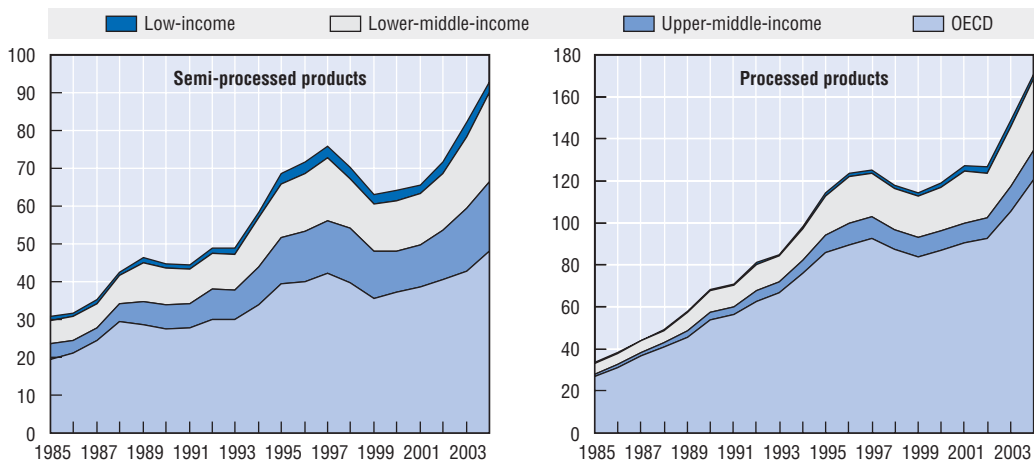
Figure 1.17. **Exports of bulk and horticultural products by various groups of countries (1985-2004)**



Looking at individual countries (EU15 counting as one), the **US**, **Canada** and the **EU15** are the top three exporters of bulk commodities with an annual average export value of USD 17.2 billion, USD 3.8 billion and USD 3.2 billion respectively during the 1985 to 1989 period, representing more than half of average world exports during those years (Table B.2). Even though many countries export bulk products, trade is concentrated and the top 20 exporters captured on average more than 91% of world total. But, over time, the concentration of the top 20 exporting countries declined and stood at 86% in 2000 to 2004 period. Within this overall trend, the relevance of OECD countries is declining and by 2004 there were only five OECD countries among the leading 20 exporters of bulk commodities. Thus, unlike the exports of all agricultural products where the OECD countries dominate, exports of bulk commodities that depend more on climatic conditions, and land availability has shifted more toward developing countries.

Production of horticultural commodities is also relatively location specific, i.e. relatively more dependent on land and climatic conditions. As already stated, trade in this sector has been much more dynamic than trade in bulk products. While the **OECD** dominates horticultural exports with a total of USD 24 billion in 2004, the strongest growth was exhibited by the upper-middle-income countries, with an growth rate of 10.8% a year to USD 6 billion in 2004 (Figure 1.18). As a group the **G20** exhibited a high growth rate (9.6% per year, not shown in the graph), followed by the **OECD** countries (9.4%), the lower-middle-income countries (8%) and the low-income countries with an average annual growth of horticulture exports of 5.8%.

Figure 1.18. **Exports of semi processed and processed products by various groups of countries, 1985-2004**



As for bulk commodities, the leading horticultural exporting country is the **US** with an average of USD 2.2 billion a year during the 1985 to 1989 period and USD 6.2 billion a year for the 2000 to 2004 period representing 16% of the world's total of these products during each of these periods (Table B.3). The rank ordering of the leading horticultural product exporters has changed over time, but overall and in contrast to trade in bulk commodities, the importance of OECD countries in horticultural products trade increased with its share of total horticultural exports growing from 46% in 1985 to 54% in 2004.

The third agricultural sub-sector, semi processed products includes products that are less dependant on climatic conditions with key inputs into their production process that are importable. This group of products as mentioned above is the second largest exported

sub-sector. As a group, **OECD** countries increased their exports in this segment by 4.9% a year to USD 48.1 billion in 2004 (Figure 1.18). Nevertheless, their share in the world total fell by 10 percentage points to an average of about 50% as that of upper-middle-income developing countries increased by 6 percentage points to 14% of the total in 2000-04 reflecting an average growth rate of 8.2% a year. Strong export growth of 7.3% per year to USD 30 billion in 2004 was also exhibited by members of the G20 (not shown in the figure). Exports of semi-processed products by the least developed countries (not shown in the figure) increased from USD 166 million to USD 693 million in 2003. But with slower growth than that of other developing countries, their share in world total exports hardly changed.

The **EU15** and the **US** are the world's largest exporters of semi-processed products, with respective shares of total world trade in 2004 of 17% and 16%. On average, the EU15 exported some USD 13.4 billion a year during 2000-04 and the US just above USD 13 billion (Table B.4).

The final group of products considered here those with the highest level of transformation or processing prior to consumption. Production of this group of products is not very location specific, is very little concerned with climatic conditions, most of the required inputs can be sourced from practically anywhere and other considerations loom more important in firms decisions as to where to locate. This group of products has the largest share of agricultural exports and has the highest growth rate. **OECD** exports of processed products have grown by more than 8% per year since 1985 to USD 120.4 billion in 2004 (Figure 1.18). But, although from a much lower base, exports in this segment by **upper-middle-income** and **lower-middle-income** countries grew at double digit rates, averaging respectively 13.6% and 10.7% per year, reaching respectively USD 14.1 billion and USD 34 billion in 2004.

OECD countries dominate trade in this segment: The six leading processed product exporters are all members of the OECD; the number of OECD countries in the top 20 increased to 15 by 2004; and on average these countries exported almost USD 87 billion a year or 60% of the total (Table B.5). Nevertheless, reflecting the very high growth rates in processed product exports by developing countries, these countries are increasing their share in total world trade. For instance, processed products became the most important export segment for the **G20** countries, overtaking exports of bulk or semi-processed products. Their share of total world exports increased from 15% to 23% since 1985. Other developing countries (except the least developed countries) also demonstrated impressive growth rates in exporting products in this market segment.

In general, the export data reveal the extent of globalisation with the share of the leading exporting countries declining over the 1985 to 2004 period. This illustrates that more countries are contesting agricultural export markets and that more countries have entered the global markets while existing competitors below the group in the top 20 increased their competitiveness and their share of the market. Overall, the share of exports by OECD countries has declined in three of the four broad aggregates discussed (except for horticultural markets). The data also reveal that despite the policy changes that have occurred since the mid-1990s and the implementation of the URAA, agricultural trade continues to be dominated by a relatively small number of countries, with the leading 20 exporting countries controlling more than 70% of the exports in each of the four segments examined.

### **Evolution of agricultural imports**

Turning our attention to the flip side of the issue, the data show that growth of agricultural trade based on imports is the same as that described above based on exports. For example, agricultural imports increased at an average growth rate of 6.5% a year, but still lagged behind that of all merchandise trade resulting in agriculture's share of world merchandise trade based on imports declining from 10% of the total in 1985 to slightly above 6% in 2004. In terms of the composition of trade, import developments are also similar to those for exports with the share of bulk commodities in total agricultural imports falling and that for processed products increasing.

The Least Developed Countries seem to be more engaged in importing rather than exporting agricultural goods as their share of world imports during the last 10 years has been above 1% in contrast to less than 0.5% in exports. OECD countries share of imports fell from more than 74% of the total at the beginning of the period to the low-60% in the later years, while the import share of developing countries other than low income, increased from around 13% at the beginning of the period to around 26% in the later years. Demand for bulk commodities by the OECD countries has fallen particularly with its share in total world imports of bulk products falling from 72% on average during the period between 1985 and 1989 to 51% for the 2000 to 2004 period. In contrast, import demand for bulk commodities by developing countries expanded at a faster rate, increasing their share of the market. Import demand increased the fastest among **upper-middle-income** countries, averaging 11.4% a year, followed by **lower-middle-income** countries with an annual growth rate of 9.1%.

The same trend prevailed for imports of processed products where imports by the **OECD** countries grew at an annual rate of 8.2% compared to double digit rates for many developing countries. Consequently, the share in world imports of processed products by OECD countries fell to 68% by 2004. Import demand by **upper-middle-income** countries increased at an average rate of 13.4% a year expanding their demand more than 10 times from USD 1.7 billion in 1985 to USD 17.9 billion in 2004. **Lower-middle-income** countries also increased their demand at a double digit rate averaging 10.2% a year. Their demand expanded more than 6 times from USD 2.8 billion in 1985 to USD 18.1 billion in 2004. **Low-income** countries expanded their demand for this class of commodities about threefold from USD .9 billion in 1985 to USD 2.9 billion in 2004. (Tables B.2 to B.5 contain a list of the leading importing countries for each of the four sub-sectors.)

It is noteworthy that import demand also expanded for the **G20** countries, the group that is considered to have an export orientation at the WTO negotiations. Double digit growth in import demand by the G20 countries was registered in each of the four sub-sectors and their total imports of agricultural products grew by more than 11% per year between 1985 and 2004, raising their share of total world imports from 10.8% during 1985-89 to 17.2% during the 2000-04 period (compared to an average share of 17.7% of world exports). This phenomenon was not confined to one or two large members, a development that would lead to misleading interpretations. Rather large import demand was exhibited by a majority of the members. Average imports for the 2000 to 2004 period by three members, **China**, **Indonesia**, and **Mexico**, placed them among the leading 20 importing countries, while a total of 13 members were among the top 50 agricultural importers. Furthermore, of these 13 important importers, 7 led by **Mexico**, **Egypt** and **Venezuela** were on average net importers of agricultural goods during the 2000 to 2004

period. It is particularly striking that the average growth in import demand for bulk commodities by the G20 group of countries, 11.1% a year, outpaces that of global growth or growth by OECD. Consequently, the G20 as a group switched from being net exporters of bulk products on average during 1985-89 to being net importers during 2000-04. For the other three sub-sectors however, strong growth in imports was more than offset by an even stronger expansion in exports. As a result, the G20 maintained their net export position in these set of commodities and in total agricultural trade.

Another group of countries that has joined ranks at the WTO negotiations is the **G10**.<sup>8</sup> This group of countries is thought to have more of an import orientation in the negotiations. While their agricultural imports indeed increased by 6.2% a year from 1985 to 2004, their share of total world imports declined from an average of 21.2% in the 1985-89 period to 18.4% in the 2000-04 period. And as total merchandise imports increased at an even faster rate, averaging 8.8% a year, the agriculture share of total imports by these countries fell from 11% in 1985 to 7% by 2004.

Most of the growth in agricultural imports by the G10 has occurred in processed products. These grew at an annual average rate of 9.7%, increasing their share of agricultural imports to almost half on average during 2000-04. On the other hand, import demand for bulk commodities moderated during the 20-year period, growing by only 2.4% a year. As a result their share in total agricultural imports declined from an average of 35% of total in 1985-89 to 21% in 2000-04.

### **Summary**

To summarize, between 1985 and 2004 trade in agriculture products (whether measured by the value of exports or imports) increased substantially both due to an expansion in trade by existing countries and due to new countries participating in the globalisation of markets. Agricultural trade did not increase as fast as all merchandise trade, resulting in a declining share of agriculture in world trade, to less than 10% in recent years. This trend of a falling share of agriculture in total merchandise trade is persistent across all income levels and geopolitical groupings, and is consistent with a similar pattern of agriculture capturing a declining share of an economy's income.

The trade data between 1985 and 2004 also show that even though there are more and more countries participating in trade, a relatively small number of countries continue to capture most of this trade whether one is referring to agriculture or non-agriculture goods. The concentration ratio of the top 4 or top 20 exporting countries, although dropping moderately over the 20-year period, is still rather high, with the top 20 exporting countries accounting for almost 80% of total merchandise exports or 73% of total agricultural exports in 2004. LDCs, the group of countries who are receiving special consideration in the Doha Development Agenda are not very big participants in the expansion of agriculture trade, accounting for less than 1% of the total. Members of the OECD continue to dominate agriculture trade although their share of the total has declined somewhat over the 20-year period. Most of the gains have been made by countries that are in the G20 and other developing countries that are not LDCs.

The data suggest that the dynamics of agricultural trade is chiefly about trade in processed products. The growth rate for this sector (8.5% a year) is comparable to the growth rate of non-agricultural products and as a result this group of commodities has steadily increased its share of agriculture trade, to 41% of total exports (45% of total

imports) in 2004. Trade in bulk products on the other hand is growing at the lowest rate (3.7% a year based on exports and 2.6% a year based on imports) among the agricultural sectors and as a result the share of bulk products in agricultural trade has declined from 37% to 19% of exports (from 34% to 21% of imports) during the 20 years since 1985.

Patterns in the exports of each of the four agriculture sub-sectors – bulk products, horticulture, semi-processed products and processed products – follow those of agriculture in general. The top 4 or 20 exporters continue to dominate but their share has declined somewhat. The OECD countries continue to account for a majority of trade, and they tend to dominate trade in processed products. Nevertheless, developing countries other than LDCs have increased their importance in the trade of agricultural products in all the sub-sectors but especially for bulk commodities.

Trade developments by some groups of countries are particularly striking given the stance of these countries in the current Doha Round of trade negotiation. For instance, agricultural exports for the G20 have decreased in importance as the share of agricultural exports to total merchandise exports has declined from 28% of the total in 1985 to 9% in 2004. Members of the G20 as a group have become net importers of bulk products while remaining overall net exporters in agriculture.

The development in agricultural trade by the G10 group of countries is also noteworthy. This group of countries has an import orientation in the current Doha negotiation. However, both their share in world agricultural imports as the share of agricultural imports in total imports by these countries has fallen over time.

## Notes

1. These and other macroeconomic assumptions in this section are based on the OECD, World Bank and UN sources which are explained in detail in footnote a to Table A.1 of the Statistical Annex.
2. There appears to be an income threshold beyond which entry into export markets becomes more feasible. This in turn implies that the benefits from globalisation may depend on income levels.
3. See Regmi *et al.* (2005) for more details on the rationale for the product classification scheme.
4. All values are stated in nominal US dollars. Trade data are from UN COMTRADE.
5. Country classification by income is from the World Bank and is based on per capital gross national income as of 2005; <http://siteresources.worldbank.org/DATASTATISTICS/Resources/CLASS.XLS>.
6. If intra EU trade is included, the share of OECD countries in world trade is considerably higher, averaging 74% of the total in the last four years.
7. Members of the G20 are: Argentina, Bolivia, Brazil, Chile, China, Cuba, Egypt (Arab Republic of), Guatemala, India, Indonesia, Mexico, Nigeria, Pakistan, Paraguay, Philippines, South Africa, Tanzania, Thailand, Uruguay, Venezuela RB and Zimbabwe.
8. Members are: Bulgaria, Chinese Taipei, Iceland, Israel, Japan, Korea Republic, Liechtenstein, Mauritius, Norway and Switzerland.

## ANNEX A

### *Statistical Tables*

Table A.1. **Economic assumptions**

Calendar year <sup>a</sup>		Average 2001-05	2006 est.	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>REAL GDP<sup>b</sup></b>													
Australia	%	3.2	2.6	3.0	3.4	3.0	3.0	2.9	2.7	2.6	2.6	2.6	2.6
Canada	%	2.6	2.8	2.7	3.1	2.9	2.5	2.3	2.3	2.3	2.3	2.3	2.3
EU15	%	1.4	2.8	2.4	2.4	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9
Japan	%	1.5	2.8	2.0	2.0	1.6	1.4	1.3	1.1	0.9	0.9	0.9	0.9
Korea	%	4.5	5.0	4.4	4.6	4.9	4.9	4.8	4.8	4.8	4.8	4.8	4.8
Mexico	%	1.8	4.7	3.6	3.7	3.9	4.0	4.0	4.0	4.0	4.0	4.0	4.0
New Zealand	%	3.4	1.5	1.3	2.0	2.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Norway	%	2.1	2.4	3.2	2.7	2.5	2.9	2.9	2.8	2.7	2.7	2.7	2.7
Switzerland	%	1.1	3.0	2.2	2.0	1.6	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Turkey	%	4.5	6.1	5.3	6.3	7.5	7.1	7.1	7.3	7.3	7.3	7.3	7.3
United States	%	2.4	3.3	2.4	2.7	2.8	2.7	2.7	2.7	2.6	2.6	2.6	2.6
Argentina	%	2.3	7.7	5.6	4.0	4.6	4.4	4.1	3.9	3.7	3.4	3.2	3.2
Brazil	%	2.2	3.5	3.4	3.8	3.8	3.7	3.7	3.6	3.6	3.5	3.5	3.5
China	%	9.5	10.4	9.6	8.7	8.4	8.1	7.8	7.5	7.1	6.8	6.5	6.5
India	%	7.0	8.7	7.7	7.2	6.9	6.7	6.4	6.1	5.9	5.6	5.3	5.3
Russia	%	6.1	6.8	6.0	5.5	5.1	4.7	4.3	3.9	3.5	3.1	2.7	2.7
South Africa	%	3.8	4.6	3.9	4.3	4.2	4.0	3.9	3.8	3.7	3.5	3.4	3.4
OECD <sup>c, d</sup>	%	2.0	3.2	2.5	2.7	2.6	2.5	2.5	2.4	2.4	2.4	2.4	2.4
<b>PCE DEFLATOR<sup>b</sup></b>													
Australia	%	2.3	2.8	2.6	2.7	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Canada	%	2.6	1.4	1.3	1.7	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9
EU15	%	2.0	2.1	1.9	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Japan	%	-1.0	-0.4	0.4	0.8	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Korea	%	3.4	2.1	2.9	3.0	2.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Mexico	%	5.9	3.1	3.4	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
New Zealand	%	1.4	2.7	2.7	2.0	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Norway	%	1.7	2.2	2.1	2.6	2.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Switzerland	%	0.8	1.4	0.9	1.2	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Turkey	%	27.1	10.2	7.3	6.0	5.1	4.6	4.6	4.6	4.6	4.6	4.6	4.6
United States	%	2.2	2.8	2.2	2.2	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.8
Argentina	%	10.6	9.8	9.7	9.0	8.2	7.5	7.0	6.4	5.8	5.2	4.6	4.0
Brazil	%	9.1	5.5	5.2	5.2	3.9	4.7	4.6	4.6	4.6	4.6	4.6	4.6
China	%	1.4	1.4	2.0	2.8	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5
India	%	3.6	6.2	5.8	5.0	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
Russia	%	6.1	10.0	8.5	8.0	6.5	5.7	5.2	5.0	4.7	4.5	4.3	4.0
South Africa	%	3.8	4.8	5.6	4.7	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
OECD <sup>c, d</sup>	%	2.5	2.4	2.2	2.2	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.0

For notes, see end of the table.

Source: OECD and FAO Secretariats.



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

Calendar year <sup>a</sup>		2006 est. (million)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
<b>POPULATION</b>													
Australia	%	20.5	1.03	1.01	1.01	0.99	0.98	0.98	0.96	0.97	0.96	0.96	
Canada	%	32.6	0.88	0.85	0.83	0.82	0.82	0.80	0.80	0.79	0.79	0.79	
EU27	%	490.6	0.15	0.12	0.10	0.08	0.07	0.06	0.05	0.04	0.03	0.02	
Japan	%	127.9	0.08	0.06	0.03	0.01	-0.02	-0.05	-0.07	-0.10	-0.13	-0.15	
Korea	%	48.5	0.33	0.31	0.29	0.27	0.25	0.23	0.22	0.20	0.18	0.16	
Mexico	%	105.4	1.17	1.13	1.10	1.08	1.06	1.04	1.01	1.00	0.98	0.96	
New Zealand	%	4.1	0.73	0.67	0.62	0.64	0.61	0.61	0.65	0.60	0.60	0.57	
Norway	%	4.6	0.47	0.47	0.45	0.47	0.46	0.46	0.46	0.46	0.48	0.47	
Switzerland	%	7.4	0.15	0.12	0.12	0.11	0.09	0.11	0.08	0.08	0.09	0.09	
Turkey	%	73.0	1.33	1.31	1.28	1.25	1.21	1.18	1.14	1.11	1.07	1.04	
United States	%	299.2	0.94	0.93	0.91	0.90	0.88	0.86	0.85	0.83	0.82	0.80	
Argentina	%	39.1	0.91	0.89	1.01	0.99	0.97	0.95	0.93	0.92	0.90	0.88	
Brazil	%	188.2	1.14	1.12	1.23	1.19	1.15	1.11	1.07	1.04	1.01	0.98	
China	%	1 301.2	0.63	0.63	0.58	0.58	0.58	0.58	0.58	0.56	0.53	0.51	
India	%	1 117.7	1.26	1.22	1.38	1.35	1.33	1.30	1.27	1.24	1.21	1.18	
Russia	%	142.5	-0.53	-0.53	-0.44	-0.45	-0.46	-0.47	-0.48	-0.49	-0.50	-0.51	
South Africa	%	47.6	0.37	0.39	0.08	0.05	0.04	0.03	0.03	0.04	0.04	0.06	
OECD <sup>c</sup>	%	1 213.9	0.54	0.52	0.50	0.49	0.47	0.46	0.44	0.43	0.41	0.40	
Calendar year <sup>a</sup>		Average 2001-05	2006 est.	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>EXCHANGE RATE</b>													
Australia	AUD/USD	1.60	1.33	1.31	1.32	1.33	1.34	1.35	1.37	1.38	1.39	1.40	1.42
Canada	CAD/USD	1.41	1.13	1.14	1.13	1.13	1.13	1.13	1.13	1.14	1.14	1.15	1.15
European Union	EUR/USD	0.93	0.80	0.78	0.78	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Japan	JPY/USD	116.2	116.5	118.1	115.9	114.2	112.8	111.5	110.3	109.1	107.9	106.7	105.6
Korea	'000 KRW/USD	1.18	0.95	0.94	0.92	0.90	0.89	0.88	0.87	0.86	0.85	0.84	0.83
Mexico	MXN/USD	10.39	10.91	10.92	10.99	11.08	11.18	11.31	11.42	11.54	11.67	11.79	11.91
New Zealand	NZD/USD	1.84	1.55	1.52	1.50	1.50	1.49	1.49	1.49	1.49	1.49	1.49	1.50
Argentina	ARS/USD	2.56	2.87	2.79	2.65	2.78	2.92	3.06	3.19	3.32	3.44	3.56	3.67
Brazil	BRL/USD	2.78	2.47	2.60	2.73	2.79	2.85	2.91	2.98	3.04	3.11	3.18	3.25
China	CNY/USD	8.24	7.85	7.64	7.44	7.46	7.50	7.55	7.60	7.65	7.71	7.76	7.82
India	INR/USD	46.30	45.70	47.20	48.11	49.78	51.62	53.60	55.65	57.78	60.00	62.30	64.69
Russia	RUB/USD	29.7	27.3	26.4	25.5	26.3	27.1	27.9	28.6	29.3	29.9	30.5	31.0
South Africa	ZAR/USD	8.85	6.97	7.10	7.37	7.57	7.80	8.04	8.30	8.56	8.82	9.10	9.39
<b>WORLD OIL PRICE</b>													
Brent crude oil price	USD/barrel	34.18	65.22	67.16	65.50	61.31	58.38	55.59	54.64	56.13	57.66	59.24	60.85

a) For OECD member countries, historical data for population, real GDP, private consumption expenditure deflator and exchange rate were obtained from the OECD Economic Outlook, No. 80, December 2006. For non-member economies, historical macroeconomic data were obtained from the World Bank, November 2006. Assumptions for the projection period draw on the recent medium-term macroeconomic projections of the OECD Economics Department, projections of the World Bank, responses to a questionnaire sent to member country agricultural experts and for population, projections from the United Nations World Population Prospects Database, 2004 Revision (medium variant). 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 CPI growth rates in OECD countries are based on weights using 1995 GDP and purchasing power parities (PPPs).

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<sup>a</sup>

	Average 01/02-05/06	06/07 est.	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	
<b>WHEAT</b>													
Price <sup>b</sup>	USD/t	152.0	204.0	204.5	197.5	191.8	186.1	184.6	184.5	183.1	181.7	182.4	183.2
<b>COARSE GRAINS</b>													
Price <sup>c</sup>	USD/t	103.6	140.4	158.9	157.6	147.1	143.3	144.0	140.8	138.4	138.6	139.5	138.2
<b>RICE</b>													
Price <sup>d</sup>	USD/t	238.4	311.4	352.1	360.3	347.8	331.9	331.0	336.3	336.3	330.2	326.2	326.0
<b>OILSEEDS</b>													
Price <sup>e</sup>	USD/t	266.0	289.8	310.4	311.7	306.5	300.8	297.4	297.7	295.4	295.1	298.4	299.6
<b>OILSEED MEALS</b>													
Price <sup>f</sup>	USD/t	201.0	204.9	215.2	217.0	212.8	207.5	204.6	203.1	198.4	196.3	199.1	200.8
<b>VEGETABLE OILS</b>													
Price <sup>g</sup>	USD/t	520.6	590.7	618.0	619.7	622.9	611.9	610.8	608.5	612.4	613.9	615.4	613.9
<b>SUGAR</b>													
Price, raw sugar <sup>h</sup>	USD/t	217.6	253.5	242.5	235.9	231.5	235.9	240.3	238.1	238.1	240.3	241.4	242.5
Price, refined sugar <sup>i</sup>	USD/t	269.7	360.5	341.7	330.7	319.7	319.7	319.7	314.2	310.9	310.9	309.7	308.6
<b>BEEF AND VEAL</b>													
Price, EU <sup>j</sup>	EUR/100 kg dw	244.1	285.2	250.4	258.4	258.0	257.0	259.2	258.8	258.7	259.4	259.8	260.9
Price, USA <sup>k</sup>	USD/100 kg dw	282.0	303.6	303.4	299.0	297.1	288.5	285.0	279.4	279.0	286.2	293.8	297.7
Price, Argentina <sup>l</sup>	ARS/100 kg dw	307.1	427.3	323.2	352.2	354.9	361.1	374.6	384.4	406.6	436.0	455.4	480.3
<b>PIG MEAT</b>													
Price, EU <sup>m</sup>	EUR/100 kg dw	134.9	141.4	142.4	153.6	148.6	139.2	143.9	137.3	136.7	138.2	139.9	142.3
Price, USA <sup>n</sup>	USD/100 kg dw	136.4	145.0	126.2	154.4	165.4	165.4	157.8	160.8	162.5	158.8	161.3	160.6
Price, Brazil <sup>o</sup>	BRL/100 kg dw	187.7	216.2	202.2	280.2	302.5	313.3	306.1	316.3	332.6	339.2	347.1	361.2
<b>POULTRY MEAT</b>													
Price, EU <sup>p</sup>	EUR/100 kg rtc	102.8	101.5	100.5	104.3	106.7	108.8	105.9	104.2	108.3	109.3	110.3	111.3
Price, USA <sup>q</sup>	USD/100 kg rtc	141.8	140.9	159.5	164.8	171.5	179.3	183.0	182.1	180.4	176.6	178.0	177.5
<b>SHEEP MEAT</b>													
Price, New Zealand <sup>r</sup>	NZD/100 kg dw	390.1	330.0	325.4	333.8	343.6	351.9	361.0	370.0	378.8	387.5	396.1	404.7
<b>BUTTER</b>													
Price <sup>s</sup>	USD/100 kg	155.9	186.5	196.2	193.0	188.3	188.3	195.1	200.9	209.7	215.1	220.2	222.6
<b>CHEESE</b>													
Price <sup>t</sup>	USD/100 kg	231.3	272.8	300.4	310.9	303.2	300.0	301.0	300.5	301.9	304.2	305.9	307.3
<b>SKIM MILK POWDER</b>													
Price <sup>u</sup>	USD/100 kg	185.7	234.9	259.4	269.0	266.3	259.3	253.6	250.3	247.9	249.6	249.0	251.7

For notes, see end of the table.

Source: OECD and FAO Secretariats.

Table A.2. **World prices<sup>a</sup>** (cont.)

	Average 01/02-05/06	06/07 est.	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	
<b>WHOLE MILK POWDER</b>													
Price <sup>v</sup>	USD/100 kg	190.8	229.4	254.6	262.7	256.7	248.2	250.3	249.0	251.0	252.4	252.8	253.1
<b>WHEY POWDER</b>													
Wholesale price, USA <sup>w</sup>	USD/100 kg	50.6	74.5	79.0	83.5	90.7	91.3	92.4	91.4	90.6	90.3	89.0	89.2
<b>CASEIN</b>													
Price <sup>x</sup>	USD/100 kg	438.8	486.0	480.3	481.9	468.2	457.9	442.5	451.0	440.2	444.9	439.8	439.4

- 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. 05/06 is calendar year 2005).
- b) No. 2 hard red winter wheat, ordinary protein, USA f.o.b. Gulf Ports (June/May); less EEP payments where applicable.
- 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 2001-05	2006 est.	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
<b>Wheat</b>	World trade	kt	109 435	108 532	111 184	114 743	113 869	116 054	117 340	119 508	121 518	123 416	125 639	127 971
	OECD	kt	25 721	23 464	24 058	23 884	23 972	24 210	24 358	24 558	24 633	24 856	25 082	25 278
	Developing	kt	84 367	86 006	88 651	92 236	91 204	93 291	94 466	96 487	98 461	100 205	102 290	104 505
	Least Developed Countries	kt	8 121	7 298	8 025	8 207	8 396	8 762	8 974	9 279	9 618	9 942	10 204	10 511
<b>Coarse grains</b>	World trade	kt	104 995	106 537	102 205	107 308	108 919	108 723	109 776	111 531	113 116	114 841	116 115	118 227
	OECD	kt	50 254	50 243	45 898	48 230	49 334	49 193	48 622	48 501	49 000	49 230	49 072	49 143
	Developing	kt	72 159	72 214	70 810	74 307	74 977	75 101	76 785	78 773	79 816	81 184	82 751	84 887
	Least Developed Countries	kt	1 952	2 046	2 484	2 645	2 778	2 871	2 942	2 446	2 691	2 965	3 267	3 663
<b>Rice</b>	World trade	kt	29 810	29 300	30 979	31 831	32 849	33 512	34 097	34 352	35 259	36 074	37 093	37 954
	OECD	kt	4 951	4 661	4 989	5 290	5 445	5 573	5 640	5 695	5 790	5 907	5 967	6 020
	Developing	kt	24 595	24 490	25 714	26 391	27 287	27 790	28 285	28 479	29 303	29 995	30 910	31 676
	Least Developed Countries	kt	4 339	4 668	4 821	5 055	5 187	5 370	5 456	5 580	5 888	6 127	6 425	6 750
<b>Oilseeds</b>	World trade	kt	68 035	79 704	81 635	83 941	84 622	85 183	86 751	88 158	89 394	90 741	91 847	93 597
	OECD	kt	34 213	33 157	32 550	31 745	33 169	32 019	32 894	32 435	31 497	30 989	31 240	31 799
	Developing	kt	41 131	53 707	55 949	59 086	58 521	60 314	61 152	63 020	65 250	67 159	68 036	69 278
	Least Developed Countries	kt	90	90	112	113	117	121	124	128	133	137	140	141
<b>Oilseed meals</b>	World trade	kt	49 457	58 423	59 698	60 815	61 421	61 933	63 273	64 180	64 826	65 756	66 708	67 867
	OECD	kt	31 182	35 397	35 855	36 026	35 334	35 170	34 665	34 742	34 932	35 222	34 944	34 559
	Developing	kt	19 169	24 166	25 176	26 117	27 448	28 036	29 825	30 621	30 913	31 510	32 780	34 255
	Least Developed Countries	kt	95	93	76	64	63	65	68	69	70	72	72	72
<b>Vegetable oils</b>	World trade	kt	34 584	43 320	45 117	46 593	47 740	48 971	50 462	52 407	54 157	55 791	57 121	58 450
	OECD	kt	7 658	11 021	11 601	12 105	12 298	12 995	13 258	14 276	14 956	15 485	15 779	16 050
	Developing	kt	26 681	32 367	33 856	34 738	35 752	36 277	37 490	38 435	39 544	40 718	41 885	43 094
	Least Developed Countries	kt	1 701	2 061	2 131	2 207	2 280	2 370	2 451	2 535	2 615	2 697	2 780	2 866
<b>Beef<sup>d</sup></b>	World trade	kt	5 963	6 424	6 969	7 176	7 584	7 851	8 062	8 321	8 613	8 843	9 097	9 337
	OECD	kt	3 578	3 230	3 677	3 840	3 974	4 050	4 171	4 268	4 381	4 491	4 554	4 610
	Developing	kt	2 176	2 691	2 924	3 008	3 215	3 372	3 466	3 587	3 764	3 829	3 979	4 040
	Least Developed Countries	kt	87	119	150	171	222	258	278	297	313	317	323	324
<b>Pigmeat<sup>d</sup></b>	World trade	kt	3 999	4 301	4 700	4 927	5 055	5 130	5 279	5 443	5 576	5 680	5 766	5 901
	OECD	kt	2 304	2 320	2 430	2 507	2 541	2 615	2 721	2 840	2 957	3 078	3 181	3 297
	Developing	kt	1 352	1 488	1 762	1 849	1 866	1 868	1 941	2 010	2 083	2 106	2 115	2 134
	Least Developed Countries	kt	33	44	57	75	64	65	74	83	85	78	71	71
<b>Poultry</b>	World trade	kt	7 563	7 479	8 060	8 353	8 541	8 783	9 077	9 475	9 741	9 948	10 180	10 588
	OECD	kt	1 994	1 908	2 044	1 964	1 769	1 866	2 031	2 193	2 335	2 464	2 511	2 669
	Developing	kt	4 247	4 129	4 562	4 887	5 255	5 410	5 517	5 819	6 027	6 177	6 321	6 620
	Least Developed Countries	kt	363	383	435	461	511	537	544	555	564	565	583	593
<b>Butter</b>	World trade	kt	697	708	760	799	818	833	842	852	855	863	867	878
	OECD	kt	145	129	133	137	138	140	144	147	150	152	153	155
	Developing	kt	399	430	452	460	459	471	474	479	478	482	486	492
	Least Developed Countries	kt	10	10	19	19	19	20	21	21	21	21	22	22
<b>Cheese</b>	World trade	kt	1 401	1 459	1 497	1 545	1 593	1 624	1 666	1 710	1 750	1 792	1 833	1 876
	OECD	kt	758	725	767	785	804	822	843	863	883	903	923	944
	Developing	kt	550	589	595	615	624	640	656	672	686	703	722	741
	Least Developed Countries	kt	15	18	27	32	34	35	36	38	39	42	45	47
<b>Whole milk powder</b>	World trade	kt	1 396	1 582	1 642	1 661	1 726	1 815	1 872	1 950	2 012	2 076	2 139	2 203
	OECD	kt	88	85	82	80	81	81	80	81	81	81	81	82
	Developing	kt	1 340	1 525	1 582	1 598	1 661	1 750	1 806	1 882	1 943	2 005	2 066	2 128
	Least Developed Countries	kt	86	112	115	120	126	132	138	144	150	155	161	167
<b>Skim milk powder</b>	World trade	kt	1 167	1 196	1 190	1 178	1 161	1 169	1 182	1 184	1 205	1 198	1 210	1 244
	OECD	kt	223	191	196	195	199	204	211	218	224	228	237	244
	Developing	kt	1 039	1 097	1 081	1 067	1 046	1 052	1 063	1 063	1 082	1 072	1 080	1 111
	Least Developed Countries	kt	42	23	22	23	24	25	26	22	18	16	14	12

For notes, see end of the table.

Source: OECD and FAO Secretariats.

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

EXPORTS		Average 2001-05	2006 est.	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
<b>Wheat</b>	World trade	kt	109 435	108 532	111 184	114 743	113 869	116 054	117 340	119 508	121 518	123 416	125 639	127 971
	OECD	kt	72 970	73 916	72 143	76 376	77 540	78 916	79 610	81 394	82 447	83 183	84 641	86 082
	Developing	kt	19 282	17 789	18 549	19 203	18 301	18 511	18 693	18 885	19 171	19 374	19 555	19 759
	Least Developed Countries	kt	130	82	121	123	125	128	130	133	135	137	139	141
<b>Coarse grains</b>	World trade	kt	104 995	106 537	102 205	107 308	108 919	108 723	109 776	111 531	113 116	114 841	116 115	118 227
	OECD	kt	74 790	78 235	69 156	71 019	71 371	71 015	72 003	75 221	77 692	80 047	81 002	83 047
	Developing	kt	28 413	23 492	28 073	30 567	30 825	30 797	30 765	29 113	28 288	27 716	27 387	27 141
	Least Developed Countries	kt	1 377	2 028	3 518	3 303	2 937	2 887	2 916	1 962	1 888	1 871	1 873	1 819
<b>Rice</b>	World trade	kt	29 810	29 300	30 979	31 831	32 849	33 512	34 097	34 352	35 259	36 074	37 093	37 954
	OECD	kt	4 892	4 241	4 751	4 773	4 818	4 925	4 955	5 047	5 193	5 321	5 384	5 394
	Developing	kt	23 732	25 591	26 766	27 598	28 570	29 127	29 681	29 845	30 605	31 292	32 248	33 100
	Least Developed Countries	kt	496	855	1 716	1 656	1 868	1 995	1 887	1 748	1 778	1 649	1 744	1 975
<b>Oilseeds</b>	World trade	kt	68 035	79 704	81 635	83 941	84 622	85 183	86 751	88 158	89 394	90 741	91 847	93 597
	OECD	kt	35 632	38 699	40 964	39 117	35 847	32 979	32 461	32 320	32 555	33 139	33 521	33 760
	Developing	kt	30 446	36 660	36 083	39 935	43 413	46 973	49 045	50 486	51 290	51 991	52 511	53 755
	Least Developed Countries	kt	18	18	18	18	19	19	19	19	19	19	19	19
<b>Oilseed meals</b>	World trade	kt	49 457	58 423	59 698	60 815	61 421	61 933	63 273	64 180	64 826	65 756	66 708	67 867
	OECD	kt	8 256	10 336	10 495	10 684	11 417	11 218	11 467	11 474	11 394	11 409	11 447	11 613
	Developing	kt	41 978	47 122	48 109	48 914	48 819	49 421	50 461	51 329	52 001	52 874	53 736	54 670
	Least Developed Countries	kt	9	10	11	12	12	12	12	12	12	12	12	12
<b>Vegetable oils</b>	World trade	kt	34 584	43 320	45 117	46 593	47 740	48 971	50 462	52 407	54 157	55 791	57 121	58 450
	OECD	kt	2 691	2 286	2 120	1 794	1 749	1 597	1 674	1 984	2 041	1 874	1 654	1 441
	Developing	kt	33 005	41 332	43 581	45 254	46 396	47 755	49 105	50 705	52 360	54 119	55 624	57 119
	Least Developed Countries	kt	67	70	72	73	74	75	76	77	79	80	82	84
<b>Beef<sup>a</sup></b>	World trade	kt	5 963	6 424	6 969	7 176	7 584	7 851	8 062	8 321	8 613	8 843	9 097	9 337
	OECD	kt	3 643	3 163	3 325	3 357	3 450	3 555	3 641	3 730	3 862	3 952	4 035	4 088
	Developing	kt	2 807	4 086	4 352	4 519	4 846	5 077	5 235	5 419	5 566	5 724	5 890	6 086
	Least Developed Countries	kt	2	1	2	1	2	2	2	2	2	2	2	2
<b>Pigmeat<sup>a</sup></b>	World trade	kt	3 999	4 301	4 700	4 927	5 055	5 130	5 279	5 443	5 576	5 680	5 766	5 901
	OECD	kt	3 202	3 831	3 785	3 840	3 839	3 871	3 926	4 001	4 097	4 141	4 170	4 202
	Developing	kt	1 094	1 228	1 125	1 351	1 547	1 651	1 777	1 899	1 951	2 028	2 103	2 251
	Least Developed Countries	kt											2	5
<b>Poultry</b>	World trade	kt	7 563	7 479	8 060	8 353	8 541	8 783	9 077	9 475	9 741	9 948	10 180	10 588
	OECD	kt	3 769	3 607	3 681	3 653	3 737	3 792	3 827	3 924	3 970	3 804	3 824	3 898
	Developing	kt	3 953	4 354	4 590	4 772	4 963	5 156	5 464	5 751	5 908	6 219	6 316	6 602
	Least Developed Countries	kt	6	5	3	3	3	3	3	3	3	4	4	4
<b>Butter</b>	World trade	kt	697	708	760	799	818	833	842	852	855	863	867	878
	OECD	kt	741	684	626	575	584	596	602	608	603	603	602	603
	Developing	kt	49	61	54	57	56	57	57	58	63	66	67	70
	Least Developed Countries	kt	1	1	1	1	1	1	1	1	1	1	1	1
<b>Cheese</b>	World trade	kt	1 401	1 459	1 497	1 545	1 593	1 624	1 666	1 710	1 750	1 792	1 833	1 876
	OECD	kt	1 196	1 186	1 150	1 146	1 159	1 177	1 206	1 240	1 265	1 291	1 314	1 339
	Developing	kt	137	198	239	274	293	305	318	326	339	351	361	373
	Least Developed Countries	kt												
<b>Whole milk powder</b>	World trade	kt	1 396	1 582	1 642	1 661	1 726	1 815	1 872	1 950	2 012	2 076	2 139	2 203
	OECD	kt	1 185	1 245	1 245	1 235	1 269	1 330	1 359	1 414	1 453	1 489	1 526	1 563
	Developing	kt	382	499	570	593	625	654	682	705	728	755	781	807
	Least Developed Countries	kt	3	4	4	4	4	4	4	4	4	4	4	4
<b>Skim milk powder</b>	World trade	kt	1 167	1 196	1 190	1 178	1 161	1 169	1 182	1 184	1 205	1 198	1 210	1 244
	OECD	kt	970	803	771	766	739	745	740	753	756	782	813	841
	Developing	kt	108	137	167	158	169	171	188	177	200	168	150	157
	Least Developed Countries	kt	2	2	2	2	2	2	2	2	2	2	2	2

a) Excludes trade of live animals.

est.: Estimate.

Source: OECD and FAO Secretariats.

Table A.4. Main policy assumptions for cereal markets

Crop year <sup>a</sup>		Average 01/02-05/06	06/07 est.	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17
<b>ARGENTINA</b>													
Crops export tax	%	16	20	20	20	20	20	20	20	20	20	20	20
Rice export tax	%	8	10	10	10	10	10	10	10	10	10	10	10
<b>CANADA</b>													
Tariff-quotas <sup>b</sup>													
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
<b>EUROPEAN UNION<sup>c, d</sup></b>													
Cereal support price <sup>e</sup>	EUR/t	101	101	101	101	101	101	101	101	101	101	101	101
Cereal compensation <sup>f, g</sup>	EUR/ha	261	31	31	31	31	31	31	31	31	31	31	31
Rice support price <sup>h</sup>	EUR/t	239	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 <sup>g</sup>	EUR/ha	261	31	31	31	31	31	31	31	31	31	31	31
Direct payment for rice	EUR/ha	564	470	470	470	470	470	470	470	470	470	470	470
Wheat tariff-quota <sup>b</sup>	kt	2 587	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 <sup>b</sup>	kt	3 349	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 <sup>b</sup>													
Wheat	mt	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
Coarse grains <sup>i</sup>	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
<b>JAPAN</b>													
Rice land diversion program	'000 ha	1 008	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 <sup>j</sup>	'000 JPY/t	138	119	119	119	119	119	119	119	119	119	119	119
Barley support price <sup>k</sup>	'000 JPY/t	119	100	100	100	100	100	100	100	100	100	100	100
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 <sup>l</sup>	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
<b>KOREA</b>													
Wheat tariff	%	6.4	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	%	1.7	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	%	409	404	404	404	404	404	404	404	404	404	404	404
Barley tariff-quota	kt	52	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	%	364	359	359	359	359	359	359	359	359	359	359	359
Rice quota <sup>l</sup>	kt	185	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 <sup>a</sup>		Average 01/02-05/06	06/07 est.	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17
<b>MERCOSUR</b>													
Wheat tariff	%	11	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	%	11	10	10	10	10	10	10	10	10	10	10	10
<b>MEXICO</b>													
Cereal income payment <sup>m</sup>	<i>MXN/ha</i>	906	980	1 013	1 045	1 078	1 111	1 145	1 180	1 217	1 254	1 293	1 332
Wheat NAFTA tariff	%	0.9	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>	425	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	%	197	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	%	117	115	115	115	115	115	115	115	115	115	115	115
<b>UNITED STATES</b>													
Wheat loan rate	<i>USD/t</i>	100.5	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>	76.8	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>	17.0	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>	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
CRP areas <sup>n</sup>	<i>Mha</i>	6.1	6.9	7.2	6.6	6.3	6.5	6.7	6.9	7.2	7.3	7.4	7.5
Wheat	<i>Mha</i>	2.9	3.5	3.6	3.3	3.2	3.3	3.4	3.5	3.6	3.7	3.7	3.8
Coarse grains	<i>Mha</i>	3.2	3.4	3.5	3.2	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.7
Subsidised export limits <sup>b</sup>													
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 <sup>o</sup>	<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
<b>CHINA</b>													
Wheat support price	<i>CNY/t</i>	135	0	0	0	0	0	0	0	0	0	0	0
Coarse grains support price	<i>CNY/t</i>	117	0	0	0	0	0	0	0	0	0	0	0
Rice support price	<i>CNY/t</i>	440	0	0	0	0	0	0	0	0	0	0	0
Wheat tariff-quota	<i>kt</i>	8 935	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	%	1.8	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	%	65.9	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	%	4	2	2	2	2	2	2	2	2	2	2	2
Maize tariff-quota	<i>kt</i>	6 390	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	%	2.9	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	%	45.8	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	%	4 522	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	%	1.9	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	%	53.7	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 <sup>a</sup>	Average 01/02-05/06	06/07 est.	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17
<b>INDIA</b>												
Input subsidy rate coarse grains <sup>d</sup>	INR/t	1 529	1 403	1 403	1 403	1 403	1 403	1 403	1 403	1 403	1 403	1 403
Input subsidy rate rice <sup>d</sup>	INR/t	762	700	700	700	700	700	700	700	700	700	700
Input subsidy rate wheat <sup>d</sup>	INR/t	2 002	2 082	2 082	2 082	2 082	2 082	2 082	2 082	2 082	2 082	2 082
Minimum support price												
Maize	INR/t	5 080	5 400	5 400	5 400	5 400	5 400	5 400	5 400	5 400	5 400	5 400
Rice	INR/t	5 080	5 700	5 700	5 700	5 700	5 700	5 700	5 700	5 700	5 700	5 700
Wheat	INR/t	6 240	6 500	6 500	6 500	6 500	6 500	6 500	6 500	6 500	6 500	6 500
Rice export subsidy	INR/t	3 222	3 133	3 133	3 133	3 133	3 133	3 133	3 133	3 133	3 133	3 133
Wheat export subsidy	INR/t	1 975	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
Maize tariff	%	50	50	50	50	50	50	50	50	50	50	50
Rice tariff	%	30	30	30	30	30	30	30	30	30	30	30
Barley tariff	%	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 10.8 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 <sup>a</sup>	Average 01/02-05/06	06/07 est.	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	
<b>WHEAT</b>													
<b>OECD<sup>b</sup></b>													
Production	mt	253.5	236.3	265.5	271.5	271.9	276.5	279.0	281.9	284.7	287.0	289.1	291.6
Consumption	mt	205.0	209.1	212.6	216.2	218.1	220.9	223.9	225.0	226.3	228.1	229.3	230.3
Closing stocks	mt	56.6	44.1	48.9	51.6	51.9	52.8	52.6	52.7	53.3	53.9	54.1	54.5
<b>Non-OECD</b>													
Production	mt	341.0	359.7	362.8	368.8	368.0	369.5	370.6	373.6	375.4	378.3	378.9	381.0
Consumption	mt	403.8	412.3	411.1	417.5	421.6	426.2	428.1	431.7	434.2	438.2	440.8	443.7
Closing stocks	mt	138.5	117.1	118.7	124.2	125.8	125.5	124.9	125.4	126.0	126.2	125.5	125.4
<b>WORLD<sup>c</sup></b>													
Production	mt	594.5	596.0	628.3	640.3	639.9	646.1	649.5	655.5	660.0	665.3	668.0	672.6
Consumption	mt	608.8	621.4	623.7	633.8	639.7	647.1	652.0	656.6	660.5	666.2	670.1	674.0
Closing stocks	mt	195.1	161.2	167.6	175.8	177.7	178.3	177.6	178.1	179.3	180.1	179.6	179.9
Price <sup>d</sup>	USD/t	152.0	204.0	204.5	197.5	191.8	186.1	184.6	184.5	183.1	181.7	182.4	183.2
<b>COARSE GRAINS</b>													
<b>OECD<sup>b</sup></b>													
Production	mt	509.0	498.4	551.4	573.3	584.1	586.6	592.2	600.9	606.0	610.2	615.9	622.2
Consumption	mt	479.9	510.2	534.9	549.7	558.6	564.5	569.1	573.8	576.9	579.6	584.1	587.9
Closing stocks	mt	107.6	86.5	79.7	80.6	84.1	84.4	84.1	84.5	84.9	84.7	84.6	84.9
<b>Non-OECD</b>													
Production	mt	441.3	482.1	494.1	508.6	520.1	525.6	533.5	540.0	545.6	549.6	556.6	562.1
Consumption	mt	468.8	505.3	514.5	521.1	532.8	540.3	549.7	558.0	566.0	572.4	580.0	587.0
Closing stocks	mt	133.9	117.6	114.8	119.5	123.2	124.8	126.4	129.5	132.1	134.5	137.4	140.9
<b>WORLD<sup>c</sup></b>													
Production	mt	950.2	980.5	1 045.5	1 081.9	1 104.3	1 112.2	1 125.6	1 140.9	1 151.6	1 159.7	1 172.5	1 184.3
Consumption	mt	948.7	1 015.5	1 049.4	1 070.8	1 091.4	1 104.7	1 118.8	1 131.8	1 143.0	1 152.0	1 164.0	1 174.9
Closing stocks	mt	241.5	204.1	194.5	200.1	207.3	209.2	210.5	214.0	217.0	219.1	222.0	225.8
Price <sup>e</sup>	USD/t	103.6	140.4	158.9	157.6	147.1	143.3	144.0	140.8	138.4	138.6	139.5	138.2
<b>RICE</b>													
<b>OECD<sup>b</sup></b>													
Production	mt	22.5	21.2	22.3	21.9	21.8	22.0	21.9	21.9	22.1	22.2	22.1	22.1
Consumption	mt	22.4	22.2	22.4	22.5	22.7	22.7	22.8	22.8	22.7	22.7	22.7	22.7
Closing stocks	mt	8.3	7.6	7.7	7.7	7.4	7.3	7.1	6.9	6.9	6.9	7.0	7.0
<b>Non-OECD</b>													
Production	mt	381.2	403.6	407.1	413.7	417.6	423.4	422.4	428.8	431.1	438.7	440.5	447.0
Consumption	mt	395.8	404.6	408.4	411.3	414.6	421.4	423.0	427.4	429.8	436.5	440.5	446.0
Closing stocks	mt	97.0	79.5	77.5	78.9	80.7	81.5	79.6	79.9	80.0	81.2	80.1	80.0
<b>WORLD<sup>c</sup></b>													
Production	mt	403.6	424.8	429.4	435.6	439.4	445.4	444.3	450.8	453.2	460.9	462.7	469.0
Consumption	mt	418.2	426.8	430.7	433.8	437.3	444.1	445.8	450.1	452.6	459.2	463.1	468.6
Closing stocks	mt	105.2	87.1	85.2	86.5	88.1	88.8	86.7	86.8	86.9	88.1	87.1	86.9
Price <sup>f</sup>	USD/t	238.4	311.4	352.1	360.3	347.8	331.9	331.0	336.3	336.3	330.2	326.2	326.0

a) Beginning crop marketing year – see Glossary of Terms for definitions.

b) Excludes Iceland but includes the 8 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); less EEP payments where applicable.

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 <sup>a</sup>		Average 01/02-05/06	06/07 est.	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17
<b>ARGENTINA</b>													
Oilseed export tax	%	19.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5
Oilseed meal export tax	%	16.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Oilseed oil export tax	%	16.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
<b>AUSTRALIA</b>													
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
<b>CANADA</b>													
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
<b>EUROPEAN UNION<sup>c, d</sup></b>													
Oilseed compensation <sup>e, f</sup>	EUR/ha	261	31	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 <sup>f</sup>	EUR/ha	260.5	31	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
<b>JAPAN</b>													
New output payments													
Soybeans	bn JPY	23.6	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
Tariffs													
Soybean oil	JPY/kg	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	JPY/kg	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9
<b>KOREA</b>													
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	%	493	487	487	487	487	487	487	487	487	487	487	487
Soybean (for food) mark up	'000 KRW/t	183	142	155	150	147	144	142	141	139	138	138	138
<b>MEXICO</b>													
Soybeans income payment <sup>g</sup>	MXN/ha	906	980	1 013	1 045	1 078	1 111	1 145	1 180	1 217	1 254	1 293	1 332
Tariffs													
Soybeans	%	33.4	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0
Soybean meal	%	25.4	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8	23.8
Soybean oil	%	45.6	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
<b>UNITED STATES</b>													
Soybeans loan rate	USD/t	185.6	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	2.1	2.3	2.4	2.2	2.1	2.2	2.1	2.0	2.0	2.0	1.9	1.9
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 <sup>b</sup>													
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 <sup>a</sup>		Average 01/02-05/06	06/07 est.	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17
<b>CHINA</b>													
Soybeans support price	CNY/t	1 332.6	1 501.0	1 549.2	1 597.7	1 647.4	1 700.7	1 754.9	1 810.8	1 868.2	1 929.0	1 992.1	2 058.7
<b>Tariffs<sup>b</sup></b>													
Soybeans	%	14.9	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Soybean meal	%	8.0	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	%	7.2	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	6 426	7 998	7 998	7 998	7 998	7 998	7 998	7 998	7 998	7 998	7 998	7 998
<b>INDIA</b>													
Input subsidy rate, oilseeds <sup>h</sup>	R/T	3 596	3 360	3 360	3 360	3 360	3 360	3 360	3 360	3 360	3 360	3 360	3 360
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 <sup>a</sup>		Average 01/02-05/06	06/07 est.	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17
<b>OILSEEDS</b>													
<b>OECD<sup>b</sup></b>													
Production	mt	113.2	127.0	121.9	125.5	128.3	128.8	130.2	131.4	133.7	135.5	137.0	138.6
Consumption	mt	110.5	118.8	120.5	122.8	126.4	128.2	130.8	131.7	132.5	133.2	134.6	136.4
Crush	mt	99.3	105.8	107.8	110.3	113.9	115.7	118.3	119.2	120.1	120.9	122.3	124.1
Closing stocks	mt	19.7	28.7	21.6	17.0	16.2	15.9	15.7	15.6	15.7	15.8	15.9	16.2
<b>Non-OECD</b>													
Production	mt	150.3	175.0	180.6	188.0	194.7	201.6	207.7	212.6	217.3	220.9	224.7	229.0
Consumption	mt	152.4	183.0	191.5	197.6	199.8	205.0	209.6	215.0	220.7	225.4	229.3	233.4
Crush	mt	127.3	157.2	166.7	173.1	175.2	180.2	184.6	189.8	195.3	199.8	203.6	207.5
Closing stocks	mt	8.4	9.4	9.3	9.5	9.5	9.4	9.5	9.3	9.4	9.4	9.4	9.4
<b>WORLD<sup>c</sup></b>													
Production	mt	263.5	302.0	302.5	313.5	322.9	330.5	337.9	344.0	350.9	356.4	361.7	367.6
Consumption	mt	263.0	301.8	312.0	320.4	326.1	333.2	340.4	346.7	353.2	358.6	363.9	369.8
Crush	mt	226.6	262.9	274.5	283.4	289.1	295.9	302.9	309.0	315.4	320.7	325.9	331.6
Closing stocks	mt	28.0	38.1	30.9	26.5	25.7	25.3	25.2	24.9	25.1	25.2	25.4	25.6
Price <sup>d</sup>	USD/t	266.0	289.8	310.4	311.7	306.5	300.8	297.4	297.7	295.4	295.1	298.4	299.6
<b>OILSEED MEALS</b>													
<b>OECD<sup>b</sup></b>													
Production	mt	71.5	75.7	77.0	78.6	81.0	82.3	84.0	84.7	85.4	85.9	86.9	88.2
Consumption	mt	94.4	100.8	102.4	103.8	104.9	106.2	107.2	108.0	108.9	109.7	110.4	111.1
Closing stocks	mt	2.6	2.4	2.3	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.6	2.6
<b>Non-OECD</b>													
Production	mt	92.3	113.5	120.6	125.3	126.8	130.4	133.6	137.5	141.5	144.8	147.5	150.4
Consumption	mt	66.8	87.4	94.4	98.8	101.5	105.1	109.2	112.9	116.6	119.7	122.8	126.1
Closing stocks	mt	4.8	5.0	4.8	4.8	5.0	5.2	5.3	5.5	5.7	5.8	6.0	6.1
<b>WORLD<sup>c</sup></b>													
Production	mt	163.7	189.2	197.6	203.9	207.8	212.7	217.7	222.2	226.9	230.7	234.4	238.6
Consumption	mt	161.2	188.2	196.8	202.6	206.4	211.3	216.4	220.9	225.5	229.4	233.1	237.2
Closing stocks	mt	7.4	7.4	7.1	7.2	7.4	7.7	7.8	8.0	8.2	8.4	8.6	8.8
Price <sup>e</sup>	USD/t	201.0	204.9	215.2	217.0	212.8	207.5	204.6	203.1	198.4	196.3	199.1	200.8
<b>VEGETABLE OILS</b>													
<b>OECD<sup>b</sup></b>													
Production	mt	24.5	26.7	27.4	28.2	29.2	29.7	30.4	30.6	30.8	31.0	31.4	32.0
Consumption	mt	29.4	35.7	37.2	38.6	39.8	41.1	42.0	42.9	43.8	44.7	45.6	46.6
Closing stocks	mt	2.4	2.9	2.6	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4
<b>Non-OECD</b>													
Production	mt	60.8	76.1	79.5	82.6	84.3	86.9	89.1	91.9	94.7	97.7	100.1	102.6
Consumption	mt	53.3	65.2	67.9	70.0	71.6	73.2	75.3	77.4	79.6	81.7	83.7	85.7
Closing stocks	mt	5.5	6.3	6.2	6.4	6.4	6.6	6.6	6.7	6.7	6.8	6.9	7.0
<b>WORLD<sup>c</sup></b>													
Production	mt	85.3	102.9	106.9	110.8	113.5	116.6	119.5	122.6	125.5	128.7	131.5	134.6
of which: palm oil	mt	31.0	39.2	40.4	42.1	43.2	44.7	45.8	47.5	49.1	51.0	52.5	54.1
Consumption	mt	82.6	100.8	105.1	108.6	111.3	114.3	117.3	120.3	123.3	126.4	129.3	132.3
Closing stocks	mt	7.9	9.2	8.8	8.8	8.9	9.0	9.0	9.1	9.1	9.2	9.2	9.3
Oil price <sup>f</sup>	USD/t	520.6	590.7	618.0	619.7	622.9	611.9	610.8	608.5	612.4	613.9	615.4	613.9

a) Beginning crop marketing year – see Glossary of Terms for definitions.

b) Excludes Iceland but includes the 8 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.: Estimation.

Source: OECD and FAO Secretariats.

Table A.8. Main policy assumptions for meat markets

		Average 2001-05	2006 est.	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>ARGENTINA</b>													
Beef export tax	%	4	15	15	15	15	15	15	15	15	15	15	15
<b>CANADA</b>													
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
<b>EUROPEAN UNION<sup>a, b</sup></b>													
Beef basic price <sup>c, d, e</sup>	EUR/kg dw	2.38	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 <sup>c, f</sup>	EUR/kg dw	n.a.	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 <sup>d</sup>	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 <sup>g</sup>	EUR/head	n.a.	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 <sup>h</sup>	EUR/head	178	0	0	0	0	0	0	0	0	0	0	0
Adult bovine slaughter premium <sup>i</sup>	EUR/head	76	0	0	0	0	0	0	0	0	0	0	0
Calf slaughter premium	EUR/head	37	0	0	0	0	0	0	0	0	0	0	0
Suckler cow premium	EUR/head	156	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 <sup>d</sup>													
Beef <sup>j</sup>	kt cwe	990	990	990	990	990	990	990	990	990	990	990	990
Pig meat <sup>j</sup>	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
<b>JAPAN<sup>k</sup></b>													
Beef stabilisation prices													
Upper price	JPY/kg dw	1 010	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	780	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	480	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 <sup>l</sup>													
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
<b>KOREA</b>													
Beef tariff	%	40	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	%	23	22	22	22	22	22	22	22	22	22	22	22
Poultry meat tariff	%	21	21	21	21	21	21	21	21	21	21	21	21
<b>MEXICO</b>													
Pig meat tariff	%	46	45	45	45	45	45	45	45	45	45	45	45
Pig meat NAFTA tariff	%	1	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	%	231	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 2001-05	2006 est.	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>RUSSIA</b>													
Beef tariff-quota	<i>kt pw</i>	458	463	468	474	480	480	480	480	480	480	480	480
in-quota tariff	%	15	15	15	15	15	15	15	15	15	15	15	15
out-of-quota tariff	%	58	40	52	50	40	40	40	40	40	40	40	40
Pigmeat tariff-quota	<i>kt pw</i>	n.a.	476	485	494	502	502	502	502	502	502	502	502
in-quota tariff	%	15	15	15	15	15	15	15	15	15	15	15	15
out-of-quota tariff	%	80	60	55	50	40	40	40	40	40	40	40	40
Poultry meat tariff-quota	<i>kt pw</i>	618	1 131	1 171	1 212	1 252	1 252	1 252	1 252	1 252	1 252	1 252	1 252
in-quota tariff	%	25	25	25	25	25	25	25	25	25	25	25	25
<b>UNITED STATES</b>													
Beef tariff-quota	<i>kt pw</i>	657	657	697	697	697	697	697	697	697	697	697	697
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
<b>CHINA</b>													
Beef tariff	%	23	16	16	16	16	16	16	16	16	16	16	16
Pig meat tariff	%	17	16	16	16	16	16	16	16	16	16	16	16
Sheep meat tariff	%	17	15	15	15	15	15	15	15	15	15	15	15
Poultry meat tariff	%	19	19	19	19	19	19	19	19	19	19	19	19
<b>INDIA</b>													
Beef tariff	%	105	100	100	100	100	100	100	100	100	100	100	100
Pig meat tariff	%	105	100	100	100	100	100	100	100	100	100	100	100
Sheep meat tariff	%	96	92	92	92	92	92	92	92	92	92	92	92
Poultry meat tariff	%	93	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
<b>SOUTH AFRICA</b>													
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	%	110	96	96	96	96	96	96	96	96	96	96	96

a) Prices and payments in market euro – 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.

n.a.: Not available.

Source: OECD and FAO Secretariats.

Table A.9. World meat projections

Calendar year		Average 2001-05	2006 est.	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>OECD<sup>a</sup></b>													
<b>BEEF AND VEAL<sup>b</sup></b>													
Production	<i>kt cwe</i>	26 564	26 918	27 182	27 119	26 859	26 717	26 615	26 674	26 933	27 216	27 500	27 647
Consumption	<i>kt cwe</i>	26 481	26 930	27 542	27 601	27 381	27 211	27 143	27 209	27 450	27 752	28 017	28 168
Ending stocks	<i>kt cwe</i>	1 021	876	865	864	865	865	865	866	866	866	867	866
Per capita consumption	<i>kg rwt</i>	15.6	15.5	15.8	15.7	15.5	15.4	15.3	15.2	15.3	15.4	15.5	15.5
Price, Australia <sup>c</sup>	<i>AUD/100 kg dw</i>	295	265	252	245	249	247	248	250	256	269	280	293
Price, EU <sup>d</sup>	<i>EUR/100 kg dw</i>	244	285	250	258	258	257	259	259	259	259	260	261
Price, USA <sup>e</sup>	<i>USD/100 kg dw</i>	282	304	303	299	297	289	285	279	279	286	294	298
Price, Argentina <sup>f</sup>	<i>ARS/100 kg dw</i>	307	427	323	352	355	361	375	384	407	436	455	480
<b>PIG MEAT<sup>g</sup></b>													
Production	<i>kt cwe</i>	36 399	37 455	37 770	37 593	37 787	37 936	38 065	38 208	38 313	38 529	38 799	39 052
Consumption	<i>kt cwe</i>	35 271	35 787	36 232	36 099	36 307	36 498	36 673	36 860	36 977	37 269	37 614	37 946
Ending stocks	<i>kt cwe</i>	780	832	827	808	814	818	823	821	821	818	813	813
Per capita consumption	<i>kg rwt</i>	23.1	23.0	23.2	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.2	23.3
Price, EU <sup>h</sup>	<i>EUR/100 kg dw</i>	135	141	142	154	149	139	144	137	137	138	140	142
Price, USA <sup>i</sup>	<i>USD/100 kg dw</i>	136	145	126	154	165	165	158	161	162	159	161	161
<b>POULTRY MEAT</b>													
Production	<i>kt rtc</i>	35 857	37 302	37 616	37 960	38 463	38 926	39 243	39 577	39 871	40 090	40 489	40 848
Consumption	<i>kt rtc</i>	34 069	35 696	35 922	36 271	36 494	36 999	37 447	37 846	38 236	38 749	39 175	39 617
Ending stocks	<i>kt rtc</i>	1 127	1 105	1 162	1 162	1 163	1 164	1 165	1 166	1 166	1 167	1 168	1 169
Per capita consumption	<i>kg rwt</i>	25.2	25.9	25.9	26.0	26.0	26.3	26.5	26.6	26.8	27.0	27.2	27.4
Price, EU <sup>j</sup>	<i>EUR/100 kg rtc</i>	103	102	101	104	107	109	106	104	108	109	110	111
Price, USA <sup>k</sup>	<i>USD/100 kg rtc</i>	142	141	159	165	171	179	183	182	180	177	178	178
<b>SHEEP MEAT</b>													
Production	<i>kt cwe</i>	2 793	3 252	2 769	2 799	2 806	2 868	2 902	2 898	2 888	2 846	2 896	2 922
Consumption	<i>kt cwe</i>	2 428	2 883	2 449	2 474	2 464	2 518	2 549	2 535	2 512	2 456	2 490	2 501
Ending stocks	<i>kt cwe</i>	520	560	559	558	557	554	546	533	515	491	462	428
Per capita consumption	<i>kg rwt</i>	1.8	2.1	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.7
Price, Australia <sup>l</sup>	<i>AUD/100 kg dw</i>	332	291	287	294	303	310	318	326	334	342	349	357
Price, Australia <sup>m</sup>	<i>AUD/100 kg dw</i>	173	98	103	107	112	117	122	127	133	138	143	148
Price, New Zealand <sup>n</sup>	<i>NZD/100 kg dw</i>	390	330	325	334	344	352	361	370	379	387	396	405
<b>TOTAL MEAT</b>													
Per capita consumption	<i>kg rwt</i>	65.6	66.5	66.6	66.5	66.3	66.4	66.5	66.6	66.8	67.2	67.6	67.9

For notes, see end of the table.

Source: OECD and FAO Secretariats.

Table A.9. **World meat projections (cont.)**

Calendar year		Average 2001-05	2006 est.	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Non-OECD</b>													
<b>BEEF AND VEAL</b>													
Production <sup>o</sup>	<i>kt cwe</i>	35 018	38 676	39 519	40 562	41 653	42 983	44 228	45 151	45 974	46 913	47 926	48 780
Consumption	<i>kt cwe</i>	34 663	37 959	38 613	39 532	40 586	41 916	43 103	44 019	44 864	45 800	46 813	47 657
Per capita consumption	<i>kg rwt</i>	4.7	5.0	5.0	5.1	5.2	5.3	5.3	5.4	5.4	5.5	5.5	5.6
Ending stocks	<i>kt cwe</i>	78	66	66	66	66	66	66	66	66	66	66	66
<b>PIG MEAT</b>													
Production <sup>o</sup>	<i>kt cwe</i>	60 572	69 964	73 027	74 295	76 128	78 478	79 241	81 642	83 596	85 170	87 454	90 269
Consumption	<i>kt cwe</i>	61 332	70 834	74 344	75 528	77 256	79 512	80 192	82 518	84 438	85 903	88 077	90 772
Per capita consumption	<i>kg rwt</i>	9.3	10.4	10.8	10.8	10.9	11.1	11.1	11.2	11.4	11.4	11.6	11.8
Ending stocks	<i>kt cwe</i>	52	50	50	50	50	50	50	50	50	50	50	50
<b>POULTRY MEAT</b>													
Production	<i>kt rtc</i>	41 581	44 638	45 653	47 340	48 867	50 614	51 891	52 966	54 428	55 818	56 721	57 692
Consumption	<i>kt rtc</i>	43 128	45 894	47 085	48 971	50 690	52 391	53 486	54 512	55 939	57 095	58 055	58 991
Per capita consumption	<i>kg rwt</i>	7.4	7.6	7.7	7.9	8.1	8.3	8.3	8.4	8.5	8.6	8.6	8.7
Ending stocks	<i>kt rtc</i>	244	165	174	174	176	177	178	179	180	182	182	182
<b>SHEEP MEAT</b>													
Production	<i>kt cwe</i>	8 541	9 311	9 548	9 784	10 007	10 232	10 463	10 676	10 897	11 106	11 319	11 519
Consumption	<i>kt cwe</i>	8 867	9 657	9 914	10 179	10 418	10 652	10 893	11 112	11 340	11 558	11 782	12 002
Per capita consumption	<i>kg rwt</i>	1.5	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8
Ending stocks	<i>kt cwe</i>	4	5	5	5	5	5	5	5	5	5	5	5
<b>TOTAL MEAT</b>													
Per capita consumption	<i>kg rwt</i>	23.0	24.6	25.1	25.5	25.8	26.3	26.4	26.7	27.0	27.2	27.5	27.8

a) Excludes Iceland but includes the 8 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.

est.: Estimate.

Source: OECD and FAO Secretariats.



Table A.10. **Main policy assumptions for dairy markets**

		Average 2001-05	2006 est.	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>ARGENTINA</b>													
Dairy export tax	%	6	5	5	5	5	5	5	5	5	5	5	5
<b>CANADA</b>													
Milk target price <sup>b</sup>	CADc/litre	62	71	72	75	76	76	77	77	78	78	79	80
Butter support price	CAD/t	6 161	6 992	7 077	7 233	7 309	7 367	7 426	7 485	7 545	7 606	7 666	7 728
SMP support price	CAD/t	5 227	5 834	5 760	6 044	6 180	6 165	6 151	6 181	6 237	6 308	6 377	6 451
Dairy subsidy	CAD/hl	0.37	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 <sup>c</sup>													
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
<b>EUROPEAN UNION<sup>d, e</sup></b>													
Milk quota <sup>f</sup>	mt pw	139	143	143	143	144	144	144	144	144	144	144	144
Butter intervention price	EUR/t	3 190	2 708	2 528	2 462	2 462	2 462	2 464	2 464	2 464	2 464	2 464	2 464
SMP intervention price	EUR/t	2 014	1 798	1 747	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	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 <sup>g</sup>													
Butter	kt pw	412	412	412	412	412	412	412	412	412	412	412	412
Cheese	kt pw	332	332	332	332	332	332	332	332	332	332	332	332
SMP	kt pw	323	323	323	323	323	323	323	323	323	323	323	323
<b>JAPAN</b>													
Direct payments	JPY/kg	11	10	10	10	10	10	10	10	10	10	10	10
Cheese tariff <sup>h</sup>	%	31	31	31	31	31	31	31	31	31	31	31	31
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	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
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 2001-05	2006 est.	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>KOREA</b>													
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>	1.0	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
<b>MEXICO</b>													
Butter tariff	%	1	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	%	127	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	%	127	125	125	125	125	125	125	125	125	125	125	125
Licons social programme	<i>MXN mn</i>	264	377	377	377	377	377	377	377	377	377	377	377
<b>RUSSIA</b>													
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
<b>UNITED STATES<sup>h</sup></b>													
Milk support price <sup>b</sup>	<i>USDC/litre</i>	22	22	22	22	22	22	22	22	22	22	22	22
Target price <sup>i</sup>	<i>USDC/litre</i>	n.a.	37.3	37.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Butter support price	<i>USD/t</i>	2 121	2 315	2 315	2 315	2 315	2 315	2 315	2 315	2 315	2 316	2 316	2 316
SMP support price	<i>USD/t</i>	1 864	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 <sup>a</sup>													
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 2001-05	2006 est.	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>INDIA</b>													
Milk tariff	%	80	80	80	80	80	80	80	80	80	80	80	80
Butter tariff	%	47	40	40	40	40	40	40	40	40	40	40	40
Cheese tariff	%	41	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
<b>SOUTH AFRICA</b>													
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	%	89	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 – 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, EU27 starting in 1999.

g) Excludes processed cheese.

h) Year beginning 1 January.

i) 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 <sup>a</sup>		Average 2001-05	2006 est.	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>BUTTER</b>													
<b>OECD<sup>b</sup></b>													
Production	<i>kt pw</i>	3 694	3 592	3 627	3 580	3 549	3 536	3 545	3 544	3 536	3 537	3 536	3 540
Consumption	<i>kt pw</i>	3 079	3 094	3 138	3 121	3 107	3 108	3 114	3 112	3 113	3 115	3 117	3 122
Stock changes	<i>kt pw</i>	9	-28	28	25	-1	-24	-24	-26	-27	-28	-28	-28
<b>Non-OECD</b>													
Production	<i>kt pw</i>	4 454	5 104	5 388	5 480	5 761	5 997	6 272	6 469	6 726	6 910	7 165	7 375
Consumption	<i>kt pw</i>	4 890	5 547	5 891	6 009	6 300	6 544	6 823	7 023	7 272	7 454	7 707	7 916
<b>WORLD</b>													
Production	<i>kt pw</i>	8 148	8 696	9 014	9 060	9 310	9 533	9 816	10 013	10 262	10 446	10 701	10 914
Consumption	<i>kt pw</i>	7 969	8 642	9 029	9 130	9 407	9 653	9 936	10 135	10 385	10 569	10 824	11 038
Stock changes	<i>kt pw</i>	3	-25	27	24	-3	-26	-27	-29	-31	-31	-31	-32
Price <sup>c</sup>	<i>USD/100 kg</i>	156	186	196	193	188	188	195	201	210	215	220	223
<b>CHEESE</b>													
<b>OECD<sup>b</sup></b>													
Production	<i>kt pw</i>	13 849	14 702	14 789	14 984	15 160	15 326	15 454	15 652	15 820	15 993	16 168	16 355
Consumption	<i>kt pw</i>	13 410	14 218	14 470	14 660	14 825	14 978	15 098	15 277	15 436	15 601	15 770	15 950
Stock changes	<i>kt pw</i>	0	22	-64	-38	-20	-7	-7	-2	2	5	7	10
<b>Non-OECD</b>													
Production	<i>kt pw</i>	3 787	4 047	4 076	4 151	4 252	4 358	4 456	4 549	4 644	4 735	4 827	4 914
Consumption	<i>kt pw</i>	4 194	4 491	4 490	4 544	4 640	4 746	4 851	4 958	5 058	5 155	5 250	5 341
<b>WORLD</b>													
Production	<i>kt pw</i>	17 636	18 749	18 864	19 135	19 412	19 684	19 910	20 201	20 465	20 728	20 995	21 269
Consumption	<i>kt pw</i>	17 605	18 709	18 960	19 204	19 465	19 723	19 949	20 235	20 494	20 755	21 020	21 292
Stock changes	<i>kt pw</i>	-8	15	-71	-45	-27	-14	-14	-9	-5	-2	0	3
Price <sup>d</sup>	<i>USD/100 kg</i>	231	273	300	311	303	300	301	301	302	304	306	307

a) Year ending 30 June for Australia and 31 May for New Zealand in OECD aggregate.

b) Excludes Iceland but includes the 8 EU members that are not members of the OECD.

c) F.o.b. export price, butter, 82% butterfat, northern Europe.

d) 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 <sup>a</sup>		Average 2001-05	2006 est.	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>SKIM MILK POWDER</b>													
<b>OECD<sup>b</sup></b>													
Production	<i>kt pw</i>	2 741	2 397	2 481	2 390	2 359	2 370	2 391	2 425	2 444	2 484	2 518	2 552
Consumption	<i>kt pw</i>	1 984	1 783	1 852	1 762	1 771	1 792	1 824	1 858	1 887	1 912	1 929	1 948
Stock changes	<i>kt pw</i>	-30	-46	8	3	1	1	1	1	1	-1	0	0
<b>Non-OECD</b>													
Production	<i>kt pw</i>	742	727	771	791	826	844	885	900	931	920	925	912
Consumption	<i>kt pw</i>	1 473	1 483	1 489	1 505	1 509	1 528	1 556	1 578	1 606	1 618	1 644	1 653
<b>WORLD</b>													
Production	<i>kt pw</i>	3 484	3 124	3 251	3 181	3 185	3 214	3 276	3 325	3 375	3 404	3 443	3 463
Consumption	<i>kt pw</i>	3 457	3 266	3 341	3 268	3 280	3 320	3 381	3 437	3 493	3 530	3 573	3 601
Stock changes	<i>kt pw</i>	-30	-44	10	4	3	3	3	3	3	0	2	2
Price <sup>c</sup>	<i>USD/100 kg</i>	186	235	259	269	266	259	254	250	248	250	249	252
<b>WHOLE MILK POWDER</b>													
<b>OECD<sup>b</sup></b>													
Production	<i>kt pw</i>	1 819	1 946	1 945	1 946	1 990	2 057	2 093	2 154	2 205	2 250	2 295	2 341
Consumption	<i>kt pw</i>	720	785	782	790	801	806	814	820	832	841	850	860
<b>Non-OECD</b>													
Production	<i>kt pw</i>	1 801	2 277	2 377	2 472	2 559	2 633	2 708	2 769	2 831	2 895	2 952	3 010
Consumption	<i>kt pw</i>	2 712	3 245	3 352	3 432	3 551	3 687	3 791	3 907	4 007	4 108	4 200	4 296
<b>WORLD</b>													
Production	<i>kt pw</i>	3 620	4 223	4 321	4 418	4 549	4 690	4 801	4 923	5 036	5 145	5 246	5 352
Consumption	<i>kt pw</i>	3 432	4 030	4 133	4 222	4 352	4 494	4 605	4 727	4 840	4 949	5 050	5 155
Price <sup>d</sup>	<i>USD/100 kg</i>	191	229	255	263	257	248	250	249	251	252	253	253
<b>WHEY POWDER</b>													
<b>Non-OECD</b>													
Wholesale price, USA <sup>e</sup>	<i>USD/100 kg</i>	51	74	79	83	91	91	92	91	91	90	89	89
<b>CASEIN</b>													
Price <sup>f</sup>	<i>USD/100 kg</i>	439	486	480	482	468	458	442	451	440	445	440	439

a) Year ending 30 June for Australia and 31 May for New Zealand in OECD aggregate.

b) Excludes Iceland but includes the 8 EU members that are not members of the OECD.

c) F.o.b. export price, non-fat dry milk, extra grade, northern Europe.

d) F.o.b. export price, WMP 26% butterfat, northern Europe.

e) Edible dry whey, Wisconsin, plant.

f) Export price, New Zealand.

est.: Estimate.

Source: OECD and FAO Secretariats.

Table A.13. Main policy assumptions for sugar markets

Crop year <sup>a</sup>		05/06	06/07 est.	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17
<b>MAIN ASSUMPTIONS FOR SUGAR MARKETS</b>													
<b>ARGENTINA</b>													
Tariff, sugar	ARS/t	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
<b>BRAZIL</b>													
Cane allocation to sugar	%	50.0	50.2	49.1	48.0	47.0	45.8	44.5	43.3	42.3	41.4	40.6	39.8
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
Ethanol blending ratio with gasoline	%	25.0	23.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
<b>CANADA</b>													
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
<b>CHINA<sup>b</sup></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	%	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
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
<b>DOMINICAN REPUBLIC</b>													
Applied tariff, 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
<b>EU<sup>e</sup></b>													
Reference price, white sugar <sup>c</sup>	EUR/t	632	632	632	542	404	404	404	404	404	404	404	404
Effective quota <sup>d</sup>	kt rse	18 803	15 910	17 427	17 485	17 143	17 057	16 924	16 773	16 583	16 361	16 108	16 188
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	340	340
Tariff, white sugar	EUR/t	419	419	419	419	419	419	419	419	419	419	419	419
<b>FIJI</b>													
Applied tariff, white sugar	%	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
<b>INDIA</b>													
Intervention price, sugar cane	INR/t	750	750	750	750	750	750	750	750	750	750	750	750
Applied tariff, raw sugar	%	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
<b>INDONESIA</b>													
Tariff, white sugar	%	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
<b>JAMAICA</b>													
Applied tariff, white sugar	%	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
<b>JAPAN</b>													
Minimum stabilisation price, raw sugar	JPY/kg	150	150	150	150	150	150	150	150	150	150	150	150
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
<b>KOREA</b>													
Tariff, raw sugar	%	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
<b>MADAGASCAR</b>													
Applied tariff, white sugar	%	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0
<b>MEXICO</b>													
Mexico common external tariff, raw sugar	MXN/t	4 301	4 308	4 315	4 340	4 377	4 418	4 466	4 512	4 560	4 608	4 656	4 705
Mexico common external tariff, white sugar	MXN/t	4 301	4 308	4 315	4 340	4 377	4 418	4 466	4 512	4 560	4 608	4 656	4 705

For notes, see end of the table.

Source: OECD and FAO Secretariats.

Table A.13. Main policy assumptions for sugar markets (cont.)

Crop year <sup>a</sup>		05/06	06/07 est.	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17
<b>RUSSIA</b>													
Tariff, raw sugar <sup>f</sup>	%	26.5	68.7	75.7	80.1	83.2	80.1	77.2	78.6	78.6	77.2	76.4	75.7
Tariff, white sugar <sup>f</sup>	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
<b>UNITED STATES<sup>e</sup></b>													
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	2 549	1 853	1 755	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080	1 080
TRQ, refined sugar	kt rse	49	49	49	49	49	49	49	49	49	49	49	49
Raw sugar 2nd tier WTO tariff	USD/t	339	339	339	339	339	339	339	339	339	339	339	339
White sugar 2nd tier WTO tariff	USD/t	357	357	357	357	357	357	357	357	357	357	357	357
Raw sugar 2nd tier NAFTA tariff	USD/t	100	67	33	0	0	0	0	0	0	0	0	0
<b>SOUTH AFRICA</b>													
Tariff, raw sugar	%	105.0	105.0	105.0	105.0	105.0	105.0	105.0	105.0	105.0	105.0	105.0	105.0
<b>TANZANIA</b>													
Applied tariff, white sugar	%	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
<b>VIET NAM</b>													
Applied tariff, white sugar	%	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0

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, Bulgaria and Romania.

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 source for tariffs (except United States and Russia) is AMAD. The source for Russia and United States tariffs is ERS, USDA. est.: Estimate.

rse: Raw sugar equivalent.

Source: OECD and FAO Secretariats.

Table A.14. World sugar projections (in raw sugar equivalent)

Crop year <sup>a</sup>		Average 01/02-05/06	06/07 est.	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17
<b>OECD</b>													
Production	kt rse	41 974	38 769	38 360	38 099	38 395	38 471	38 273	38 522	38 780	38 999	39 206	39 429
EU bio-ethanol	kL	889	973	921	1 047	1 132	1 288	1 463	1 621	1 777	1 930	2 082	2 236
Consumption	kt rse	40 734	41 036	41 178	41 459	41 702	41 943	42 185	42 406	42 624	42 840	43 056	43 271
Closing stocks	kt rse	18 755	17 323	17 337	16 443	16 033	15 649	14 787	14 156	13 668	13 328	13 193	12 954
<b>NON-OECD</b>													
Production	kt rse	103 147	123 023	124 850	123 881	122 870	127 670	132 744	137 145	138 893	142 201	145 136	147 971
Brazil bio-ethanol	kL	13 943	19 398	21 486	23 573	25 661	28 248	30 836	33 423	36 011	38 599	41 186	43 774
Consumption	kt rse	103 334	111 738	117 411	119 973	122 694	125 454	128 246	131 093	133 972	136 876	139 798	142 736
Closing stocks	kt rse	45 094	55 795	60 401	61 843	59 121	58 250	59 699	62 498	64 063	65 887	67 511	69 142
<b>WORLD</b>													
Production	kt rse	145 120	161 792	163 210	161 980	161 265	166 141	171 017	175 667	177 673	181 200	184 343	187 400
Consumption	kt rse	144 068	152 774	158 589	161 432	164 397	167 396	170 431	173 499	176 596	179 716	182 854	186 007
Closing stocks	kt rse	63 848	73 118	77 738	78 286	75 155	73 899	74 486	76 654	77 731	79 215	80 704	82 096
Price, raw sugar <sup>b</sup>	USD/t	217.6	253.5	242.5	235.9	231.5	235.9	240.3	238.1	238.1	240.3	241.4	242.5
Price, white sugar <sup>c</sup>	USD/t	269.7	360.5	341.7	330.7	319.7	319.7	319.7	314.2	310.9	310.9	309.7	308.6

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, September/August.

c) Refined sugar price, London No. 5, f.o.b. Europe, spot, September/August.

est.: Estimate.

Source: OECD and FAO Secretariats.

ANNEX B

*Trade Annex Tables*



Table B.1. **Concordance of product groupings**

Description	HS code	Description	HS code
<b>Primary bulk commodities</b>		<b>Produce/horticulture</b>	
Coffee	09011	Planting material	0601-0602
Tea	0902	Cut flowers/plants	0603-0604
Coffee mate	0903	Vegetables	0701-0709
Wheat	1001	Roots, tubers	0714
Rye	1002	Coconut	08011
Barley	1003	Brazilnut	08012
Oats	1004	Cashew nuts	08013
Corn	1005	Other nuts	08021-08025, 08029
Rice	1006	Fruit	0803-08010
Sorghum	1007	Frozen fruit	08119
Other grains	1008	Dried fruit	08131-08135
Soybeans	1201	Pepper	09041-09042
Peanuts	1202	Vanilla	905
Oilseeds	1204-1207	Cinnamon	09061-09062
Cotton linters	14042	Cloves	0907
Cocoa beans	1801	Nutmeg	09081
Tobacco	24011-24013	Mace	09082
Cotton	5201-5203	Cardamom	09083
Hemp	5302	Other seeds	09091-09095
		Other spices	09101-09105
		Spice mix	091091, 091099
		Hops	12101, 12102
		Stone fruit	12123
		Sugarbeet	121291
		Sugarcane	121292
<b>Semi-processed</b>		<b>Processed</b>	
Live animals	0101-0106	Fresh, chilled meats	0201-0208
Pig fat	0209	Processed meat	0210
Hairs	0501-0503	Dairy products	0401-0406
Animal products	0504-0511	Eggs and products	0407-0408
Dried, shelled beans	0713	Honey	0409
Coffee husks	09019	Other animal products	0410
Grain flours, groats	1101-1103	Processed vegetables	0710-0712
Starch	11081	Processed fruit	0811-0812, 0814
Inulin	11082	Coffee	09012, 09014
Wheat gluten	1109	Processed grains	1104-1107
Copra	1203	Other vegetables	1212
Soy flour and meal	1208	Fish and animal oils	1504, 1517
Sowing seeds	1209	Prepared meats	1601-1603
Roots, seeds cut/crushed	1211	Sugar, sweeteners	1701-1704
Straw, husks, fodder	1213, 1214	Chocolates	1806
Gum, lac, plant extracts	1301, 1302	Flour preparations	1901
Furnishing material	1401-1404	Pasta	1902
Animal fat	1501-1503, 1505, 1506	Tapioca	1903
Vegetable oils	1507-1516	Other preparations	1904-1905
Inedible fats, oils	1518	Prepared vegetables	2001-2005
Crude glycerol	1520	Prepared fruit	2006-2009
Wax	1521	Extracts, essences, broths	2101-2106
Degras	1522	Beverages	2201-2208
Sugar	17011	Vinegar	2209
Cocoa products	1802-1806	Tobacco products	2402-2403
Grain products	2301-2303	Other products	3502
Oilseed cake	2304-2306		
Plant waste material	2308		
Pet food material	2309		
Glycerol/sorbitol/mannitol	2905		
Special plant oils	33011-33013, 33019		
Proteins/gelatins/starches	3501-3505		
Amylaceous substance	38091		
Fatty acids, alcohols	3823-3824		
Hides, skins	4101-4103		
Fur	4301		
Silk	5001-5003		
Wool	5101-5103		
Flax	530		

Note: The Harmonized System (HS) provides a nomenclature for classifying internationally trade goods. The definitions of HS commodity groupings up to the 6-digit level are established by the World Customs Organization ([www.wcoomd.org/ie/En/en.html](http://www.wcoomd.org/ie/En/en.html)).

Table B.2. **Top 20 exporters and importers of bulk products (excludes intra-EU)**

	Average bulk exports (1985-89)		Average bulk imports (1985-89)		
	USD billion	Share	USD billion	Share	
United States	17.16	37.16	EU15	15.42	32.15
Canada	3.78	8.18	<i>of which:</i>		
EU15	3.22	6.98	Germany <sup>a</sup>	3.96	8.26
<i>of which:</i>			Netherlands	1.92	4.00
France	1.30	2.83	Italy	1.91	3.99
Germany <sup>a</sup>	0.52	1.13	Spain	1.57	3.26
United Kingdom	0.51	1.11	France	1.52	3.16
Australia	2.42	5.23	United Kingdom	1.48	3.09
Brazil	2.24	4.86	Belgium-Luxembourg	0.81	1.68
Colombia	2.00	4.32	Portugal	0.75	1.57
China	1.87	4.05	Japan	7.64	15.93
Argentina	1.82	3.93	United States	4.09	8.53
Thailand	1.39	3.01	Korea, Republic of	1.92	4.01
Côte d'Ivoire	1.36	2.95	Chinese Taipei	1.90	3.95
India	1.07	2.31	China	1.57	3.27
Pakistan	0.88	1.90	Mexico	1.04	2.17
Mexico	0.74	1.61	Algeria	0.85	1.77
Kenya	0.57	1.23	Egypt, Arab Republic of	0.75	1.57
Indonesia	0.57	1.23	Saudi Arabia	0.72	1.50
Zimbabwe	0.41	0.89	Brazil	0.67	1.40
Sri Lanka	0.39	0.84	Indonesia	0.67	1.39
Cameroon	0.37	0.79	Canada	0.61	1.27
<b>Total of above</b>	<b>42.24</b>	<b>91.47</b>	<b>Total of above</b>	<b>37.84</b>	<b>78.91</b>
	Average bulk exports (2000-04)		Average bulk imports (2000-04)		
	USD billion	Share	USD billion	Share	
United States	20.16	30.74	EU15	14.05	18.99
Brazil	5.58	8.50	<i>of which:</i>		
Canada	4.13	6.30	Germany <sup>a</sup>	3.06	4.13
Australia	4.09	6.24	Netherlands	2.33	3.15
Argentina	3.88	5.91	Italy	1.95	2.64
EU15	3.25	4.96	Spain	1.72	2.33
<i>of which:</i>			United Kingdom	1.19	1.61
France	1.19	1.82	France	1.13	1.53
Germany <sup>a</sup>	0.86	1.32	Japan	7.55	10.20
China	2.28	3.47	China	6.19	8.36
India	2.12	3.23	United States	3.84	5.19
Thailand	2.05	3.13	Mexico	3.60	4.87
Côte d'Ivoire	1.74	2.65	Korea, Republic of	2.67	3.61
Viet Nam	1.20	1.82	Indonesia	2.11	2.85
Colombia	0.88	1.35	Chinese Taipei	1.87	2.53
Indonesia	0.76	1.16	Brazil	1.71	2.31
Pakistan	0.74	1.13	Turkey	1.48	2.00
Russian Federation	0.71	1.08	Egypt, Arab Republic of	1.46	1.97
Ukraine	0.71	1.08	Iran, Islamic Republic of	1.36	1.84
Sri Lanka	0.69	1.05	Algeria	1.31	1.77
Kazakhstan	0.58	0.89	Saudi Arabia	1.28	1.73
Ghana	0.58	0.88	Canada	1.17	1.59
<b>Total of above</b>	<b>56.13</b>	<b>85.57</b>	<b>Total of above</b>	<b>51.64</b>	<b>69.81</b>

a) Excludes data for the German Democratic Republic.

Table B.3. **Top 20 exporters and importers of horticultural products (excludes intra-EU)**

	Average horticulture exports (1985-89)		Average horticulture imports (1985-89)		
	USD billion	Share	USD billion	Share	
United States	2.15	15.52	EU15	7.25	37.54
EU15	1.65	11.85	<i>of which:</i>		
<i>of which:</i>			Germany <sup>a</sup>	1.87	9.67
Netherlands	0.56	4.03	France	1.32	6.83
Italy	0.31	2.20	United Kingdom	1.04	5.38
Turkey	0.78	5.60	Netherlands	1.02	5.30
Thailand	0.75	5.37	Italy	0.51	2.62
Mexico	0.67	4.84	Belgium-Luxembourg	0.33	1.70
India	0.52	3.74	Sweden	0.28	1.47
Chile	0.47	3.39	Austria	0.23	1.20
China	0.44	3.15	Spain	0.20	1.02
Israel	0.42	3.06	United States	3.70	19.18
Colombia	0.39	2.82	Japan	1.83	9.46
New Zealand	0.39	2.77	Canada	1.57	8.14
Costa Rica	0.34	2.43	Switzerland	0.79	4.11
Indonesia	0.30	2.15	Hong Kong, China	0.59	3.06
Brazil	0.28	2.02	Singapore	0.44	2.27
Singapore	0.28	2.02	Saudi Arabia	0.32	1.65
Morocco	0.27	1.93	Norway	0.28	1.47
Honduras	0.27	1.91	Kuwait	0.23	1.21
Philippines	0.25	1.79	Chinese Taipei	0.21	1.08
Ecuador	0.24	1.72	Malaysia	0.18	0.92
<b>Total of above</b>	<b>10.84</b>	<b>78.07</b>	<b>Total of above</b>	<b>17.40</b>	<b>90.10</b>
	Average horticulture exports (2000-04)		Average horticulture imports (2000-04)		
	USD billion	Share	USD billion	Share	
United States	6.20	16.32	EU15	13.82	29.64
EU15	5.05	13.29	<i>of which:</i>		
<i>of which:</i>			Germany <sup>a</sup>	2.94	6.31
Netherlands	2.06	5.41	United Kingdom	2.26	4.85
Spain	0.79	2.09	Netherlands	2.08	4.46
Italy	0.71	1.86	France	1.76	3.78
Mexico	3.13	8.23	Belgium-Luxembourg	1.66	3.57
China	1.68	4.41	Italy	0.99	2.13
Turkey	1.56	4.10	Spain	0.96	2.07
Chile	1.47	3.87	United States	10.03	21.51
Ecuador	1.27	3.35	Japan	3.51	7.52
Colombia	1.13	2.98	Canada	2.99	6.42
Canada	1.05	2.75	Russian Federation	1.37	2.95
Costa Rica	1.00	2.63	Switzerland	1.31	2.80
India	0.96	2.54	Hong Kong, China	1.20	2.57
South Africa	0.83	2.19	Poland	0.75	1.62
New Zealand	0.74	1.96	Mexico	0.73	1.57
Iran, Islamic Republic of	0.72	1.89	China	0.66	1.42
Thailand	0.63	1.66	Singapore	0.65	1.39
Argentina	0.60	1.57	Saudi Arabia	0.56	1.19
Israel	0.59	1.54	Norway	0.53	1.15
Brazil	0.55	1.45	India	0.52	1.11
<b>Total of above</b>	<b>29.17</b>	<b>76.74</b>	<b>Total of above</b>	<b>38.64</b>	<b>82.85</b>

a) Excludes data for the German Democratic Republic.

**Table B.4. Top 20 exporters and importers of semi-processed products  
(excludes intra-EU)**

	Average semi processed exports (1985-89)		Average semi processed imports (1985-89)		
	USD billion	Share	USD billion	share	
United States	8.02	19.55	EU15	14.24	32.08
EU15	6.68	16.30	<i>of which:</i>		
<i>of which:</i>			<i>Germany<sup>a</sup></i>	2.75	6.20
<i>Germany<sup>a</sup></i>	1.34	3.26	<i>Italy</i>	2.73	6.14
<i>France</i>	1.07	2.60	<i>France</i>	2.36	5.32
<i>Netherlands</i>	1.03	2.52	<i>United Kingdom</i>	1.72	3.87
<i>Italy</i>	0.69	1.69	<i>Netherlands</i>	1.65	3.73
<i>United Kingdom</i>	0.59	1.44	<i>Spain</i>	0.89	1.99
Australia	4.09	9.98	<i>Belgium-Luxembourg</i>	0.62	1.41
China	2.41	5.88	Japan	4.68	10.54
Malaysia	2.17	5.29	United States	4.33	9.75
Brazil	2.05	4.99	Korea, Republic of	1.84	4.15
New Zealand	1.68	4.10	Hong Kong, China	1.55	3.50
Argentina	1.44	3.52	Taiwan, China	1.42	3.20
Canada	1.41	3.45	China	1.28	2.89
Hong Kong, China	0.95	2.31	Canada	1.11	2.50
Singapore	0.91	2.23	India	0.94	2.11
Indonesia	0.91	2.21	Singapore	0.87	1.95
Turkey	0.73	1.77	Mexico	0.81	1.82
Japan	0.60	1.47	Algeria	0.71	1.59
Philippines	0.56	1.37	Switzerland	0.63	1.41
Chile	0.54	1.31	Egypt, Arab Republic of	0.62	1.39
<b>Total of above</b>	<b>35.15</b>	<b>85.72</b>	<b>Total of above</b>	<b>35.01</b>	<b>78.86</b>
	Average semi processed exports (2000-04)		Average semi processed imports (2000-04)		
	USD billion	Share	USD billion	Share	
EU15	13.40	16.77	EU15	17.70	20.72
<i>of which:</i>			<i>of which:</i>		
<i>Germany<sup>a</sup></i>	3.13	3.97	<i>Italy</i>	3.19	3.73
<i>Netherlands</i>	2.14	2.71	<i>Germany<sup>a</sup></i>	2.97	3.48
<i>France</i>	1.63	2.07	<i>Netherlands</i>	2.51	2.93
<i>Denmark</i>	1.02	1.29	<i>France</i>	2.39	2.80
<i>Italy</i>	1.42	1.80	<i>United Kingdom</i>	2.14	2.50
<i>United Kingdom</i>	0.97	1.22	<i>Spain</i>	1.62	1.89
<i>Belgium</i>	0.92	1.16	United States	9.01	10.55
United States	13.01	16.49	China	6.44	7.54
Malaysia	5.86	7.43	Japan	5.92	6.93
Argentina	5.76	7.30	India	3.13	3.67
Brazil	4.07	5.15	Korea, Republic of	2.66	3.12
Australia	3.98	5.05	Canada	2.59	3.03
Canada	3.95	5.01	Mexico	2.34	2.73
China	3.43	4.34	Hong Kong, China	2.23	2.61
Indonesia	3.30	4.18	Chinese Taipei	1.61	1.88
India	1.60	0.02	Poland	1.44	1.68
New Zealand	1.55	0.02	Turkey	1.38	1.62
Hong Kong, China	1.26	0.02	Thailand	1.24	1.45
Japan	0.97	0.01	Russian Federation	1.21	1.42
Peru	0.95	0.01	Indonesia	1.15	1.35
<b>Total of above</b>	<b>63.10</b>	<b>74.20</b>	<b>Total of above</b>	<b>60.05</b>	<b>91.02</b>

a) Excludes data for the German Democratic Republic.

**Table B.5. Top 20 exporters and importers of processed products  
(excludes intra-EU)**

	Average processed exports (1985-89)		Average processed imports (1985-89)		
	USD billion	Share	USD billion	Share	
EU15	18.31	36.93	United States	11.85	23.36
<i>of which:</i>			EU15	8.73	17.21
<i>France</i>	4.40	8.88	<i>of which:</i>		
<i>United Kingdom</i>	2.82	5.69	<i>United Kingdom</i>	2.28	4.49
<i>Netherlands</i>	2.67	5.38	<i>Germany<sup>a</sup></i>	2.09	4.12
<i>Germany<sup>a</sup></i>	1.93	3.90	<i>France</i>	1.28	2.53
<i>Denmark</i>	1.88	3.79	<i>Italy</i>	0.78	1.54
<i>Italy</i>	1.32	2.66	<i>Netherlands</i>	0.60	1.17
<i>Ireland</i>	0.92	1.85	Japan	7.82	15.40
<i>Spain</i>	0.80	1.62	Canada	2.25	4.43
United States	7.01	14.14	Hong Kong, China	2.06	4.06
Australia	2.93	5.91	Switzerland	1.46	2.88
New Zealand	2.32	4.67	Saudi Arabia	1.45	2.86
Brazil	2.04	4.11	Singapore	1.01	2.00
Canada	1.98	4.00	Chinese Taipei	1.01	1.98
China	1.40	2.83	Mexico	0.70	1.37
Chinese Taipei	1.19	2.40	Australia	0.65	1.27
Switzerland	1.08	2.18	China	0.63	1.24
Hong Kong, China	1.05	2.12	Malaysia	0.63	1.23
Thailand	1.02	2.05	Egypt, Arab Republic of	0.62	1.23
Argentina	0.78	1.57	Norway	0.53	1.04
Mexico	0.66	1.33	Korea, Republic of	0.49	0.96
<b>Total of above</b>	<b>41.76</b>	<b>84.26</b>	<b>Total of above</b>	<b>41.88</b>	<b>82.52</b>
	Average processed exports (2000-04)		Average processed imports (2000-04)		
	USD billion	Share	USD billion	Share	
EU15	40.08	27.21	United States	28.20	18.79
<i>of which:</i>			Japan	20.07	13.37
<i>France</i>	7.86	5.34	EU15	19.69	13.12
<i>United Kingdom</i>	5.42	3.68	<i>of which:</i>		
<i>Netherlands</i>	5.09	3.45	<i>Germany<sup>a</sup></i>	5.15	3.43
<i>Germany<sup>a</sup></i>	4.88	3.31	<i>United Kingdom</i>	4.72	3.14
<i>Italy</i>	4.30	2.92	<i>France</i>	2.13	1.42
<i>Denmark</i>	3.35	2.27	<i>Netherlands</i>	2.13	1.42
<i>Belgium-Luxembourg</i>	2.14	1.45	Canada	6.93	4.62
<i>Spain</i>	2.12	1.44	Russian Federation	5.80	3.86
United States	20.80	14.12	Mexico	5.12	3.41
Canada	8.59	5.83	Hong Kong, China	4.63	3.09
Brazil	7.98	5.42	Korea, Republic of	3.50	2.33
Australia	7.58	5.14	Switzerland	3.04	2.03
China	6.62	4.49	Saudi Arabia	2.65	1.77
New Zealand	5.75	3.90	Singapore	2.61	1.74
Mexico	3.88	2.63	Chinese Taipei	2.36	1.57
Thailand	3.61	2.45	Australia	2.19	1.46
Poland	2.72	1.84	China	2.10	1.40
Argentina	2.31	1.57	Malaysia	1.60	1.06
Hong Kong, China	2.21	1.50	Norway	1.28	0.85
Switzerland	2.17	1.47	Philippines	1.22	0.81
<b>Total of above</b>	<b>114.29</b>	<b>77.60</b>	<b>Total of above</b>	<b>113.00</b>	<b>75.28</b>

a) Excludes data for the German Democratic Republic.

## ANNEX C

## Glossary of Terms

### AMAD

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

### Avian influenza

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

### Atlantic beef/pigmeat market

Beef/pigmeat trade between countries in the Atlantic Rim.

### Baseline

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

### Biofuels

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

### Biomass

Biomass is defined as any plant matter used directly as fuel or converted into other forms before combustion. Included are wood, vegetal waste (including wood waste and

crops used for energy production), animal materials/wastes and industrial and urban wastes, used as feedstocks for producing bioproducts.

### **Bovine Spongiform Encephalopathy (BSE)**

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

### **Cereals**

Defined as wheat, coarse grains and rice.

### **CAFTA**

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

### **Common Agricultural Policy (CAP)**

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

### **CAP reform**

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

### **Coarse grains**

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

### **Conservation Reserve Program (CRP)**

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

## Commonwealth of Independent States (CIS)

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

## Common Market Organisation (CMO) for sugar

The common organisation of the sugar market (CMO) in the European Union was established in 1968 to ensure a fair income to community sugar producers and self-supply of the Community market. At present the CMO is governed by Council Regulation (EC) No. 318/2006 (the basic regulation) which establishes a restructuring fund financed by sugar producers to assist the restructuring process needed to render the industry more competitive.

## Crop year, coarse grains

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

## Crop year, oilseeds

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

## Crop year, rice

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

## Crop year, sugar

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

## Crop year, wheat

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

## Decoupled payments

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



## Direct payments

Payments made directly by governments to producers.

## Doha Development Agenda

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

## Domestic support

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

## Economic Partnership Agreements (EPAs)

Trade negotiations currently being negotiated between the EU and the African, Caribbean Pacific (ACP) group of developing countries. The outcome of the negotiations will be a series of new Free Trade Agreements (FTA) replacing the Lomé system of preferential access to the European market for the ACP countries from 2008.

## Ethanol

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

## Everything But Arms (EBA)

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

## Export credits (with official support)

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

## Export restitutions (refunds)

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

## Export subsidies

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

## Foot and Mouth Disease (FMD)

Foot and mouth disease is a highly contagious disease, which chiefly affects cloven-hoofed animal species (cattle, sheep, goats and pigs). Its symptoms are the appearance of vesicles (aphthae) on the animals' mouths (with a consequent reduction in

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

## **G10**

Members of the G10 are: Bulgaria, Chinese Taipei, Iceland, Israel, Japan, Korea Republic, Liechtenstein, Mauritius, Norway and Switzerland.

## **G20**

Members of the G20 are: Argentina, Bolivia, Brazil, Chile, China, Cuba, Egypt (Arab Republic of), Guatemala, India, Indonesia, Mexico, Nigeria, Pakistan, Paraguay, Philippines, South Africa, Tanzania, Thailand, Uruguay, Venezuela RB and Zimbabwe.

## **FSRI Act, 2002**

Officially known as the Farm Security and Rural Investment Act of 2002. This US farm legislation replaces the FAIR Act of 1996, covering a wide range of commodity programmes and policies for US agriculture for the period 2002-07.

## **Gur, khandasari**

Semi-processed sugars (plantation whites) extracted from sugarcane in India.

## **Industrial oilseeds**

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

## **Intervention purchases**

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

## **Intervention purchase price**

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

## **Intervention stocks**

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

## Inulin

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

## Isoglucose

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

## Least squares growth rate

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

## Loan deficiency payments (United States)

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

## Loan rate

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

## Luxembourg agreement

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

## Market access

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

## Marketing allotments (US sugar programme)

Marketing allotments designate how much sugar can be sold by sugar millers and processors on the US internal market and were established by the 2002 FSRI Act as a way to guarantee the US sugar loan programme operates at no cost to the Federal Government.

## Marketing Assistance Loan Programme

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

## Marketing year, oilseed meal

Refers to the marketing year beginning 1 October.

## Marketing year, oilseed oil

Refers to the marketing year beginning 1 October.

## MERCOSUR

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

## Market Price Support (MPS) Payment

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

## Methyl Tertiary Butyl Ether (MTBE)

A chemical gasoline additive that can be used to boost the octane number and oxygen content of the fuel, but can render contaminated water undrinkable.

## Mid-Term Review

See Luxembourg agreement on CAP reform.

## Milk quota scheme

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

## Modulation

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

## North American Free Trade Agreement (NAFTA)

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

## Oilseed meal

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

## Oilseeds

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

## Pacific beef/pigmeat market

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

## PROCAMPO

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

## Producer Support Estimate (PSE)

Indicator of the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at farm gate level, arising from policy

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

### **Purchasing Power Parity (PPP)**

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

### **Recourse loan programme**

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

### **Saccharin**

A low calorie, artificial sweetener used as a substitute for sugar mainly in beverage preparations.

### **Scenario**

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

### **Set-aside programme**

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

### **Single Farm Payment**

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

## SPS Agreement

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

## Support price

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

## Tariff-rate quota (TRQ)

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

## Uruguay Round Agreement on Agriculture (URAA)

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

## Vegetable oil

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

## Voluntary Quota Restructuring Scheme

Established as part of the reform of the European Union’s Common Market Organisation (CMO) for sugar in February 2006 to apply for four years from 1 July 2006. Under the scheme, sugar producers receive a degressive payment for permanently surrendering sugar production quota, in part or in entirety, over the period 2006-07 to 2009-10.

## WTO

World Trade Organisation created by the Uruguay Round agreement.

OECD PUBLICATIONS, 2, rue André-Pascal, 75775 PARIS CEDEX 16  
PRINTED IN FRANCE  
(00 2007 1M 1 P) – No. 88353 2007