Overview of the 2004 U.S. and World Outlook

Major Conditioning Assumptions

The Macroeconomic Environment

FAPRI baseline projections largely depend on two external factors: macroeconomic assumptions and agricultural policy assumptions. Macroeconomic projections used in the 2004 FAPRI baseline were obtained from Global Insight (formerly the DRI-WEFA). The major macroeconomic drivers of the 2004 FAPRI baseline are the continuing solid economic growth worldwide, and currency movements against the U.S. dollar, including appreciation of OECD currencies and depreciation of Latin American currencies, notably the Brazilian real and Argentine peso.

World economic recovery from the 2001-2002 slowdown is firming up. Several important economies, such as the EU, Japan, and Argentina, have emerged in 2003 with respectable real growth. The world economy is expected to grow at an annual average rate of 3.2% over the baseline.

In the NAFTA region, the U.S. economy grew by 2.8% in 2003; it is expected to peak in 2004, growing an additional 4.2%, and then to grow at about 3.2% per annum (PA) for the rest of the decade. Canada has been enjoying a long period of economic growth, including 2% growth in 2003. The growth is expected to accelerate to 3.6% in 2006 and then remain just above 3% (PA) until 2011, with some tapering in 2012/13. Mexico’s growth path has followed those of the United States and Canada but with more accentuated cycles. Mexico grew by 1.5% in 2003 and is expected to grow at about 3.6% (PA) for the remainder of the decade.

Asia posted an aggregate growth of 3.6% in 2003, with Japan emerging from recession. China, India, Thailand, and Vietnam, in particular, posted strong growth in 2003, between 5.8% and 7.7%, which translated into a solid expansion of food demand. Hong Kong, Indonesia, Korea, the Philippines, and Taiwan all experienced growth of between 2% and 3.7% in 2003. Growth rates within Asia converge, with most countries growing at 4% (PA) or better during the projection period, driven by strong consumer demand. Japan’s recession ended in 2003, when the economy grew 2.5%. The country remains stable, with annual rates of growth averaging 1.7% (PA) for the rest of the period.

China continues to be a bright spot in Asia, with an average rate of real growth of 6.7% (PA) for the decade. Although structural reform in its state-owned sector may result in some temporary unemployment, China’s integration in world markets should reinforce its growth. Its fixed exchange rate with the U.S. dollar has been fostering export growth.

The EU-15 region experienced moderate economic growth in 2003 (at 0.7%) after the slowdown of 2002. The recovery of the EU-15 solidifies in 2005, with growth rates above 2% (PA) thereafter. The Stability and Growth Pact in the EU requires governments to take measures to contain emerging budget deficits, thereby affecting their fiscal flexibility to promote growth objectives. In May 2004, 10 new members will join the EU-15 (see the next section on policy). Their economic performances in 2003 were stronger than were those of the EU-15 members. The bigger economies in the CEECs that are closely tied to the EU experienced strong growth: Poland, Hungary, and the Czech Republic grew at 3.4%, 2.8%, and 2.5%, respectively, in 2003. The EU New Member States (EU NMS) are expected to grow at about 4% to 5% (PA) over the baseline. The Baltics grew at even faster rates in 2003, between 4.7% and 6.8%. Other CEEC economies also did well in 2003.

Russia and Ukraine grew at a strong pace of 5.9% and 5.6% respectively in 2003. Average annual rates of real growth are expected to be between 4.1% and 4.7% over the baseline.

With the exception of Venezuela, the Latin American continent has been out of recession since 2003. Argentina grew by 5% in 2003. Brazil slowed to a 0.5% growth rate in 2003. A heavy debt burden and political instability still handicap Latin America’s performance. Nevertheless, the continent is expected to grow substantially over the decade, with an aggregate average annual rate of growth of 3.9%.

Currencies in developed-market economies appreciated against the U.S. dollar in 2003 and are expected to continue to do so over the decade. In particular, the Australian, Canadian, and New Zealand dollars and the euro appreciated notably in 2003. The
U.S. dollar also depreciated against currencies in Eastern Europe and the Baltics, except in Romania and Latvia in 2003. These depreciations progressively taper by the end of the decade.

On the other hand, beset by continuing economic and political challenges, all the Latin American countries are expected to continue to experience devaluation of their currencies relative to the U.S. dollar from 2004 on. The Argentine currency appreciated against the U.S. dollar in 2003 but this was the exception; all other currencies were devalued in 2003 with respect to the U.S. dollar. The competitiveness of Argentine and Brazilian exports is enhanced by these projected devaluations relative to U.S. exports.

Last year, currencies of the newly industrialized countries (NICs) (Korea, Taiwan, and Thailand) appreciated against the U.S. dollar, and similar appreciations occurred in India and Pakistan. As a result, the competitiveness of U.S. farm exports to these countries has been enhanced. This trend goes on for the NICs through the end of the period. In contrast, India and Pakistan see their currencies depreciate against the U.S. dollar: Pakistan starting in 2004 and India starting in 2005. China maintains its fixed exchange rate with the U.S. dollar over the baseline. Also, because of lingering political instability and the threat of war in the region, most currencies in Africa and the Middle East lose their value relative to the U.S. dollar over the baseline.

**Agricultural Policy Assumptions**

The FAPRI baseline assumes that all government programs and international agreements currently in effect will remain in place over the projection period. The biggest policy changes incorporated in the 2004 baseline are those associated with EU enlargement, with the accession of 10 countries, and EU CAP reform that came out of the midterm review of the CAP in 2003. The Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia, and Slovakia accede to the European Union in 2004, and CAP reform also begins in 2004, but the bulk of the reform starts in 2005. Specific reform provisions and FAPRI assumptions regarding the reform are summarized in Box 1 on the following two pages. The core spirit of the reform is to pursue further the decoupling of farm support from production decisions, which was initiated with the 1992 reform. Decoupling, when fully implemented, will take the form of a Single Farm Payment (SFP) and must be fully in place by 2007. Since limited coupled elements may be maintained to avoid abandonment of production and because the SFP creates wealth effects, the FAPRI baseline assumes that the SFP has a small supply-inducing effect.

In the EU NMS, a single area payment reform begins at the time of entry. There is no financial modulation (reduction in direct payments for bigger farms) until support reaches 100%, which occurs in 2013. There are no top-up payments (supplemental payments) after 2008.

The CAP reform also includes commodity-specific measures. Price cuts occur in the milk sector. The intervention price for butter is reduced by 25% over four years. For skimmed milk powder, a 15% reduction over three years is planned, as determined in the Agenda 2000. There is a reduction of the monthly increments in the cereals sector by half, but the current intervention price will be maintained. Other reforms affect rice, durum wheat, and other commodities not covered by the FAPRI baseline. Rye is excluded from the intervention system. The supplement for durum wheat will progressively decrease to €285/ha by 2006 and will be included in the SFP. The trade regime (border taxes) of incoming EU members is harmonized with the EU-15, and the FAPRI baseline assumes that price convergence occurs within three to four years.

Regarding the BSE crisis in North America and resulting policy changes, it is assumed that the U.S. beef exports drop by 52% in 2004 but recovers to normal levels in 2005. Canadian export of live cattle to the U.S. remains closed in 2004 and partially resumes in 2005. Full recovery is expected thereafter. Russia, the leading importer of broiler and second largest importer in beef and pork, introduced a new meat import quota. Regarding poultry, the avian influenza found in Texas in February 2004, which is negatively affecting U.S. poultry exports, is not accounted for in the 2004 FAPRI baseline. This incident occurred after the baseline was completed.

Under the Uruguay Round Agreement on Agriculture, the commitment schedule of developed countries for export subsidy limits, TRQ expansion, import duty
Box 1: EU Enlargement and CAP Reform

The major assumptions incorporated in the 2004 FAPRI outlook regarding EU enlargement and CAP reform are presented here.

**Timing:** Accession begins in 2004 for the Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia, and Slovakia. CAP reform begins in 2004, with some states implementing the single farm payment (SFP) in 2005.

**Decoupling:** Member states are expected to implement CAP reform in different ways, therefore resulting in different degrees of decoupling. The FAPRI baseline models an aggregate EU-15 and assumes partial decoupling for the aggregate EU phased in between 2005 and 2007. The SFP must be introduced by 2007. New member states are assumed to implement the simplified area payment in 2004 and then switch to the SFP in 2007.

**New direct payments:** New member states can provide top-up payments using national finances or funds for rural development given by the EU until 2006. These top-up payments are assumed as follows:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Top-up</td>
<td>20</td>
<td>27</td>
<td>22</td>
<td>17</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>EU payments</td>
<td>25</td>
<td>30</td>
<td>35</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>70</td>
<td>80</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>57</td>
<td>57</td>
<td>57</td>
<td>57</td>
<td>60</td>
<td>70</td>
<td>80</td>
<td>90</td>
<td>100</td>
</tr>
</tbody>
</table>

**Modulation:** In the EU-15, modulation rates are set at 3% for 2005, 4% for 2006, and 5% after that. New member states postpone modulation until support reaches 100% in 2013.

**Set-aside:** In the EU-15, set-aside is set to 5% for 2004, and 10% for 2005 and onward. Set-aside in new member states starts in 2007 and remains at 10%.

**Reduction in intervention prices:** The intervention price for butter was reduced by 25% over four years, and the skimmed milk powder price faces a 15% reduction over three years.

For grains, current intervention prices are maintained. Durum wheat aid is reduced to €313/mt in 2004, €291/mt in 2005, and then €285/mt from 2006 on. Rye intervention is eliminated.

**Dairy production quotas:**

<table>
<thead>
<tr>
<th>Country</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU-15</td>
<td>118.953</td>
<td>119.038</td>
<td>119.303</td>
<td>119.784</td>
<td>120.265</td>
<td>120.505</td>
</tr>
<tr>
<td>Cyprus</td>
<td>0.145</td>
<td>0.145</td>
<td>0.145</td>
<td>0.145</td>
<td>0.145</td>
<td>0.145</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>2.682</td>
<td>2.682</td>
<td>2.682</td>
<td>2.738</td>
<td>2.738</td>
<td>2.738</td>
</tr>
<tr>
<td>Estonia</td>
<td>0.624</td>
<td>0.624</td>
<td>0.624</td>
<td>0.646</td>
<td>0.646</td>
<td>0.646</td>
</tr>
<tr>
<td>Hungary</td>
<td>1.947</td>
<td>1.947</td>
<td>1.947</td>
<td>1.990</td>
<td>1.990</td>
<td>1.990</td>
</tr>
<tr>
<td>Latvia</td>
<td>0.695</td>
<td>0.695</td>
<td>0.695</td>
<td>0.729</td>
<td>0.729</td>
<td>0.729</td>
</tr>
<tr>
<td>Lithuania</td>
<td>1.647</td>
<td>1.647</td>
<td>1.647</td>
<td>1.705</td>
<td>1.705</td>
<td>1.705</td>
</tr>
<tr>
<td>Malta</td>
<td>0.049</td>
<td>0.049</td>
<td>0.049</td>
<td>0.049</td>
<td>0.049</td>
<td>0.049</td>
</tr>
<tr>
<td>Slovakia</td>
<td>1.013</td>
<td>1.013</td>
<td>1.013</td>
<td>1.041</td>
<td>1.041</td>
<td>1.041</td>
</tr>
<tr>
<td>Slovenia</td>
<td>0.560</td>
<td>0.560</td>
<td>0.560</td>
<td>0.577</td>
<td>0.577</td>
<td>0.577</td>
</tr>
</tbody>
</table>
**Trade regime:** External duty rates are harmonized with the EU-15. Internal rates are set to zero. Price convergence between the EU-15 and EU NMS is assumed to take three to four years.

**Cross-Compliance:** The FAPRI baseline does not include the increased cost of production from complying with standards regarding the environment, animal welfare, and food safety.

<table>
<thead>
<tr>
<th>Summary Table of EU CAP Reform and Enlargement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Decoupling (%)</strong></td>
</tr>
<tr>
<td>Livestock</td>
</tr>
<tr>
<td>2004</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>Crops and dairy</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td><strong>Modulation (%)</strong></td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td><strong>Set-aside (%)</strong></td>
</tr>
<tr>
<td>EU-15</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>EU NMS</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td><strong>Dairy Quota (mmt)</strong></td>
</tr>
<tr>
<td>EU-15</td>
</tr>
<tr>
<td>118.95</td>
</tr>
<tr>
<td>EU NMS</td>
</tr>
<tr>
<td>18.33</td>
</tr>
<tr>
<td><strong>Intervention Price &amp; premium</strong></td>
</tr>
<tr>
<td>Durum Aid (euros/mt)</td>
</tr>
<tr>
<td>313</td>
</tr>
<tr>
<td>Butter (euros/100 kg)**</td>
</tr>
<tr>
<td>316.72</td>
</tr>
<tr>
<td>NFD (euros/100 kg)**</td>
</tr>
<tr>
<td>200.38</td>
</tr>
<tr>
<td>Top-up payments (%)</td>
</tr>
<tr>
<td>20</td>
</tr>
</tbody>
</table>

* FAPRI assumes a very small crop response to the SFP due to wealth effects.

** Calendar-average prices of marketing-year prices.
reduction, and domestic support reduction are fixed at 2000 levels. Developing countries continue to implement their commitments through 2004 and their commitments are held fixed from 2004 to 2013. China became a member of the WTO in December 2001, as did Taiwan in January 2002. The FAPRI baseline includes all policy provisions of the accession of these two countries. The 2004 FAPRI baseline does not include any conjecture regarding future policy changes brought about by the Doha Round initiated in November 2001 at the ministerial meeting of the WTO. Market liberalization provisions planned under NAFTA for Mexico are included in the baseline.

The Outlook for U.S. Agriculture

Crops

Prices for most major U.S. crops are much higher in 2003/04 than they were just two years ago. For some commodities, the current strength in prices is primarily explained by weather and other temporary factors, implying that prices are likely to fall when more normal conditions prevail. For other commodities, the strength in prices appears to reflect fundamental strength in demand that may persist beyond the current marketing year.

In the face of strong demand, the lowest U.S. soybean yields in 10 years have resulted in sharply higher prices for oilseeds and oilseed products. If yields rebound in 2004, the result could be a large increase in production and significantly lower prices. Longer-term prospects for U.S. oilseed markets depend in large part on export demand. Of particular importance is the balance between the growth in competition from South America and demand from China and other countries.

Strong domestic and export demand has supported grain prices in spite of record U.S. wheat yields and record U.S. corn production in 2003. Reduced grain production in Europe and a reduction in Chinese exports account for much of the strength in export demand for U.S. wheat and feed grains. In addition, domestic demand for corn has been especially strong, in part because of increased demand for corn to be used in the production of ethanol.

A return to normal yields in 2004 would imply lower U.S. wheat yields and higher European grain yields than observed in 2003. For U.S. wheat, this combination would imply significantly lower 2004/05 exports but prices near 2003/04 levels. For corn, continued growth in ethanol demand and further reductions in Chinese corn exports could offset the impact of yet another record U.S. corn crop. Indeed, USDA estimates released after this baseline was completed in January suggest even stronger 2004/05 corn demand and prices than reported here.

U.S. rice prices have increased sharply in 2003/04 in response to reduced domestic supplies. Beginning stocks were reduced by large U.S. export sales in 2002/03, and 2003 U.S. rice production was reduced by a significant reduction in area planted. For 2004, U.S. rice acreage and production are projected to increase, putting downward pressure on market prices. While U.S. prices increase with world prices in later years, U.S. rice producers continue to receive much of their income from government payment programs.

Strong export demand from China and other countries and continued tight domestic supplies contributed to the recovery in U.S. cotton prices over the last two marketing years. While U.S. mill demand continues to decline in the face of increased imports of textiles and apparel, U.S. cotton exports have increased sharply, accounting for two-thirds or more of total use. If export demand weakens as projected in 2004/05, U.S. cotton prices could decline slightly but still remain well above the depressed levels of 2001/02.

U.S. sugar markets are strongly affected by price support and trade policies. Weakening domestic sugar demand (perhaps in part because of interest in low-carbohydrate diets) contributes to a significant increase in projected carry-out stocks in 2003/04 and is likely to result in lower marketing allotments for 2004/05. Imports from Mexico are projected to increase after tariffs are removed under NAFTA, putting further pressure on U.S. sugar markets. The baseline does not include effects of the Central American Free Trade Agreement or any other agreements that had not been approved by Congress by January 2004.

Livestock and Poultry

Animal diseases have had a major impact on U.S. livestock and poultry markets in 2003 and 2004. If there are no new outbreaks here or in other countries, the market impacts will eventually fade, but the short-run impacts on markets are very real. Other factors also play an important role in market dynam-
ics, so it is both important and difficult to separate effects caused by disease outbreaks from what would have otherwise occurred.

U.S. cattle markets were relatively tight in 2003 even before the May BSE case in Canada closed the border to U.S. imports of Canadian cattle and beef. U.S. cattle prices rose dramatically in late 2003, with live cattle prices temporarily exceeding $1 per pound. Those high prices were unlikely to persist even before considering the effects of the U.S. BSE case in December 2003. The U.S. case caused most major importers to prohibit imports of U.S. beef, increasing domestic supplies and depressing market prices. However, in early 2004 there is little evidence of a negative U.S. consumer response to the BSE case, and market prices are similar to year-ago levels.

The short-run outlook for U.S. cattle and beef markets depends in part on when and how trade resumes. The baseline assumes a reopening of U.S. export markets before the end of 2004, with exports near pre-BSE levels in 2005. The baseline also assumes a reopening of live cattle trade with Canada in 2005. Actual timing of these decisions was uncertain when the baseline was prepared in January 2004, and further BSE cases could disrupt these assumed schedules.

Given the baseline assumptions, U.S. cattle and beef prices are likely to increase in 2005 and 2006, as U.S. cattle slaughter reaches its cyclical low. After several years of positive returns, the beef cow herd begins to expand, resulting in increased U.S. beef production and lower prices after 2006.

Avian influenza has been an important factor in U.S. poultry markets. Outbreaks in Asia were expected to contribute to strength in U.S. export demand. However, U.S. avian influenza cases that occurred after the baseline was prepared have resulted in considerable uncertainty about the U.S. poultry export outlook, at least in the short run. Chicken prices and returns increased in 2003 and are projected to remain strong in 2004. Lower feed prices could result in some moderation in chicken prices in 2005.

The U.S. hog sector has been characterized by continued increases in pork production in spite of a downward trend in sow numbers, as productivity has increased rapidly. The baseline includes some cyclical behavior but reflects further modest declines in breeding herd inventory and increases in productivity. U.S. market prices generally range between $38 and $45 per cwt for 51%-52% lean barrows and gilts, a lower range than generally prevailed before the late 1990s.

U.S. dairy markets have been volatile in recent years. Low prices in 2000 were followed by high prices in 2001 and low prices in 2002. Milk prices staged a mild recovery in 2003 in response to slower growth in milk production, and prices in early 2004 have been stronger than anticipated at the time the baseline was prepared. Projected milk cow numbers continue to decline as productivity increases, and all-milk prices average about $13.00 per cwt.

Government Outlays and Farm Income

Higher market prices contribute to a projected $6 billion decline in U.S. government spending on farm programs in fiscal year 2004 (October 2003–September 2004). Expenditures under the marketing loan and countercyclical payment programs depend on market prices, and prices in 2003/04 for most crops are high enough that loan program spending is greatly reduced and countercyclical payments are small or unavailable for feed grains, wheat, and soybeans.

The projected weakening of prices for several commodities results in a modest increase in government farm program spending from 2005 to 2007, but spending remains much lower than experienced from 1999 to 2001. Costs associated with the crop insurance program and conservation programs authorized by the 2002 farm bill also increase over time.

U.S. net farm income rebounded in 2003 from very low levels in 2002. Higher prices for cattle and many other commodities contributed to the recovery, and more government payments were made in calendar year 2003 than in 2002, in part because of some timing issues related to the 2002 farm bill. In 2004, lower cattle prices and government payments contribute to a modest decline in net farm income. In subsequent years, projected net farm income remains in a relatively narrow range, between $45 billion and $50 billion per year, as receipts and production costs both grow at a modest pace.

The U.S. projections reported here represent FAPRI’s deterministic baseline, assuming average weather and demand conditions, as well as all the other
assumptions described earlier. FAPRI also prepares a set of stochastic baseline projections that represent 500 alternative futures for the U.S. agricultural sector, based on random draws on crop yields and a variety of other factors affecting supply and demand. Given the manner in which the stochastic projections are developed, the average of the 500 alternative futures is generally similar to the deterministic projections reported here.

Given the nature of U.S. farm programs, however, there are often large differences between deterministic and stochastic projections of indicators such as government program costs and net farm income. In general, average levels of government costs and net farm income are greater in the stochastic analysis than in the deterministic analysis reported here. The principal reason is that the U.S. loan and countercyclical payment programs are asymmetric in their effects—payments can be very large when prices are lower than average, but they can never be negative when prices are above average levels.

More about FAPRI’s stochastic analysis and stochastic results for government costs and net farm income can be found in the FAPRI 2004 U.S. Briefing Book at www.fapri.missouri.edu.

The Outlook for World Agriculture

Wheat

The world wheat price is projected to decrease by 2.8% to $140.8 per mt in 2004/03 because of the recovery in area and production. The main source of this supply increase comes from the EU-15, Eastern Europe, and the FSU. With an annual average growth rate of 0.24%, the Gulf FOB wheat price reaches $148.3 per mt in 2013/14. The stocks-to-use ratio was 21.5% in 2003/04, and it is projected to continue its downward trend though at a slower pace, reaching 18.7% in 2013/14.

In 2003/04, world wheat area was at a record low because of lower prices and unfavorable weather conditions in a number of countries. World wheat area is projected to increase by 7 mha in 2004/05 to reach 216.1 mha; it stays relatively stable at that level. Production is projected to increase to 591.2 mmt in 2004/05, aided by yield growth as well as an area increase. However, in later years the production increase comes mainly from yield growth, and wheat production reaches 652 mmt in 2013/14.

World wheat net trade increases to 82.5 mmt in 2004/05 because of a supply increase that lowers prices. This supply increase comes mainly from higher production rather than from the large release of stocks. Net trade grows 3.9% annually on average, reaching 109.7 mmt in 2013/14. The main source of this demand increase is from Asian, Middle Eastern, and African countries. Asian net imports increase by 20.2 mmt over the next decade, owing to population growth and trade liberalization. African and Middle Eastern countries increase their net imports by 11.8 mmt in the next 10 years, as food use grows with the population.

With declining per capita consumption, demand growth for food use comes mainly from population growth. Consumption grows 0.9% annually on average, reaching 651.6 mmt in 2013/14. Food use reaches 539.2 mmt in 2013/14, whereas feed use reaches 112.4 mmt in 2013/14.

Among Asian countries, China shows the strongest increase in demand and imports. China was a net importer in 2003/04, although a small one at 0.3 mmt. Despite higher production in 2004/05, an increase in net imports is projected because of a lower world price and less supply. In past years, the Chinese government has met the increase in demand in excess of production mostly by releasing stocks. However, this policy has greatly decreased the supply in recent years; therefore, despite higher production, net imports increase to 4.1 mmt in 2004/05 and to 6.4 mmt in 2013/14.

India has been a net exporter of wheat since 2000/01, but this is projected to change by 2006/07 when India becomes a net importer. India’s net imports of wheat reach 2.8 mmt in 2013/14 as consumption growth exceeds production growth, particularly in the later years.

Japan’s net imports increase 0.47% over the next decade and reach 5.6 mmt in 2013/14, as both feed use and food use are projected to be relatively stable throughout the baseline.

Among Latin American countries, Brazil maintains its surge in production with the help of recent policies aimed at increasing production. However, its net imports increase by 2 mmt over the next decade and
reach 7.1 mmt in 2013/14, as the production increase is not enough to meet the growing food-use demand. Increasing domestic consumption and limited production growth drives Mexican net imports of wheat up to 3.7 mmt in 2013/14.

African and Middle Eastern countries make up nearly half of the market for wheat imports, and they are the second-fastest-growing market for wheat. Egypt’s net imports grow 2.6% annually, reaching 8.1 mmt in 2013/14. Iran’s net imports grow 11.2% annually, reaching 2.8 mmt in 2013/14.

EU-15 production was low in 2003/04, at 91 mmt, because of unfavorable weather conditions. A lower set-aside rate at 5% and a return to normal weather conditions increase production to 102.7 mmt in 2004/05. In the remaining years, the source of production growth is mainly yield growth, as a limited area increase is expected. Net exports recover to 6.9 mmt in 2004/05 and reach only 9.3 mmt in 2013/14, as a strong euro hinders export growth. The impacts of the CAP reform are mainly observed in the decline of durum wheat area and production. The EU-15 recovers its market share in 2004/05 to 8.3% and increases it slightly in the next decade.

Argentine wheat production and net exports decrease slightly in 2004/05, as area decreases because of relatively higher soybean returns. However, production recovers in later years and reaches 20.9 mmt in 2013/14. Meager consumption growth and devaluation of the peso make Argentina competitive as an exporter in world markets. Net exports increase by 6.8 mmt over the next decade and reach 14.3 mmt in 2013/14.

Canadian wheat area and yield recovered in 2003/04, increasing production and net exports. This trend is projected to continue in the next decade, with production reaching 30.7 mmt in 2013/14. Net exports reach 21.7 mmt in 2013/14 as consumption growth lags behind production growth.

Australia’s wheat production grows annually by 1.5% on average, reaching 28.3 mmt in 2013/14. This, combined with a downward trend in domestic consumption, particularly feed use, allows Australia to export 22.4 mmt in 2013/14.

U.S. net exports of wheat are projected to decrease by 4.5 mmt in 2004/05, to 24 mmt, because of production recovery in the EU-15, Eastern Europe, and the FSU. Therefore, U.S. market share decreases to 29.1% in 2004/05 from 38.3% in 2003/04. Although U.S. net exports reach 26.1 mmt in 2013/14, U.S. market share is lower in 2013/14, as other exporters capture most of the demand increase.

Coarse Grains

The world coarse grain area increases by 2.2 mha, to 239.5 mha, in 2004/05 and stays relatively stable at that level for the rest of the projection period. Corn’s share in area increases slightly, at the expense of sorghum and barley, reaching 59.1% in 2013/14. World coarse grain production grows 1.5% annually on average, reaching 934.2 mmt in 2013/14. In 2003/04, world coarse grain consumption exceeds production by 40.1 mmt because of a large release of stocks, though this gap narrows over the next 10 years. Consumption grows 1% annually on average, reaching 933.1 mmt in 2013/14. Net trade in coarse grains reaches 109 mmt in 2013/14. Barley markets experience the fastest growth in coarse grain trade because of recovery in production and higher demand from Asian countries. Corn has the second-fastest growth.

In 2003/04, the supply of corn increased more than demand because of large releases of stocks, and this put a downward pressure on the corn price. In 2004/05, stocks are projected to be released at a lower pace, putting pressure on supply, although production increases by 24.7 mmt. Thus, the Gulf FOB corn price is projected to increase to $105.2 per mt in 2004/05 and reach $108.1 per mt in 2013/14. The stocks-to-use ratio was 10.5% in 2003/04; it is projected to decrease to 8.8% in 2013/14. World corn area increases to 139.6 mha in 2004/05 and reaches 141.6 mha in 2013/14. The area increase combined with yield growth raises production to 631.8 mmt in 2004/05 and to 717.9 mmt in 2013/14.

Feed use increases by 46.8 mmt in the next decade because of growth in demand from the livestock sector. The bulk of this demand increase comes from Asian and Latin American countries. Food use grows 1.3% annually on average, reaching 230.7 mmt in 2013/14, though per capita consumption grows at a much lower rate.

In 2003/04, world corn net trade was lower, at 73.1 mmt, as the increase in demand was met with
domestic releases of stocks, such as that in China. In 2004/05, a decline in the release of stocks puts downward pressure on supply and in turn increases corn trade, though only slightly, because of the higher corn price. Over the next 10 years, corn net trade grows 1.8% annually on average because of higher demand from Asian and Middle Eastern countries; it reaches 87.4 mmt in 2013/14.

In 2004/05, Argentina’s corn area and production are projected to decrease as farmers partly switch to soybeans because of relatively higher returns. Net exports decrease by 0.4 mmt in 2004/05, dropping to 8 mmt. In the latter part of the projection period, production recovers and Argentina’s net corn exports reach 14.2 mmt in 2013/14. Hungary’s corn sector benefits from becoming an EU member; area and yield growth increases production and exports. Hungary’s net exports of corn reach 3 mmt in 2013/14. South African net exports reach 1.6 mmt in 2013/14. The U.S. increases its market share in 2004/05 to 72.4% and continues this trend until 2007/08. However, after that the U.S. starts losing part of its market share to the other major exporters.

Asian corn imports grow the fastest over the next 10 years, followed closely by African imports. Once a large net exporter of corn, China is projected to become a net importer by 2005/06. Growth in the livestock sector increases feed use, particularly in the outer years. Despite a steady release of stocks, demand growth outpaces supply growth. China’s net imports of corn reach 3.7 mmt in 2013/14. South Korea increases its imports by 1.8 mmt over the next 10 years because of higher feed use. Taiwan and Malaysia experience slower growth in their net imports, whereas Japanese imports decline. Among Latin American countries, Mexico remains a major importer, with imports reaching 11 mmt in 2013/14. Middle Eastern corn imports reach 7.4 mmt in 2013/14, whereas African corn imports reach 13.8 mmt in 2013/14.

World sorghum trade was higher in 2003/04 as the recovery in area increased production. In 2004/05, production increases by 3.3 mmt, lowering the world price by 6.6%, to $103.6 per mt. World net trade decreases to 5.4 mmt in 2004/05. It picks up in later years, though not reaching its 2003/04 level. Japanese imports increase slightly, to 1.6 mmt, in 2004/05 because of the lower world price; they stay near that level. Mexico’s sorghum imports are projected to fall below their past levels over the next decade, as more corn is used as feed. Mexican net imports reach only 2.8 mmt in 2013/14. U.S. market share increases to 90% in 2004/05 and stays at that level at the expense of Australia and Argentina’s shares.

World barley production was higher in 2003/04 at 139.6 mmt because of the recovery in Australian and Canadian production. It increases further in 2004/05 and onward as production in the EU-15, Eastern Europe, and the FSU recovers after unfavorable weather conditions in 2003/04. Therefore, the world barley price decreases by 4.5%, to $88 per mt, in 2004/05. Net trade decreases to 12 mmt in 2004/05 but increases afterward, reaching 15.5 mmt in 2013/14. The main demand increase comes from China, Saudi Arabia, and Africa. The EU-15 recovers its area and production, leading it to export 2.3 mmt in 2004/05. Australian and Canadian net exports reach 4.5 mmt and 3 mmt respectively in 2013/14. Ukrainian and Russian production recovers over the next 10 years, but the countries do not reach their previous export levels.

Rice
After three years of low international rice prices, larger trade and tighter supplies pushed Thai long-grain prices above $200 per mt in 2003. Rice prices are projected to rise at 4.9% annually over the baseline. The baseline projection of prices reflects annual growth in global rice consumption of 0.9%, net rice trade expansion by 3.3% annually, and only a modest rebuilding of global stocks. While total global rice consumption is rising, average world per capita rice consumption declines by 1.4 kg over the next 10 years.

World rice area grows less than 0.3% per year over the baseline, indicating that yield growth is the main source of the production growth. Continued development and adoption of higher-yielding rice varieties in many countries keeps average rice yields rising at 1.0% annually.

Supported by global trade liberalization efforts, regional trade agreements, and national policy reforms, world rice trade grew at 4.9% annually during the last 10 years. As the baseline projection assumes no policy changes, rice trade is expected to continue to increase but at a slower rate of 3.3% per year, with total trade
reaching 35.0 mmt by 2013. Rice will remain thinly traded, with the ratio of global trade to production increasing to only 7.7%.

Over the forecast period, Indonesia, Bangladesh, Nigeria, the Philippines, Saudi Arabia, and Iraq account for 61.0% of the total growth in global rice imports, with 28% attributable to Indonesia alone. Indonesia’s rice area is stable over the baseline period. EU enlargement, recent rice policy reforms, and the EBA agreement cause EU rice imports to grow at 3.5% annually; they reach 1.6 mmt by 2013. In the Western Hemisphere, Brazil is the leading but most variable rice importer. Brazil’s production supplies 90% of its total domestic needs. Production is projected to expand at an annual rate of 1.1%, resulting in a decline in import demand over the next 10 years.

Thailand, Vietnam, and India are projected to dominate global rice exports. These three countries accounted for 57% of global exports in 2003, and their combined share increases to 63% by 2013. A 1.1% annual decline in per capita consumption in Thailand offsets population growth, causing a decline in total rice consumption and a rise in exports from 8.0 mmt in 2003 to 10.4 mmt by 2013. Vietnam’s rice production expands more rapidly than consumption, driven by an annual yield growth rate of 1.7%. The result is an increase in exportable surpluses, from 4.0 mmt in 2003 to 7.0 mmt in 2013. India exported only 2.5 mmt of rice in 2003 but is projected to recover to the 2001 level of 4.5 mmt by 2007.

China’s rice exports are projected to be lower over the baseline as rice production area declines. Pakistan’s rice exports grow 1.2% per year, increasing from 1.7 mmt in 2003 to 1.9 mmt in 2013. In Myanmar, rice production increases 1.2% per year over the forecast because of gains in both area and yields. Rice exports from Myanmar increase from 500 tmt in 2003 to 916 tmt by 2013.

U.S. total rice exports peaked at 3.8 mmt in 2002. Continued growth in per capita consumption during the baseline leads to a rise in total U.S. rice consumption from 3.8 mmt in 2003 to 4.6 by 2013. Over the baseline, U.S. rice area is expected to range between 1.25 and 1.30 mha, with the average yield growing at 1.0% annually. Baseline exports stabilize over the same period at 3.2 mmt.

Argentina and Uruguay are the two largest rice exporters in South America and, as members of the MERCOSUR, ship most of their rice to Brazil. Argentina’s rice exports grow at 8.3% per year over the projection period, as more production surpluses result from a combination of expanded area and higher yields. The bulk of Uruguay’s rice production is exported, and over the baseline, exports increase from 625 tmt in 2003 to 1.1 mmt in 2013.

Over the projection period, Australia is expected to recover from significantly reduced exports; shipments increase from 325 tmt in 2003 to 707 tmt in 2013. Egypt’s rice production increases by 1.9% per year, driven by moderate increases in area and yields. Egyptian rice export shipments increase only slightly over the baseline, as domestic rice consumption absorbs much of the increase in rice output.

**Oilseeds**

World oilseed, protein meal, and vegetable oil prices climbed strongly in 2003/04, driven by robust demand and tightening supplies. Prices are expected to fall significantly in 2004/05 under the pressure of record supplies. World oilseed area is predicted to increase 1% annually, reaching 184 mha by the end of the projection period. Oil palm plantings increase by 2% per year. World vegetable oil consumption grows 2.6% annually over the next 10 years. Half of this increase is due to population growth, and the other half is due to higher per capita consumption.

In 2003/04, because of strong prices, soybean, rapeseed, sunflower, peanut, and oil palm areas expanded. As a result, total oilseed area increased by 10%, to 166.4 mha. Next year, the area expansion is expected to be led by soybean area growth. Total oilseed area increases by 17.8 mha during the baseline. About 85% of the area increase is due to South American soybean area expansion; rapeseed, sunflower, and peanut areas stay flat. Total oilseed production reaches 394 mmt in 2013/14, with the increase driven by growth in both area and yields. Oilseed crush increases 29% to meet the rising demand for oilseed meal and oil. Strong income growth in developing countries increases the demand for vegetable oils and livestock products, which increases the demand for oilseed oils and meals. Each importing country’s domestic policy and crushing capacity dictate whether oilseeds or
oilseed products are imported. Considering these factors, world oilseed trade is projected to increase by 45%, while meal and oil trade each increase 34%.

Soybean area in 2003/04 increases 7% compared to last year’s figure, with the largest growth occurring in Brazil. Over the course of the baseline, world soybean area expands by 17%. Yield improvements and area expansion lead to a total production increase of 75 mmt by 2013/14.

Soybeans account for the bulk of the growth in import demand, followed by rapeseed and sunflower seed. The majority of the increase in soybean imports occurs in China and numerous smaller importers in the Middle East and North Africa. China strengthens its position as the largest importer of soybeans because of strong per capita oil demand, demand for meal from the livestock sector, and Chinese grain policies. Chinese soybean net imports almost double over the baseline, rising from 23 mmt in 2003/04 to 45 mmt in 2013/14. EU imports are stable at around 19 mmt. Brazil captures 63% of the trade expansion, and the U.S. and Argentina capture 9% and 25% respectively. In 2004/05, world rapeseed trade continues to recover from its dramatic decline in recent years. World trade expands at 5.7% annually throughout the projection period. Canada dominates the export market for rapeseed, while China and Japan account for more than 60% of rapeseed imports.

Oilseed meal consumption increases sharply, from 181 mmt to nearly 237 mmt by the end of the projection period. The highest absolute increase is expected in soy meal consumption, which grows by 50 mmt. Soy meal also accounts for the majority of the growth in oilseed meal trade. The EU is the largest importer of soy meal, and its imports increase from 24 mmt in 2003/04 to 28 mmt in 2013/14. Driven by strong expansion in its livestock sector, China consumes an additional 17 mmt by 2013/14. U.S. consumption increases 2% annually, but the U.S. share of world consumption falls slightly.

Increasing incomes in less-developed countries play a crucial role in the more than 26 mmt increase in vegetable oil consumption by 2013/14. On a per capita basis, world vegetable oil consumption is expected to increase by an average of 0.2 kg per person annually over the baseline. Annual world soybean oil consumption grows by 3.3%, while rapeseed and sunflower oil consumption grow only 1.3% and 1.7% respectively. Palm and palm kernel oil demands also expand strongly, on average at around 3% annually. Despite its focus on domestic production of meal and oil, China is expected to increase vegetable oil imports by 30% because of strong per capita consumption growth over the baseline. India remains the largest soybean oil importer, with its imports reaching 2.2 mmt. India is also the largest importer of palm oil; because of continued growth in population and income, imports increase from 3.6 mmt in 2003/04 to 4.7 mmt by 2013/14.

Cotton

What a difference a year makes. Short crops and strong demand have caused the A-Index price of cotton to rise from $0.42 per lb. in 2001/02 to an anticipated $0.72 in 2003/04, while the U.S. farm price has moved even more dramatically, from $0.30 to $0.63 per lb. over the same period. World cotton consumption has remained solid, at over 97 million bales in 2003/04 and over 100 million bales expected in 2005/06.

As textiles and clothing finalize the transition to general GATT rules, mill use in developed countries continues to contract while mill use in developing nations expands. Mill use in China increases 20% over the baseline while that in Pakistan and Turkey increase 21% and 28% respectively. Over the same period, mill use in the U.S. contracts 31% and that in the EU contracts 35%.

As U.S. mill use has declined, exports represent a majority of cotton demand. In 2003/04, exports comprise 13.3 million bales compared with 6.2 million bales of mill consumption. By the end of the baseline, exports are three times the size of the declining mill use number of 4.25 million bales. Acreage response in 2004/05 pushes area to 12.7 million acres, but area declines steadily throughout the rest of the baseline. U.S. producers are becoming increasingly export dependent.

Chinese production is down marginally in 2003/04 at just over 22 million bales. Stocks, dramatically reduced in previous years, fall to their lowest point in recent history at just under 6.8 million bales. The result is an import level of nearly 7 billion bales in 2003/04. In response, an increase in production to 27.3 million bales in 2004/5 is expected, as continued expansion in consumption maintains imports at 5.2 million bales, with that number rising through the end of the baseline. Brazil has increased its area in 2003/04 to 2.4 million
acres and the baseline has acreage continuing to expand to 4.2 million acres by 2013/14 as new land is made available. Yields are already quite good and continue to advance, pushing production to over 9.3 million bales in 2013/14. Despite increasing consumption, exports reach 4.7 million bales at the end of the period, providing strong competition for U.S. exporters.

After the 2003/04 price recovery, the world A-Index price falls to $0.63 in 2006/07, then begins to recover, reaching $0.70 by the end of the period.

Sugar

World sugar production increases by 22.4% by 2013/14 and world sugar consumption grows, on average, by 2% per year during the projection period. The world sugar market has experienced low prices in the past few years as a result of excess supply and above-normal inventory accumulation. Given no anticipated change in the oversupply situation in the coming years, the sugar price is not expected to recover in the near future. The sugar price increases by about 14% in 2009/10 as the EU-15 further reduces its beet acreage and production to meet WTO subsidy limits and accommodate the higher sugar imports from EBA countries resulting from liberalization of the EU sugar markets in 2009. The sugar price is projected to recover gradually, with the increase in sugar imports resulting from higher consumption and as countries with excessive sugar stocks continue to reduce their inventories. By 2013/14, the price increases steadily, to 9.1¢ per pound, an increase of about 33% over the baseline. Following a drop in world sugar net trade by 15.7% in 2000/01, net trade grew by about 16% in both 2001/02 and 2002/03 and is predicted to decrease slightly, by 0.5%, in 2003/04. Net sugar trade is expected to increase by 7 mmt between 2003/04 and 2013/14.

Australia, Brazil, Cuba, the EU-15, and Thailand continue to be the major sugar-exporting countries. Together they are expected to account for nearly 88% of world sugar trade in 2003/04. However, with continued reduction in beet area by the EU-15, the region loses its place among the top five exporters by 2013/14. Brazil, the world’s largest sugar supplier, continues to increase sugar production in 2003/04 because of favorable weather conditions, increased cane area, and higher yields. Further increases in sugarcane production are expected, as Brazil targets new ethanol markets for export. Brazilian net exports reach 18.7 mmt by 2013/14. Australian sugar production declines by 5% in 2003/04 because of widespread drought. Barring poor weather conditions, sugar production in Australia is projected to increase by 37% between 2003/04 and 2013/14 as a result of improved yields. Sugar consumption increases by 21.7% during the projection period. Australian net exports increase by 42.7%, from 3.9 mmt in 2003/04 to 5.5 mmt by 2013/14.

Cuba suffered a 1.4 mmt decline in sugar production in 2002/03, the combined effect of bad weather conditions, severe fuel shortages, and massive restructuring of the sugar industry. Sugar production increases in 2003/04 by 19%, to 2.7 mmt, and is expected to increase to 4.1 mmt by 2013/14. Current EU-15 production quota reductions to fulfill WTO export subsidy limits and expected future reductions to accommodate increased imports from EBA countries result in a decrease in beet production by about 10% between 2003/04 and 2013/14. Partly as a consequence, world sugar beet area harvested decreases by 3% during the projection period. EU-15 sugar production and net sugar exports are expected to decline by 8% and 65.8% respectively during the same period. The EU-15’s per capita sugar consumption increases by 1.2% between 2003/04 and 2013/14, as the region has a saturated domestic sugar market. Thailand’s sugarcane production increases by 5.3% in 2003/04. Raw sugar production and net exports in Thailand are projected to increase by 2.7 mmt and 2 mmt respectively between 2003/04 and 2013/14.

China, Indonesia, Japan, Malaysia, and South Korea are projected to account for about 20% of world net trade by 2013/14, and Asia remains the largest importing region. Chinese net imports of sugar reach 1.5 mmt by 2013/14 as consumption increases because of a higher standard of living and the Chinese government’s continued restriction of saccharine and other sweeteners. India converts from a net exporter of sugar to a net importer as the country continues to reduce its high sugar stocks through domestic consumption and exports. Indian net sugar imports reach 1.1 mmt by 2013/14. Japan’s sugar consumption continues to decline, as it has in the past decade. As a result, Japanese net sugar imports decline by about 20% by the end of the projection period. Algeria increases its net imports by 15%, from 1.3 mmt in 2003/04 to almost 1.5 mmt, by 2013/14.
Although Russia and Ukraine combined remain large importers of sugar, accounting for about 13% of world trade by 2013/14, projections are of smaller increases in imports from recent levels, as the countries move toward increasing domestic beet production and reducing their market share of imports. Net sugar imports in the U.S. are projected to increase by about 25% between 2003/04 and 2013/14. Since the current HFCS-sugar dispute between the U.S. and Mexico remains unresolved, projections indicate continued lower Mexican sugar exports, with Mexico gaining complete access to U.S. sugar markets in 2008.

Livestock and Poultry

The major event that would shape the outcome of the world meat market in 2003 and beyond was the BSE scare in North America. The first case was confirmed in Canada in May 2003, followed by the U.S. case in December of the same year. This resulted in the closing of borders in many major beef markets, including Japan, South Korea, and Mexico. However, after 2004, the outlook for the world meat sector in the next decade shows increases in consumption, production, and trade, and strengthening of world meat prices. The main driver on the demand side is economic recovery in many regions, with average growth rates ranging from 3.70% in Latin America to 4.83% in the FSU. Most countries achieve full economic recovery in 2004/05. As a result, per capita consumption of beef, pork, and poultry increases by 4.29 kg between 2003 and 2013. On the other hand, meat production capacity continues to expand. Structural transformation into larger-sized operations leads to the adoption of technological improvements and advanced management practices that continue to raise breeding herd productivity and feed efficiency. Moreover, several policy and institutional changes around the globe are improving the functioning of world markets. These include market-oriented domestic policy reforms, such as the 2003 CAP reforms in the EU and the enlargement of the Union with 10 additional countries from Central Europe and the Baltic; and favorable institutional arrangements, such as the bilateral veterinary agreements between several countries (Russia and the U.S., Brazil and Canada, Brazil and China). Somewhat of a setback was Russia’s introduction of new quotas in meat imports beginning in 2003.

The beef price in the U.S. soared to new highs in 2003, reaching $84.69/cwt (a 26.33% increase) as live cattle trade from Canada to the U.S. was completely stopped after the BSE case in Canada was confirmed, and only boneless meat products from cattle less than 30 months of age were allowed early entry. The high beef price also caused both pork and broiler prices to increase by 12.97% and 11.51%, respectively, as consumers substituted away from the relatively more expensive beef products. But after the U.S. BSE case was confirmed in December of the same year, prices took a plunge, declining by 10.90% as major markets closed their borders until adequate measures could be taken to allay consumer fears about the safety of U.S. beef products.

The pork price cycles throughout the baseline. After a decline of 3.25% in 2004 due to BSE, the pork price peaks in 2006 at $42.40/cwt and again in 2011 at $45.34/cwt, which is 6.94% higher. In the case of broilers, strong demand helps maintain the price level at the $60/cwt range throughout the baseline. Responding to higher meat prices, world meat production rises 19.66% during the projection period, reaching 232.36 mmt in 2013, or an increase of 38.17 mmt. Broiler production shows the fastest growth at 25.45%, followed by a 17.73% increase in beef production, and a 17.31% increase in pork production. Income and population growth and various production constraints enable consumption to rise faster than production in many countries, prompting these countries to satisfy their excess demand with low-cost imports. Total meat trade increases by 3.29 mmt, or 28.68%, over the baseline.

Low-cost producers in the Americas who have managed SPS challenges capture a growing share of international meat trade throughout the baseline. Even with abundant feed supplies, advanced production technologies, and adequate transport and storage infrastructure, beef exports from the U.S. and Canada were compromised in the short run because of food safety issues. The U.S. share of total meat trade was at an all-time low of 13.88% in 2004. The U.S. regains market share toward the end of the decade, at 23.93%. The devaluation of its currency by 4.3% coupled with strategic investment in infrastructure in the grain-rich Center-West regions improves Brazil’s competitive edge relative to other meat exporting countries.
Beef

Japan is the leading net importer of beef in the world, but its net imports have been slowed by a combination of a weak economy and a crisis in consumer confidence due to BSE and the mislabeling scandal. Per capita beef consumption for imported beef was affected the most, declining 19.36% in 2002. Recovery of beef consumption in 2003 was moderate because of the high world beef price and the triggered safeguard. Net imports are projected to decline again in 2004 as Japan’s border remains closed to U.S. beef exports after the U.S. 2003 BSE case. However, a continuing 1.19% annual decline in production and a 1.87% annual growth in consumption fuel a net import expansion of 4.04%; the volume reaches 1.16 mmt in 2013.

South Korea’s beef import market is already relatively open. It is governed by a “tariff-only” regime and its discriminatory beef retail distribution system was eliminated after a WTO ruling. After a 74.80% increase in beef net imports in 2002, imports remained unchanged in 2003 and dropped in 2004 because of product safety concerns. Net imports grow 2.31% over the rest of the decade, slowing in the later period as domestic cattle numbers begin to turn around. Beef imports balloon to 499 tmt (68% of consumption) in 2013. Historically, 95% of Taiwan’s beef consumption has been met with imports. A 3.85% annual growth in consumption directly translates into a 4.09% increase in net imports in 2013 (or 131 tmt), which represents 96% of Taiwan’s consumption demand.

China traditionally has been a net exporter of beef, with declining exports but small imports. With severe constraint of improved grazing area and poor animal genetics, production grows by only 4.27%, falling behind the 4.76% growth in demand. As a result, China becomes a net importer of beef, at 283 tmt, in 2013.

Mexico’s cattle inventory has been shrinking at an annual rate of 4.29% since 1994. Net imports decline by 3.53% in 2004 because of the U.S. BSE case. But growth in disposable income and population drive an expansion of beef demand. Given that recovery of its cattle sector will take a long period, Mexico’s beef net imports increase by 11.49% annually over the next five years. Mexico’s cattle inventory begins to turn around in 2007; therefore, after peaking at 801 tmt in 2009, net imports decline to 589 tmt in 2013. With the U.S. cattle sector still in a rebuilding phase and live trade at the Canada-U.S. border closed, feeder cattle export from Mexico to the U.S. jumped by 21.21% in 2003; it continues to grow in the next decade, reaching 1.23 million head in 2013.

Russia’s cattle inventory has been sliding since 1992. With production declining faster than the decline in consumption, Russia’s net imports jumped from 494 to 691 tmt in 2003 (they reached 1.055 mmt in 1997). Russia introduced a new beef quota (Ukraine is exempt) with an in-quota rate of 15% and an out-quota rate of 60%. Despite the quota, a continuing deficit due to faster growth in consumption fuels expansion of net imports; they peak in 2006 at 783 tmt. A turn-around in the dairy sector in 2010 slightly lowers imports to 744 tmt in 2013.

Canada’s beef net exports dropped by 52.15% in 2003 after a BSE case was confirmed in May of 2003. Due to the 2002 drought in Alberta and Saskatchewan, Canada had a relatively smaller animal inventory during the BSE crisis. Also, with a larger proportion of production retained in the domestic market rather than exported, the drop in prices induced an increase in consumption, unlike other countries with BSE cases. It is assumed that export of live cattle to the U.S. remains closed in 2004 and partially resumes in 2005. Full recovery is expected thereafter. Only boneless meat from animals less than 30 months of age was allowed early entry to the U.S. market. The baseline projects that Canada resumes normal meat trade in 2004. The abnormal animal inventory build-up allows meat exports to recover and expand quickly in 2004/05, at 400 tmt level, as markets begin to open again. After the impact of the BSE case wanes, exports grow at a normal pace of 7.78% for the rest of the decade.

The 2001/02 drought in Australia triggered slaughter and expanded exports during a period when other exporters faced SPS challenges. Fewer animals were left in 2003 as a result. After declining by 8.6%, exports recover in 2004 and exploit markets closed to U.S. beef; they continue to grow at 3.53% annually for the rest of the decade. Exports of live animals grow by 1.89% annually, reaching 1.13 million head in 2013. The Philippines and Indonesia are the primary destinations for Australian live cattle exports. Because Austra-
lia starts with a large market owing to the drought, its share drops by 6 points at the end of the decade.


Argentina’s FMD cases, mostly in swine in the northern part of the country, only slightly affected its traditional export markets. Weak domestic demand coupled with a high world price draws more Argentine exports beginning in 2004. Currency devaluation throughout the next decade at 4.75% improves Argentina’s competitiveness. Net exports in 2013 are 610 tmt.

Improvement in productivity, favorable domestic policies (credit, infrastructure, fiscal incentives), aggressive promotion, and a weakening currency enhance Brazil’s competitiveness. While other countries face SPS challenges, Brazil’s net export level expands in the short run by 14.26% annually, reaching a peak of 1.52 mmt in 2007. Brazil has 84% of its cattle in several states that are FMD-free. Net exports decline by 3.5% in the second half of the projection, as consumption growth of 2.45% exceeds production growth of 1.56%.

Recovery in consumption in 2002/03 allows release of all stocks accumulated under the special purchase scheme in the EU-15 by 2004. Termination of the OTMS beginning in 2004 raises production and consumption. In the long run, consumption resumes a downward trend while production decreases because there are fewer dairy animals. With decoupling of beef payments reaching the maximum level in 2007, beef production declines faster, by 1.02% annually. As a result, beef imports from non-EU countries and EU NMS increase, making the EU-15 a net importer.

**Pork**

The transformation of the pork sector in many countries has expanded productive capacity and improved productivity. However, rising incomes in countries that are not major pork-producing regions increase the demand for pork imports and boost world trade to 3.93 mmt by 2013, an increase of 0.89 mmt (29.59%). The pork price declines in 2004 by 3.25%, partly because of the 10.90% drop in the beef price. The pork price cycles for the rest of the decade. It peaks in 2006 at $42.40/cwt and again in 2011 at $45.34/cwt, which is 6.94% higher. Pork production grew by 2.33% in the last three years, benefiting from food safety problems in beef. Over the baseline, pork production increases at a rate of 1.77% (or 15.63 mmt), reaching 105.91 mmt in 2013.

Recovery in beef consumption slowed growth in pork consumption in Japan. With ample domestic supply and the triggered safeguard, pork imports dropped by 1.03% in 2003. Over the rest of the decade, net imports grow by 2.15%.

Taiwan’s pork sector was devastated by the 1997 countrywide FMD outbreak and subsequent ban of exports to Japan. Production declined by 28.92% between 1996 and 2003. With WTO accession, production increases only slightly, by 0.91%, and imports expand by 13.28% to meet the 1.50% annual increases in consumption. Since 1995, China’s net export of pork has steadily declined. China is a potentially large market, but market penetration is projected to be modest because a large portion of China’s pork supply still is produced cheaply by backyard producers. The share of commercial farms is increasing over time. They mostly supply the coastal cities and export to Hong Kong. The cost structure of these farms is comparable to producers in the West. With the reduction of duties from 20% to 12% and with the opening of distribution businesses to foreign firms, the slight differential in the growth of consumption at 2.36% and production at 2.25% is met by more imports, which are expected to reach 168 tmt in 2013. China’s export potential is constrained by SPS issues. Pork consumption in Hong Kong grows 1.33% annually. With production, mostly from imported live swine, declining by 1.40%, pork imports increase by 2.75% annually, reaching 357 tmt in 2013.

South Korea successfully penetrated the Japanese market when Taiwanese pork was banned in 1997. However, South Korea’s market was also closed after its own FMD outbreak in 2000. With consumption, at 2.61%, growing faster than production, at 2.34%, South Korea’s net imports increase, reaching 161 tmt in 2013.
Improved consumer purchasing power and population growth caused pork consumption in Mexico to increase by 2.50%. Despite some industry integration, a limited supply of cheap feeds and credit problems keep growth in domestic production lagging behind at 2.37%. As a result, pork imports increase by 3.01%, reaching 387 tmt in 2009.

Russia introduced a new pork quota with an in-quota rate of 15% and an out-quota rate of 80%. Coupled with faster capital turnover and better feed supplies, Russia attracts more investments in swine production, causing pork production to expand by 2.52% annually. With a weak recovery in consumption, at 1.23%, pork imports decline by 2.47%, ending at 451 tmt in 2013.

Owing to an abundant supply of cheap feeds, continuing improvement in productivity, adequate processing, storage, and transport infrastructure, and fewer SPS cases, producers in North America continue to capture the growth in the international pork market. With annual production growth of 1.20% exceeding annual consumption growth of 0.99%, net exports from the U.S. increase by 8.80% annually, allowing the U.S. to increase its market share by 1.97 points.

Pork production in Canada grows by 2.72%, exceeding consumption growth of only 1.11%, as investments in hog production and processing are expanded, allowing for more pork exports. Net exports grow by 4.37% annually, reaching 1.29 tmt in 2013, translating into an 8.06 point gain in market share. Canada matched the growing demand for feeder pigs by midwestern producers with increased investment in weaner pig operations. Canada’s export of live hogs to the U.S. jumped by 21.95% in 2003 and reaches 8.5 million head in 2013.

Net exports from the EU decline by an average of 6.31% in the next three years as they adjust to the loss of the Russian market with the new TRQ in place. As a result, the EU’s market share drops by 19.93 points. For the rest of the decade, net exports grow by 4.20%. However, environmental regulations and animal welfare requirements limit the EU’s long-term capacity, and production grows by only 0.69% annually. Poland and Hungary are the major pork exporters among the EU NMS. Growth in net exports in these two countries is mostly driven by their intra-EU trade.

Strong domestic and export demand fuels a 2.46% annual expansion in Brazil’s pork sector. Net pork exports grow by 3.73%, to 851 tmt in 2013. Improvement in productivity (breeding and feeding programs), favorable domestic policies (credit, infrastructure, fiscal), and a weakening currency improve Brazil’s competitiveness in the world pork market. Brazil’s market share expands by 9.86 points.

**Poultry**

Driven by its competitive price compared with that of other meats and by the perception that it is a healthier meat choice, poultry consumption in many countries grows faster than consumption of other meats over the baseline. Poultry has overtaken beef since 2001 as the second meat of choice, next to pork, based on the world’s average meat consumption basket. On the production side, the ready availability of advanced production technology and the relative ease in organizing contractual arrangements with producers enables many countries to respond to the growing demand by increasing production by 2.55% annually; production reaches 66.99 mmt in 2013. Where production is limited, increased consumption is met mostly through trade. Russia’s new broiler import quota slowed trade in 2003. Recovery begins in 2004 and trade grows by 26.80% in the next decade. Strong demand helps maintain a broiler price in the $60/cwt range over the projection period.

Under China’s WTO accession commitment, poultry has the lowest duty, at 10%, of all meats. Net imports reach 416 tmt in 2013, as growth in production of 3.13% falls short of the 3.56% increase in consumption. China also exports poultry, mostly products with high labor processing requirements, to the EU and Japan. Because of SPS concerns, the EU and Japan require strict inspection. The export of live chickens to Hong Kong from the mainland has been interrupted by past cases of avian flu.

Despite high production costs (reportedly as much as double U.S. costs), Taiwan’s import of poultry products has been very low, because imports outside the 45.99 tmt quota are penalized with prohibitive duties. WTO accession eliminates the quota in 2005 and replaces it with a tariff of 20%. As a result, poultry imports increase 21.36%, reaching 100 tmt in 2013, as annual production growth of 1.20% is short of meeting the 2.21% consumption growth.
Since the collapse of its poultry production in the early 1990s, Russia has depended on imports to meet domestic demand. Imports have supplied more than 80% of consumption demand in the past. In 2003, Russia introduced a new poultry import quota of 1.05 mmt, with nothing in excess allowed. As a result, net imports fall by 11.03% in 2004 and remain at the quota level for the rest of the decade. With limited supply, the domestic broiler price jumps by 38% in 2004 and by another 17% in 2005, stabilizing only when the industry reaches a balance with higher production and slower growth in consumption.

Japanese net imports declined by 5.94% in 2003 as consumers shifted back to beef and the domestic poultry supply remained ample. Net imports grow by 3.12% for the rest of the decade. Also, total imports increase in South Korea, Indonesia, and the Philippines from 101 tmt to 325 tmt. Saudi Arabia net imports grow by 5.78%, reaching 584 tmt by the end of the period.

Under NAFTA, Mexico liberalized its poultry import market in 2003 by removing the TRQ and its prohibitive out-quota rates. However, a new safeguard agreement is in place until 2008 with a specific TRQ on chicken leg quarters from the U.S. A shortfall in domestic production continues to be filled by net imports, which grow by 2.36% annually, reaching 340 tmt in 2013.

Strong exports and domestic demand drive the growth in Brazil’s poultry sector. Large investments in broiler production in the grain-rich Center-West region have been encouraged by fiscal incentives and subsidies from local governments. The use of high-performance breeding stock has improved productivity. As a result, production increases by 2.91%. In comparison, domestic consumption increases by 2.88%, leaving a large amount of exportable surplus. Devaluation of the Brazilian currency and export market promotion enable Brazil to increase its poultry exports by 3.02%. Most of these exports go to Russia, China, and the EU. Brazil increases its share of the export market by 9.07 points.

U.S. broiler production, consumption, and trade continue to grow over the baseline. The Russian ban on U.S. broiler exports partly explains the 13.46% decline in net exports in 2002, and the new TRQ slows growth in net exports to only 1.67% in 2003. But with abundant feed grains, efficient production, and adequate transport and storage infrastructure, the U.S. increases its net exports by 3.32% annually over the period, to reach 2.95 mmt in 2013. However, strong competition from Brazil reduces the U.S. share of broiler trade by 4.06 points.

Between 1998 and 2001, the EU’s net export of broilers decreased by 51.69%, allegedly because of the use of the “salted meat” category, which carries a lower duty than does frozen unprocessed poultry. Consumption growth at 1.36% exceeds production growth at 1.02%; thus, EU-15 exports to non-EU member states are stable to slightly declining, and imports from EU member states increase. The EU’s long-term prospects are not strong because of aggressive promotion by low-cost exporters in the EU’s traditional export market destination; introduction of new import quota by Russia; and higher feed costs due to the MBM ban, animal welfare rules, and other environmental regulations. The EU loses 5.82 points.

The EU NMS generate larger exportable surplus, as growth in production at 2.39% exceeds the 2.09% growth in consumption. But with lack of competitiveness with non-EU member states, most of this surplus ends as intra-EU exports.

The Thai poultry sector is expected to post a strong performance in this baseline. Productivity improves and investment in product innovation continues, with more emphasis on higher-valued products through processing. Despite higher costs, Thailand expands its export level, especially in the short run. Net exports increase by 2.22%, reaching 611 tmt in 2013. This is credited to an expansion of integrated producers, reduced processing costs, innovation investments, productivity improvements that translate into a lower feed conversion ratio, and a shift to higher-value products. The latter two improvements enable Thailand to expand its market share by 1.27 points despite the presence of low-cost competitors.

**Dairy**

Since 1998, world milk production has grown an average of 1% per year, with the most rapid growth occurring in China, India, Australia, New Zealand, and the U.S. Although the rate of growth in all of these countries is expected to slow somewhat in the next decade, robust growth in milk output in Latin America and Russia keeps the total annual growth rate at an
average of 1.2% throughout the baseline. Rising availability of milk in these countries, several of which have been substantial importers of dairy products in recent years, reduces the rate of expansion in dairy product trade for the next decade to below 1% for all products except WMP. Despite some easing on the demand side of international dairy markets, supply dynamics in Argentina and Australia, coupled with adjustments in the expanded EU, keep dairy product supplies tight and put upward pressure on prices over the medium term. International prices for all four major dairy products rise an average of 1% to 2% annually over the baseline. Butter prices recover from their historically low level in 2002 and remain above $1,500 per mt for the entire projection period.

North American milk production increases 9.4 mmt by 2013. Roughly two-thirds of the growth occurs in the U.S., and Mexico accounts for the remainder. Supply controls in Canada limit the expansion of milk production there to just under 300 tmt for the decade. The expansion in U.S. milk output is driven entirely by productivity growth, as dairy cow inventories continue to decline 0.5% annually. Fluid milk consumption in the U.S. maintains its downward trend, dropping 5 kg per person by 2013. U.S. per capita cheese consumption, however, rises 6.1% over the baseline, reaching 14.8 kg. Consequently, the bulk of the increase in U.S. milk production is processed into cheese for domestic consumption. Expansion of milk output in Mexico is generated by a 1.5% annual increase in productivity and 1.3% annual growth in the dairy herd. Over 40% of the additional milk is channeled into fluid consumption, facilitating a 6.4 kg increase in per capita use. Mexican NFD production doubles over the baseline, stabilizing import levels at 168 tmt. Cheese production in Mexico grows 85% to satisfy the 0.5 kg increase in per capita consumption. The significant increase in domestic cheese production reverses the recent growth in cheese imports by the end of the baseline, dropping import levels to 25 tmt.

Milk production in Argentina and Brazil is expected to rise 3% annually over the next decade. The Argentine dairy industry suffered a substantial setback with the onset of the economic crisis in 1999. Milk production declined more than 23% from 1999 to 2003, as low profitability in the sector prompted some producers to liquidate herds and shift pasture into crop production. Depreciation of the Argentine peso and renewed economic growth is improving prospects for Argentina’s dairy sector, and milk output is expected to post its first gain in five years in 2004. Recovery is expected to be gradual for the next five years but to accelerate after 2007. By the end of the baseline, Argentine milk production just exceeds the peak level in 1999. Argentina’s WMP exports recover steadily, to reach 150 tmt by 2013, and cheese exports increase more than 200%, to finish at 62 tmt. Brazil is a primary destination for Argentine dairy product exports, particularly WMP; however, expected increases in Brazilian milk supplies dampen import demand. WMP imports in the near term are also limited by the minimum import price imposed on Argentine exports as an outcome of Brazil’s anti-dumping case against Argentina. Brazilian policies recently introduced to improve the quality of raw inputs in the dairy industry promote a continued decline in Brazil’s dairy herd. Productivity per cow, however, rises 3.4% annually, generating enough additional raw milk to accommodate a 31% increase in fluid milk consumption, a 38% rise in WMP production, and 21% growth in cheese output. Despite these tremendous gains, demand growth causes Brazilian dairy product imports to rise gradually in the latter half of the baseline to roughly 30% of their peak levels in 1995/96.

The outlook for the EU dairy industry is dominated by the policy changes associated with the CAP reform proposal and the enlargement of the union. Scheduled increases in marketing quotas in the current 15 member countries are anticipated to result in a 766 tmt rise in milk output. Reductions in market support for butter and NFD prompt substantial declines in domestic prices through 2008. Butter prices fall 17%, while WMP, cheese, and NFD prices decline 13%, 8%, and 7%, respectively. Consequently, butter and NFD production drop more than 10% over the baseline, and milk is shifted into cheese production. Enlargement initially contributes to the excess supply of dairy products on the EU market, but milk production quotas imposed in the EU NMS quickly reduce milk production in these countries by 1.78 mmt. EU dairy product prices are pulled up at the end of the baseline by growing demand in the EU NMS. Domestic dairy prices in the EU NMS rise to EU levels within a few
years, reducing the export competitiveness of Poland, the Czech Republic, and Lithuania on international markets. Over the long term, a greater share of dairy products remain in the expanded EU to meet growing internal demand, and extra-EU dairy exports decline steadily, causing a tightening of supplies on international markets.

Although the dairy herd is expected to decline slightly in 2004, Russian dairy cow numbers are projected to stabilize at 11.5 million head. Productivity per cow and milk production both grow in excess of 1.5% annually throughout the decade. Russian butter consumption began recovering in 2000 and imports reached 130 tmt in 2003. With domestic raw milk supplies rising, Russia’s butter and milk powder imports remain stable, near the 2004 levels, throughout the baseline. Per capita cheese consumption increases 26% by 2013, causing cheese net imports to grow to 218 tmt. Much of the growth in Russian cheese imports is supplied by Ukraine.

In contrast to the EU, Australia and New Zealand substantially increase their dairy product exports over the next decade. Australian dairy production was hampered by drought-induced feed shortages in 2002 and 2003, but full recovery to pre-drought production and yields is expected by 2006. Domestic consumption of fluid milk, butter, and milk powder declines slightly on a per capita basis over the baseline. Australian exports of butter and NFD increase more than 50% by 2013, and WMP exports rise 42%. Per capita cheese consumption grows 1.6 kg over the baseline, causing Australian net exports of cheese to decline steadily, falling to 92 tmt in 2013. Rising nearly 30%, New Zealand’s cheese exports more than offset the decline in Australian supplies to international markets. Exports of NFD and WMP both rise more than 115 tmt by 2013, giving New Zealand a 35% and 43% share, respectively, of NFD and WMP trade. Although milk production in New Zealand increases throughout the decade, increased pressure on pastures slows the growth in yields and dairy cow numbers over the long term.

Over 44% of the increase in global milk production in the next decade occurs in Asia, primarily in India and China. More than 55% of India’s milk production is generated by buffaloes rather than dairy cattle. Prized for its high fat content, buffalo milk production increases 2.5% annually, while cow milk rises 1.5% annually. Roughly 40% of India’s milk production is consumed as fluid milk, and much of the remainder is processed locally into butter and ghee for home use. Nearly 90% of the growth in world butter production occurs in India. About 30% of Indian butter production is processed commercially, generating NFD as a by-product in some facilities. Although 96% of Indian NFD production was consumed domestically in 2003, that share declines over the baseline, as NFD production outpaces growth in domestic demand. Consequently, India becomes the fourth-largest NFD exporter by the end of the baseline. Chinese milk production more than doubled over the last decade, increasing 6.3 mmt. The Chinese government has recently placed an emphasis on the development of the dairy industry in northern China, and rapid growth in milk production is expected to continue for several years. Cow milk production in China reaches 17.9 mmt by 2013, an increase of 6.4 mmt over the 2003 level. More than 60% of the additional milk production is directed toward fluid use, and 25% is used to increase WMP production.

With traditionally low dairy product consumption levels and rapidly rising incomes, several eastern Asian countries constitute the greatest growth markets for dairy product imports. East Asian butter imports grow 20 tmt over the decade, with Chinese, Indonesian, Malaysian, and Philippine butter imports rising 44.2%, 34.6%, 49.1%, and 76.6%, respectively. Japanese cheese production increases 70% over the baseline, slowing cheese import growth to 0.6% annually. Cheese imports by other Asian countries (China, Indonesia, Malaysia, Philippines, and South Korea) increase steadily, by 4.2% annually. China more than doubles its cheese imports over the baseline. Indonesia, Malaysia, and the Philippines combined increase their share of total NFD trade from 23% in 2003 to 30% in 2013. China and Japan account for about 10% of the NFD import market by the end of the baseline. Together, these five countries generate virtually all of the growth in NFD imports. Southeast Asian WMP imports rise 3.4% annually throughout the projection period. Chinese WMP imports decline over the long term, as domestic WMP production expands and as consumers substitute fluid milk for reconstituted milk powder.