Agricultural Trade

Growth in the volume of global and U.S. agricultural trade is projected during the next 10 years, aided by ample global supplies and steady demand growth. Long-run demand prospects are improved by widespread economic recovery starting in 2003. The outlook calls for healthy economic growth in most of Asia, Latin America, Africa, the Middle East, and the former Soviet Union, moderate gains in developed countries, and continued progress toward freer trade through ongoing unilateral policy reforms and existing multilateral agreements.

Global and U.S. commodity prices and trade value have been weak in recent years because of large stocks resulting from weakened global demand and large production in the late 1990s. Even with continued output and productivity gains in exporting countries, commodity prices and export earnings are projected to strengthen in the baseline because of steady growth in import demand and reduced U.S. and foreign stocks.

Future trends in China's agricultural trade are key in the global outlook for commodity trade and prices. However, policy other than market forces determines much of China's trade in agricultural commodities and significant uncertainties exist regarding future policies in China. China's agricultural marketing and trade system is assumed to continue a gradual long-term trend of liberalization. The baseline projections assume that China is not a member of WTO during the projections period (see box, "China WTO Accession: Implications for Agricultural Trade"), although trade liberalization is assumed to continue. The baseline includes steady growth in China's imports of most commodities.

The baseline shows improved trade growth for several bulk commodities during 2002-2011, compared with the 1980s and 1990s. Projected growth in wheat and coarse grains trade is particularly strong compared with recent performance, and cotton trade is projected to improve from the contraction of the 1990s. The expansion of grain trade is broad based, driven by rising incomes in developing regions, diet diversification, and increased demand for livestock products and feeds. The phase out of the Multi-Fiber Arrangement (MFA) by 2005 is expected to boost demand for raw cotton in developing countries, while gradually shifting demand in developed countries from raw cotton to processed cotton products (textiles and apparel).

Global trade in soybeans and products is projected to continue growing, but at a slower rate than the rapid growth of the 1990s. Continued strong gains in developing-country demand for feed protein is projected to be partly offset by reduced demand in the EU that results from slowed livestock output and increased substitution of grain for protein feeds following Agenda 2000 reforms. Growth in soybean oil trade is projected to be slower than the very high rate achieved in the 1990s due to increased crushing in developing countries and competition from other oils, particularly palm oil.

U.S. export volume is projected to increase for wheat, coarse grains, and soybeans and soybean products, but decline for rice and raw cotton. For wheat, continued competition holds the U.S. trade share below levels of the late 1990s. For coarse grains and soybean and soybean products, U.S. exports expand more slowly than world trade, due in part to strong competition in these markets. U.S. wheat and coarse grain exports compete with unsubsidized EU wheat and barley

Table 34. International trade summary, by decade or indicated period 1/

Years	Wheat	Rice	Coarse grains	Soybeans	Soybean meal	Soybean oil	Cotton
World trade growth, annual percent[2]							
1960 to 1970[3]	1.1	2.2	4.9	11.4	14.4	11.3	0.8
1970 to 1980	4.7	4.9	8.7	8.2	11.7	12.8	1.2
1980 to 1990	-0.3	0.6	-1.0	-0.4	2.9	0.5	2.5
1990 to 2000	0.1	7.2	1.1	7.3	4.7	8.3	-0.9
2000 to 2010	2.5	3.0	2.0	3.4	2.3	3.7	1.8
U.S. export growth, annual percent							
1960 to 1970[3]	-0.8	6.3	3.8	12.6	13.0	5.3	-5.4
1970 to 1980	6.4	6.8	12.7	7.2	5.8	5.4	6.1
1980 to 1990	-3.3	-0.5	-0.7	-3.7	-1.8	-5.5	2.3
1990 to 2000	-1.7	1.9	1.1	4.9	3.1	4.4	-1.2
2000 to 2010	2.4	-0.5	2.0	1.2	1.4	3.7	2.0
U.S. share of world trade, average percent[2]							
1960 to 1970[3]	37.6	19.0	50.0	90.6	65.6	66.6	18.3
1970 to 1980	43.0	22.1	59.4	82.6	43.5	37.5	19.8
1980 to 1990	37.3	20.2	59.4	72.6	23.7	19.3	21.5
1990 to 2000	29.7	14.0	56.1	62.3	18.4	13.3	25.3
2000 to 2010	25.5	10.3	55.5	44.3	15.6	11.9	32.7

1/ Years refer to the first year of the commodity marketing year.
2/ Trade and trade shares include intra-FSU trade for periods starting in 1990 and later; intra-FSU trade for cotton also is included in the 1980 to 1990 and the 1970 to 1980 periods.
3/ Data for soybeans, soybean meal, and soybean oil begin in 1964.

throughout the projection period. Argentina is expected to remain a strong competitor for coarse grain market share. Eastern Europe also begins to make its presence felt as an exporter in world corn markets early in the projection period.

U.S. raw cotton export volumes remain strong through the baseline, but decline gradually in the second half of the decade due to tighter U.S. exportable supplies and rising foreign production. U.S. rice exports are expected to fall over the baseline period as domestic demand outpaces U.S. production. U.S. exports of soybeans and products grow at a slower pace compared with the 1990s, reflecting projected slower growth in world trade and increasing competition from Argentina and Brazil.

Global meat trade and U.S. meat exports are projected to grow only moderately in the near term as a result of generally slower world economic growth. In Japan, there is expected to be some shift in 2002 away from beef and towards pork and poultry until concerns about the safety of beef subside. All meats benefit from a resumption of world economic growth after 2002. Japan, Mexico, and Russia show large increases in meat imports over the projection period.

Table 35. U.S. agricultural trade values, baseline projections, fiscal years (October 1 - September 30)

	1999	2000	2001	2002 1/	2003	2004	2005	2006	2007	2008	2009	2010	2011	2001-2011 growth rate
							Billion dollars							*Percent*
Agricultural exports:														
Animals and products	10.1	11.8	12.6	12.4	12.9	13.6	14.2	14.8	15.4	16.0	16.6	17.3	17.8	3.6
Grains, feeds, and products	14.4	13.9	13.9	15.5	14.9	15.5	16.3	17.1	17.6	18.8	19.8	20.8	21.4	4.4
Oilseeds and products	8.7	8.5	8.8	8.8	9.2	9.8	10.4	11.1	11.8	12.5	12.9	13.4	13.7	4.5
Horticultural products	10.3	10.5	11.1	11.3	11.6	12.0	12.4	12.8	13.2	13.6	14.0	14.4	14.8	3.0
Tobacco, unmanufactured	1.4	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.2	1.2	1.2	1.2	0.0
Cotton and linters	1.3	1.8	2.1	2.1	2.9	3.3	3.2	3.3	3.4	3.5	3.5	3.5	3.5	5.3
Other exports	2.9	3.1	3.3	3.2	3.4	3.5	3.6	3.7	3.8	3.9	4.1	4.2	4.3	2.6
Total agricultural exports	49.2	50.9	53.0	54.5	56.1	58.9	61.3	64.0	66.4	69.5	72.1	74.8	76.7	3.8
Bulk commodities exports	17.8	17.8	17.6	19.0	18.9	20.1	21.0	22.0	22.9	24.5	25.6	26.7	27.3	4.5
High-value product exports	31.4	33.1	35.3	35.5	37.2	38.8	40.4	42.0	43.5	45.0	46.5	48.0	49.4	3.4
High-value product share	63.8%	65.1%	66.7%	65.1%	66.4%	65.9%	65.8%	65.6%	65.5%	64.8%	64.5%	64.2%	64.4%	
Agricultural imports:														
Animals and products	7.0	8.1	9.0	9.0	9.3	9.7	10.0	10.0	10.0	10.1	10.3	10.4	10.4	1.5
Grains, feeds, and products	2.9	3.1	3.2	3.2	3.3	3.5	3.6	3.7	3.8	3.9	4.0	4.2	4.3	3.0
Oilseeds and products	1.9	1.9	1.7	1.9	2.1	2.2	2.4	2.5	2.7	2.8	2.9	3.1	3.1	6.4
Horticultural products	15.3	15.8	16.4	16.7	17.2	17.8	18.5	19.2	19.9	20.6	21.4	22.2	23.0	3.4
Tobacco, unmanufactured	0.7	0.7	0.6	0.7	0.7	0.8	0.8	0.8	0.9	1.0	1.0	1.1	1.1	5.4
Sugar and related products	1.6	1.5	1.6	1.6	2.2	2.1	2.0	2.1	2.1	2.3	2.7	2.7	2.9	5.8
Coffee, cocoa, and rubber	5.2	5.2	3.8	3.5	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	1.2
Other imports	2.6	2.6	2.6	2.5	2.7	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	2.7
Total agricultural imports	37.3	38.9	39.0	39.0	41.1	42.4	43.8	45.0	46.3	47.9	49.6	51.0	52.5	3.0
Net agricultural trade balance	11.9	12.0	13.9	15.5	15.0	16.5	17.5	18.9	20.1	21.6	22.5	23.8	24.2	5.7
							Million metric tons							
Agricultural exports (volume):														
Bulk commodity exports	113.8	115.4	112.0	119.0	115.4	117.9	120.8	123.5	125.9	129.5	133.6	135.9	138.2	2.1

1/ The projections were completed in November 2001 based on policy decisions and other information known at that time. For updates of the nearby year forecasts, see USDA's *Outlook for U.S. Agricultural Trade* report, published in February, May, August, and December.

Note: Other exports consists of seeds, sugar and tropical products, and beverages and preparations. Essential oils are included in horticultural products. Bulk commodities include wheat, rice, feed grains, soybeans, cotton, and tobacco. The high-value products (HVP's) export value is calculated as total exports less the bulk commodities. HVP's include semi-processed and processed grains and oilseeds, animals and products, horticultural products, and sugar and tropical products. Other imports includes seeds, beverages except beer and wine, and miscellaneous commodities.

U.S. Agricultural Trade Value

Total U.S. agricultural export value is projected up an average of 3.8 percent annually between 2001 and 2011, reaching $76.7 billion in 2011, compared with $53 billion in 2001. U.S. agricultural imports in 2011 are projected at $52.5 billion after an average gain of 3 percent per year from the $39 billion of 2001. The resulting agricultural trade surplus of $24.2 billion in fiscal 2011, although up annually 5.7 percent on average from 2001, is still below the fiscal 1996 record export surplus.

Fiscal year 2001 U.S. agricultural exports equaled $53 billion, a 4-percent gain from the $50.9 billion export value in fiscal 2000. Gains in the value of high-value product (HVP) exports offset a slight decline in the value of bulk exports. Continued low bulk commodity prices and reduced bulk export volumes reflected large world supplies, a strong U.S. dollar which reduced U.S. export competitiveness, and a general weakening of global economic growth during the year. Total export value in fiscal 2002 is projected to increase to $54.5 billion, a smaller annual gain than in 2001, reflecting large global supplies, slowing demand due to the world economic slowdown, and the continued strong U.S. dollar. Bulk commodity exports show greater gains in both value and volume than HVP exports, with the HVP share of total agricultural exports dropping back to 65 percent.

In the decade from 2001 to 2011, both bulk and HVP exports are expected to show growth, while their shares in total U.S. exports remain about stable. HVP exports account for 64 to 66.5 percent of total agricultural exports through the projections. HVP agricultural export value is projected up 3.4 percent per year on average, continuing a long-term upward trend. The largest

gains projected for HVP exports are for dairy, beef, and animal feeds. Bulk product values rise 4.5 percent annually, thereby lending strength to total export earnings, in contrast to the very small growth of bulk exports in the 1980s and declines in the 1990s. Bulk product growth--primarily corn, soybeans, and wheat--reflects both a recovery of bulk prices and a 2-percent annual average growth in bulk volume. The major categories containing bulk commodities--grains and feeds, oilseeds and products, and cotton and linters--show stronger annual growth rates in the coming decade than in the previous decade.

U.S. agricultural imports are expected to increase an average 3 percent per year in 2001-2011, compared with an average 5.1 percent from 1990 to 2001. Slower commodity price inflation in the coming decade is largely behind this moderate import growth forecast. Imports that are projected to grow more than 3 percent include oilseeds and products, horticultural products, sugar and related products, and tobacco. Among imports forecast to grow less than 3 percent are animals and products, coffee, cocoa, and rubber.

Foreign Agricultural Policy Assumptions and Projection Highlights

Policy assumptions underlying both U.S. and foreign projections are based on full compliance with all bilateral and multilateral agreements affecting agriculture and agricultural trade as of October 2001, including the Uruguay Round Agreement on Agriculture and the North American Free Trade Agreement. In contrast, no compliance is assumed for any agreements not formally ratified by October 2001. Several potential multilateral agreements that could have significant impacts on agricultural trade during the projection period are not reflected in the baseline. These potential agreements include:

- Accession to the World Trade Organization (WTO) by China, Taiwan, or any other country not formally admitted as of October 2001;
- Enlargement of the EU-15 to add one or more Central or East European countries;
- Implementation of more liberalized trade among the Asia-Pacific Economic Cooperation (APEC) countries;
- Expansion of NAFTA to include additional countries; and
- Implementation of any reforms under consideration in the current round of WTO negotiations.

Domestic agricultural and trade policies in individual foreign countries are assumed to continue to evolve along their current path, based on the consensus judgment of USDA's regional and commodity analysts. In particular, economic and trade reform underway in many developing countries is assumed to continue. Similarly, the development and use of agricultural technology and changes in consumer preferences are assumed to continue to evolve based on past performance and analyst judgment regarding future developments. Key assumptions underlying the projections for major foreign countries are summarized below.

European Union

The EU is one of the world's largest and wealthiest trading blocks. Because of its diverse cultures, economies, and agro-climatic settings, the EU is both an importer and exporter of most major bulk commodities. The EU is the world's leading exporter of barley and pork, and ranks among the top exporters of wheat, beef, poultry, rye, and oats. At the same time, the EU has been the world's leading importer of soybeans and soybean meal for the past several decades, with a global import share (in soybean equivalents) in excess of 40 percent. The EU also is a significant importer of cotton, corn, rice, and meat products. As a result, projected trade for the EU does much to shape the global outlook, so assumptions underlying the EU projections are crucial. Key assumptions and their expected effects are discussed below.

WTO/Uruguay Round Agreement Commitments. The EU adheres to commitments made under the Uruguay Round Agreement that limit both domestic support and subsidized exports, and that improve access to the EU market. The baseline projections assume that the EU's Uruguay Round commitment to reduce domestic support is not a binding constraint, since many EU domestic support policies meet WTO "production limiting" criteria and are thereby exempt from reduction commitments. In addition, continued high levels of import protection mean that price transmission from the world market will be negligible for many baseline commodities except wheat, barley, and oilseeds and products. The most important Uruguay Round commitments for the baseline are the limits on subsidized exports and the minimum import levels agreed to under the market access provisions. Although binding for beef, the export subsidy constraints are not binding for most grain exports due to reforms enacted under Agenda 2000 and strengthening international market prices.

EU Enlargement. Impacts of the anticipated accession of the Central and Eastern European (CEE) countries to the EU are not included in the projections. Accession of the large agricultural-producing CEE countries could cause serious problems for the CAP in its current form, providing an impetus for policies to further reduce levels of price and budget support below those implied by the current projections. Despite these likely implications for agriculture, enlargement is not incorporated into the baseline because of the high degree of uncertainty regarding the final terms and timing of enlargement. Pre-accession negotiations have yet to be completed and it is still undecided whether agricultural policies will be phased in or adopted immediately. In addition, most potential new members are well behind in meeting their scheduled commitments for internal reform prior to joining the EU, thereby increasing the likelihood of delays.

Exchange Rate. The euro is assumed to strengthen slightly against the dollar in 2002 through 2004, and then to weaken somewhat through the remainder of the projections.

Agenda 2000. Adopted in early 1999, the Agenda 2000 financial and agricultural policy reforms affect the grains, oilseeds, dairy, and beef sectors for the period 2000-2006. Many of the principal reforms affecting the baseline have already been implemented, while others are scheduled to begin during the baseline period. Key features and their consequences include:

- **Shift intervention from price supports to direct payments:** The cereal intervention price is reduced by 15 percent over 2 years (2000-2001), the beef support price by 20 percent over 3 years (2000-2002), and dairy support prices by 15 percent to be phased in over 3 years starting in 2005. To compensate for half of the drop in the intervention price, direct payments to cereal producers are increased by 9 euros/ton. Direct payments for oilseeds are aligned to cereal aid in 3 annual steps by 2002 (for a total drop of 33 percent). Per-animal beef payments are increased, and a new payment per quantity of milk produced is to be started in 2005.

  Growing wheat is more profitable than growing oilseeds under a situation of equal compensatory payments, thus some acreage shifts out of oilseeds and into wheat. Due to the declines in intervention prices and the weak euro, projected domestic and world prices indicate that EU wheat and barley can be exported without subsidy throughout the baseline period. Exports of other coarse grains—predominantly rye and oats—continue to require subsidies for exports. However, they are less constrained by the Uruguay Round subsidized export limits because barley exports—which also fall under the WTO limits for coarse grains—are unsubsidized, thereby freeing greater subsidies for use on the other coarse grains. (Note, the WTO-mandated limit on coarse grain's export subsidies is applied to the aggregate, and not individual coarse grains.)

- **Reduced land set-aside rate:** A mandatory land set-aside is required for eligibility for compensatory payments. The default rate was initially set at 10 percent. However, with no budgetary pressure (from costly export subsidies) to force the political consensus necessary to restrain area expansion, it is assumed the EU Commission will respond to pressure from EU grain farmers to lower the set-aside rate. As a result, the set-aside rate is assumed in the baseline to be reduced to 7.5 percent in 2003, then to 5 percent in 2005.

  Set-aside reductions are expected to allow production and exports of wheat and barley to increase as area expands. The world price remains above the EU intervention price in spite of the increase in EU exports, hence WTO limits on subsidized exports do not constrain EU wheat and barley exports. Unsubsidized wheat exports exceed the WTO volume limit on subsidized exports by 2003 and continue to increase annually throughout the period, reaching 28 million metric tons in 2011.

  Unsubsidized barley exports allow EU coarse grain exports to move slightly above the WTO volume constraint on export subsidies in 2005 and remain slightly above or very near the WTO constraint until 2011. Barley exports account for about 85 to 90 percent of EU coarse grain exports. Most of the barley exports in the past have gone to countries of the Middle East with high population growth and petroleum-generated income. Although world barley demand grows about 2 percent per year, increased competition from CEE and FSU regions limits the EU's ability to push its barley surplus into world markets. EU exports of other coarse grains, notably rye and oats, are limited by strong competition from Canada and by low global import demand growth.

- **Maintaining the Milk Quota:** Dairy quotas are retained for the duration of Agenda 2000 and increased by 2.4 percent. Half of the quota increase is allocated to "deficit" regions from 2000-2001, and the other 1.2-percent increase will be spread over the remaining regions from 2005 to 2008.

Beef reforms (i.e., lower intervention price and higher headage payment) were designed to reduce excessive beef stocks. However, due to the lower feed cost from cheaper grain, and increases in the dairy quota and direct payments, beef production will decline only slightly since nearly 80 percent of EU beef is a byproduct of the dairy herd. Because the EU intervention price for beef (even with the 20-percent cut) remains so far above world market prices, all beef exports must still be subsidized. As a result, beef exports reach the WTO limit of 817,000 tons by 2005 and remain there through 2011. Subsidized exports of pork and poultry are dictated by WTO commitments, while unsubsidized exports are projected to increase slightly.

Baseline projections reflect EU consumer response to food safety concerns associated with the recent outbreaks of bovine spongiform encephalopathy (BSE) and food and mouth disease (FMD). In addition, projections include estimates of shifts in protein meal consumption stemming from the EU's recent ban on use of meat and bone meal as a feed additive. The ban is assumed through the baseline (see box, "EU Agricultural Sector Impacts of BSE and FMD" for more details). Several emergency beef market measures that go beyond Agenda 2000 reforms were passed in July of 2001 but are not included in these projections. Such measures include reductions in stocking density, new headage limits, reductions in national ceilings for special premia, new suckler cow premium limits, and possible suspension of reallocating premium rights.

Even with the Agenda 2000 reforms, there is uncertainty about the measures the EU will use to meet the WTO commitments. Any commodity supplies in excess of intervention purchases and on-farm use that cannot be exported are assumed to build stocks and depress internal market prices to clear domestic markets. However, it is assumed that the EU will use existing policy mechanisms to comply with WTO commitments without excessive stock accumulation.

Despite the anticipated ability to export wheat and barley without subsidies throughout the projection period, increased production, abundant grain stocks, and falling internal grain prices—via Agenda 2000 reforms—combine to reduce the relative cost of feeding grains versus soybean meal. As a result, increases in grain feeding, partly from stocks, are expected to cut EU soybean meal consumption. Consequently, EU imports of soybeans and soybean meal are expected to stagnate early in the projection period before declining slightly in the latter years. The EU's combined global import share of soybeans and soybean meal (in soybean equivalents) declines from about 41 percent in 2001 to under 30 percent by 2011.

Imports of coarse grains reflect the EU's market access commitments for corn, while imports of other coarse grains are minimal. Under the projected scenario for world wheat prices and the low EU intervention price for grains it is expected that some high-quality wheat imports by the EU will occur. The maximum duty paid price for grains is 152 percent of the intervention price. Under Agenda 2000 reform the intervention price has fallen to 101.31 euro per ton in 2001. Thus, the maximum duty paid price would be 154 euro. At the assumed exchange rate of 1.13 euro/dollar in 2002, this is about $136 a ton, well above projections for high-quality wheat (e.g., Hard Red Winter, Gulf Ports). As a result, some high-quality wheat (possibly Canadian, as the strong dollar makes U.S. wheat relatively expensive) is expected to enter the EU.

EU Agricultural Sector Impacts of BSE and FMD

The discovery of both Bovine Spongiform Encephalopathy (BSE) and Foot and Mouth Disease (FMD) in several member countries in 2000 and 2001 seriously affected the livestock industry in the European Union (EU), especially in the U.K. The most recent BSE crisis started in October of 2000 and was the third such crisis to hit the EU over the last 12 years (other BSE crises occurred in 1988 and 1996). In February of 2001, a large outbreak of FMD originated in the U.K.

BSE, also called mad cow disease, is a neurological disease in cattle first discovered in Britain in 1986. Although initially an animal health concern affecting cattle supplies, it became a human health/food safety issue in 1996 when the British government announced a possible link between BSE and a new human variant of Creutzfeldt-Jacob Disease (vCJD). Both BSE and its human form, vCJD, are always fatal. The human version of BSE is thought to be contracted by consuming beef or other products from infected cattle. Because vCJD appears to have a long incubation period spanning several years, it is not known whether its incidence has peaked in humans.

In response to the BSE crisis, the European Commission (EC) imposed a series of measures to ensure the safety of the beef supply in the EU, including the destruction of all cattle over thirty months of age not tested for BSE. An estimated 1 million cattle (only slightly more than 1 percent of EU herds) were slaughtered due to this criteria. As a result, estimated beef production declined by more than 500,000 tons between 2000 and 2001, but is expected to recover slightly later in the period. The EU also imposed a ban on feeding of meat and bone meal to all livestock, which will likely be replaced in animal feeds by an additional 1.5 million tons of soymeal.

While there was a sharp decrease in beef consumption in 2000 and 2001 in some EU member states as a result of the BSE and later FMD crisis, consumption has been recovering and will likely recover even more in subsequent years, approaching its long-term declining trend (fig. 4). Such a pattern of rebounding consumption was observed after previous BSE incidents in the EU.

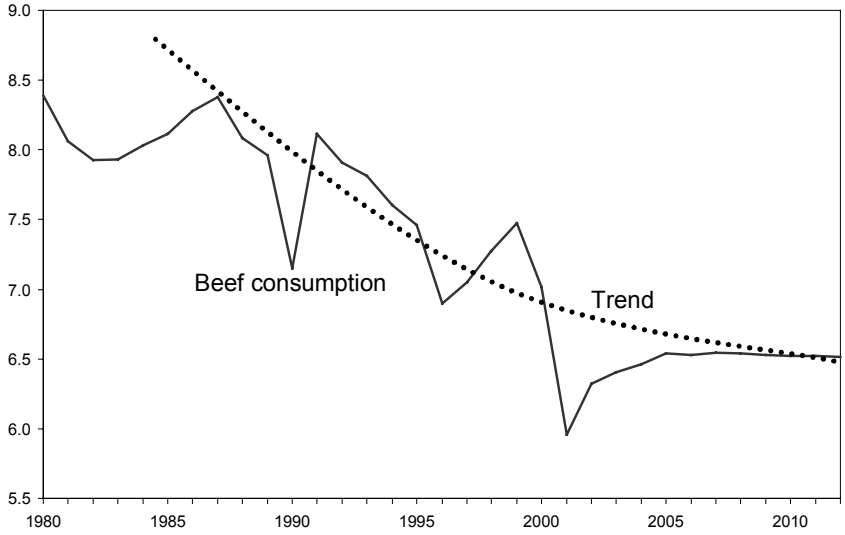
FMD is a highly contagious, viral disease primarily affecting cloven-hoofed animals such as cattle, hogs, and sheep. FMD can significantly reduce meat and milk production. Unlike BSE, FMD is not usually fatal to livestock and it is not considered a food safety issue. However, FMD does affect food supplies and trade status. Infected or exposed livestock are quarantined, depopulated, and not allowed for consumption, reducing total supplies of livestock products.

About 4 million animals have been slaughtered in the U.K. as a result of the FMD outbreak and about 80 percent of the slaughtered animals have been sheep. These represent a small portion of the total livestock herd in the EU, so it is anticipated that total EU livestock production will not be significantly impacted. However, temporary bans on EU meat exports caused a sharp decline

--continued

EU Agricultural Sector Impacts of BSE and FMD--continued

Figure 4
EU beef consumption is on a downward trend, punctuated by lagged declines related to the three BSE crises of 1988, 1996, and 2000*
Million metric tons



* USDA PSD database, 1980-2001; baseline projections, 2002-2011.

in EU exports of both beef and pork in 2001. Exports are expected to return to their long-term trend during the projection period. However, future exports are contingent upon the ability of the EU to prevent further FMD outbreaks and the relaxing of import restrictions and safeguard measures from major EU meat importers such as Russia, Egypt, and Japan.

Asia and Oceania

Australia. Production for export dominates Australian agriculture. Australia ranks among the world's leading exporters of wheat, barley, rice, rapeseed, cotton, sugar, and wool. Australian producers are expected to continue to adjust cropping patterns, and to switch between crop and livestock enterprises, to maximize returns. With rising global populations and world GDP growth forecast to recover starting in 2003, Australia's production and exports of most major commodities are projected to continue to expand. Key issues in the outlook for production are the response of producers to uncertainties regarding price variability and the availability of water. Until more irrigated area is available, area expansion will be slow for some crops.

Cotton is expected to continue providing higher returns than competing field crops. Production and export growth are projected to show moderate gains, but remain heavily dependent on the availability of irrigation water. Australia's cotton exports are projected to grow over 3 percent per annum reaching 4.2 million bales in 2011. Stagnant wheat area and only modest yield gains are projected to produce modest growth in production. However, increased domestic feeding of

wheat is expected to slow growth of wheat exports to about 1 percent through 2011. Growth in Australia's rice exports will be very limited due to water-related constraints on increasing both yield and irrigated area. Barley output is expected to show only incremental growth as declining area partially offsets slight yield gains. However, the share of barley area and exports devoted to malting barley continues to rise, and malt barley gains an increasing share of Australia's barley exports. Low prices and more favorable returns for other enterprises result in projected flat growth of the cattle herd, and subsequently for beef production. Growth in domestic beef consumption is expected to result in slight declines in beef exports through 2011.

China. Because of its enormous size, both in terms of supply (China is among the world's leading producers of rice, wheat, corn, soybeans, hogs, beef, poultry, and cotton) and demand (imports are often needed to satisfy growing demand from an increasingly urbanized population of 1.2 billion), China is often a major influence in international commodity markets. China's long-term food supply and demand prospects are for rising agricultural production, and also sustained growth in income-driven demand for meats and edible oils and derived demand for feed grains. China's future per capita consumption of staple food grains is projected to decline due to low urban demand for wheat and rice together with increasing urbanization. Meanwhile, China's per-capita consumption of pork, poultry, and high-valued fruits and vegetables has not caught up with its wealthier neighbors and is expected to continue rising as incomes and the urban population grow. Despite important market reforms over the past decade, government policy remains a key determinant of China's agricultural production and trade levels.

Policy and economic reforms to continue: China's agricultural marketing and trade system is assumed to continue a gradual long-term trend of liberalization. The baseline projections assume that China is not a member of the WTO during the projections period (see box, "China WTO Accession: Implications for Agricultural Trade"), although trade liberalization is assumed to continue.

Government agricultural policy has tried to maintain stable domestic food prices while striving for rising rural incomes. In the past, China's agricultural policy has been centered on the food grain sector and on maintaining domestic self-sufficiency for most commodities, generally restricting imports to less than 5 percent of consumption. The principal mechanism that the government used to promote cereal production was fixed quota purchases. Reliance on state-managed agricultural trade via state trading companies and unannounced import (and export) quotas for wheat, rice, corn, and cotton have been the primary factors governing China's major bulk agricultural commodity trade. To a lesser extent, trade in other agricultural commodities, such as soybeans and soybean products, has also been influenced by government policy, but through licenses, export taxes, value-added taxes, tariffs, and other mechanisms rather than through quotas or state trading.

In the baseline period, the domestic marketing system remains dominated by government administrative and financial support. However, it is slowly liberalizing as the government attempts to reduce swelling financial outlays supporting the inefficient government-owned agricultural marketing and distribution system. In the last two years, several provinces have announced that they will no longer enforce grain quota deliveries (particularly for low-quality wheat and rice), a significant step in the reform of grain policy. The share of domestic grain

trade handled by private, quasi-private, or even joint public-private trade companies is expected to expand significantly.

Reduced government purchases and elimination of low-quality purchases represent immediate cutbacks in demand, diminish planting incentives, and ultimately reduce supply. In the near term, large stocks are believed to be sufficient to forestall the need to significantly increase grain imports. In the longer run, reduced grain supply implies higher domestic free market prices, greater incentive to produce higher quality grains, and larger imports.

Strong economic growth: An important key to the development of China's international trade projections is strong growth in domestic demand triggered by expected solid economic growth throughout the period. China's economic growth has consistently been the strongest in Asia for some time, and this will not change in the forecast period, but the rate will average 7.8 percent over the next decade compared with the double-digit rate of the early and mid 1990s. With projected population growth averaging 0.6 percent per year, per capita GDP gains will average about 7 percent annually. These gains will begin to penetrate China's poor inner provinces as transportation infrastructure and labor markets improve. General economic growth is also expected to facilitate the development of more modern food processing facilities as wealthy urban consumers increase the demand for processed foods.

Continued investment in agriculture: China will continue to increase state investment into agriculture. More government investment in agricultural research and development and in agriculture infrastructure, such as irrigation and flood control, will be a driving force in reducing costs and increasing returns to farmers. Findings that show investment in agricultural research and infrastructure to be the most important determinant of productivity increases over the last two decades have motivated leaders to increase these investments in order to maintain food self-sufficiency. These investments will improve productivity and facilitate the transition to more capital-intensive farming as labor moves out of agriculture.

Domestic crop production is projected to increase, primarily via yield growth boosted by greater use of improved varieties and complementary inputs. Potential water constraints for northern-tier crops, particularly wheat, are a major long-run uncertainty. The quality of grain output will increase to match the quality demanded by millers. This change is already underway as recent policy initiatives have reduced incentives to produce low-quality grain. Although grain and cotton area are expected to decline in the short term, over the longer term area and yield gains and production growth are expected to be modest but steady.

Trade outlook is for most commodity imports to increase in volume, but only modestly as a share of domestic consumption: The net result of recent agricultural and trade policy changes, combined with strong growth in domestic demand and only moderate yield gains, is a projection of robust growth in imports of key agricultural commodities. Imports of wheat and soybeans are expected to grow rapidly through the projection period, while imports of corn, barley, soy oil, soy meal, palm oil, and cotton grow slowly in the early years with increased strength in the later years. China's agricultural commodity imports are not expected to tax the supply capacity of world markets.

China WTO Accession: Implications for Agricultural Trade

On December 11, 2001, China was formally admitted into the WTO. However, because China's WTO commitments had not been finalized when the baseline analysis was conducted (July-October of 2001), the baseline projections do not include China as a formal WTO member. Most details concerning the implementation of China's WTO commitments were unknown, since China was still engaged in multilateral negotiations to finalize its WTO commitments. Even after entry, specifics are lacking and implementation rules remain vague. How the regulations are implemented, particularly with regard to the allocation of import quotas to nonstate trading entities, will have important implications for China's agricultural trade.

There is little doubt that China's WTO accession will have significant impacts on global agricultural trade. Here, a qualitative discussion of potential agricultural trade impacts of China's WTO accession is provided. The analysis is based on China's WTO commitments to establish fixed tariff-rate quotas for major commodities, extend trading rights to private and other nonstate entities, and eliminate export subsidies. The WTO commitments differ in some details and cover a wider variety of commodities, but are in general similar to those in the U.S.-China accord of November 1999. (A further discussion of impacts of China's WTO accession is provided in a paper presented at the February 2002 USDA Outlook Forum.)

Overview of Terms of Accession

Tariff Bindings. China commits to elimination of all non-tariff barriers, leaving tariffs as the only measure affecting imports. Other measures, such as inspection, testing, and domestic taxes will comply with WTO rules. All tariffs are bound at current levels, with reduced tariffs for many products. There will be annual tariff reductions starting in 2002 and continuing, for most commodities, through 2004, when the average agricultural tariff will fall to 17 percent.

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As in the past, nearly all of China's future food needs will be met through domestic production. However, the import share of domestic consumption is expected to grow slightly for most commodities. For example, for grains the import share of total consumption rises from a projected 2.6 percent in 2002/03 to 4.6 percent in 2011/12. Import shares for cotton and oilseeds grow at a faster rate, while meat import shares of domestic consumption decline.

China's domestic wheat production is expected to undergo significant adjustment towards higher quality (but often lower yielding) varieties. Despite these internal adjustments, strong demand for high-quality milling wheat is expected to push wheat imports from 2.6 million tons in 2002/03 to 9.1 million tons in 2011/12. China is expected to remain an important net exporter of 3 to 4 million tons of rice through the baseline period in response to rising international demand, particularly for lower-cost supplies. Large exports of short-grain japonica and low-quality long-grain indica rice easily exceed its growing imports of high-quality long-grain indica rice.

China WTO Accession: Implications for Agricultural Trade--continued

Tariff Rate Quota Administration. Tariff-rate quotas (TRQs) are established for major bulk commodities, including wheat, corn, rice, cotton, vegetable oils (soybean, palm and rapeseed), sugar, and wool. For each of these goods, a specified quantity of imports will enter at a low tariff ranging from 1 to 10 percent (initially 20 percent for sugar), with additional imports assessed a higher duty. The TRQ quantities have been set for 2002, 2003, and 2004 (and 2005 for vegetable oils). The TRQ amounts increase annually. Vegetable oil TRQs are scheduled to end after 2005. For other commodities, new TRQs will be negotiated at the end of this implementation period. In the absence of a new agreement, the 2004 TRQ amounts will remain in place. China will not be required to purchase the entire TRQ for a commodity, but the TRQ regime will require that imports be based on market conditions rather than policy or economic planning considerations. A share of each TRQ will be available for import by non-state trading enterprises.

Trading Rights. For several major commodities, the right to import will, for the first time, be extended to any end-user. Previously, government state trading enterprises (STEs) controlled all trade in wheat, corn, rice, cotton, and soybean oil, but China has committed to set aside minimum shares of import quotas for non-STEs. For 2002, the non-STE shares range from 67 percent for cotton to 10 percent for wheat and long-grain rice. Trade in wheat, corn, and rice, will continue to be channeled primarily through STEs, but they will no longer have a full monopoly.

Export Subsidies. China commits not to use export subsidies for farm products.

Domestic Support. China commits to cap potentially trade-distorting domestic subsidies at 8.5 percent of the value of agricultural production.

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In September of 1999, China ended the long-standing state-monopolized cotton purchase and sale system. In addition, China's cotton crop has been grown with no official cotton procurement price since 1999, instead letting market conditions determine prices. The government also auctioned more than 10 million bales of cotton from government stocks to the domestic textile industry, resulting in lower domestic cotton prices, increased competitiveness of textile exports, and lower cotton imports. Lower prices also increased domestic consumption, as lower costs helped cotton to compete with synthetic fiber. As a result, the domestic textile sector has worked through significant stocks in recent years. China's net cotton imports are expected to start growing early in the baseline period. China's huge comparative advantage in low-cost labor is expected to allow the country to capture a growing share of world trade in textiles and apparel. As a result, China's cotton imports are projected to rise strongly after 2004 when the MFA is phased out. Cotton imports are projected at 4.6 million bales by 2011, while China's cotton exports decline to only 0.3 million bales.

China WTO Accession: Implications for Agricultural Trade--continued

Implications for Agricultural Trade

The agreed TRQ levels for wheat, rice, corn, cotton, and soybean oil are significantly higher than the baseline projections. The gap between current projections and the TRQ amounts may be viewed as an upper bound on the potential increase in China's imports. High over-quota tariffs of 40-80 percent make imports above the TRQ level unlikely, but China can unilaterally lower over-quota tariffs if additional imports are needed.

Wheat. The TRQ amount is 8.5 million tons in 2002, rising to 9.6 million tons in 2004. However, several factors suggest actual trade gains will be below the TRQ amount. Key factors are high current Chinese wheat stocks that are likely to depress domestic prices and dampen import demand, continued regional price support programs for wheat producers, and slowing growth in domestic wheat use.

Rice. The TRQ amount is 4 million tons in 2002, rising to 5.3 million tons in 2004, with the quota split evenly between short- and long-grain rice. However, the potential for short-grain rice imports is very limited because of large stocks. There is more scope for imports of long-grain rice, but high stocks and government incentives for producers should constrain imports to well below the TRQ level.

Corn. The TRQ amount is 5.85 million tons in 2002, rising to 7.2 million in 2004. In the near term, imports may not reach the TRQ level because high stocks are likely to reduce import demand. Also, farmers in Northeast China, the most important corn-producing region, are unlikely to reduce production significantly in the foreseeable future.

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China's projected barley imports grow steadily from about 2.6 million tons in 2002/03 to 3.3 million in 2011/12, reflecting demand growth for beer and other alcoholic beverages.

Significant growth is projected for China's domestic livestock sectors, as rising population and income result in higher meat demand. Expansion in domestic meat production and increased use of commercial feeds are expected to result in rising domestic corn consumption to feed the growing livestock numbers. Part of this growth in corn consumption will be met by imports. In 2002/03, China is still projected as a major corn net exporter (of 3.8 million tons) to East and Southeast Asia destinations. However, China is projected to shift from being a net corn exporter to a net importer roughly midway through the projection period. China's corn exports decline steadily through the period to about 1 million tons, compared with corn imports which grow to 7.8 million tons in 2011.

Perhaps the most significant impact on global markets is the projection for growth in China's import demand for soybeans and soybean products, and the role of government policy in influencing soy complex trade patterns. Strengthening internal demand for protein meal by livestock feeders and vegetable oil by a rapidly growing urban population underlie large

China WTO Accession: Implications for Agricultural Trade--continued

Vegetable oils. The TRQ commitment for soybean oil is 2.5 million tons in the year 2002, rising to 3.6 million in 2005. For palm oil the TRQ rises from 2.4 million tons in 2002 to 3.2 million tons in 2005, and for rapeseed oil the TRQ rises from 878,900 tons in 2002 to 1.2 million tons in 2005. TRQs for vegetable oils will be eliminated after 2005 and converted to bound tariffs. There is significant potential for greater soybean oil imports under the new trading rules and tariffs because of strong domestic demand and high internal prices relative to world prices.

Beginning January 1, 2006, trade in vegetable oils will be conducted with a bound tariff, with trading rights granted to all individuals and enterprises.

Soybeans and meal. No TRQ is established for soybeans or soybean meal. Both goods can be imported freely under relatively low tariffs, but soymeal imports are subject to China's domestic value-added tax.

Cotton. The TRQ amount is 818,500 tons (3.8 million bales) in the year 2002, rising to 894,000 tons (4.1 million bales) in 2004. Imports may remain below the quota due to several factors, including a shrinking gap between domestic and world prices and the potential release of large domestic stocks into the market. In the longer term, once stocks have adjusted, imports may be driven upward by a growing gap between consumption and production.

Wool. The TRQ amount rises from 264,500 tons in 2002 to 287,000 tons in 2004.

Sugar. The TRQ amount rises from 1.764 million tons in 2002 to 1.945 million tons in 2004.

Meats. No TRQs are established, but China commits to significant cuts in many of its highest meat tariffs. Tariff reductions are likely to increase meat imports from current low levels. The agreement also lifts current bans on imports, assures acceptance of products certified by USDA's Food Safety and Inspection Service, and liberalizes distribution services for farm products, including meats. It is difficult to assess the impact of these regulatory changes, but they are likely to boost imports for urban consumption over the longer term.

projected increases in use and trade of soybeans and soybean products. China's non-WTO tariff structure favors imports of soybeans over soybean meal and soybean oil, reflecting a policy change made in 1999. China's government adopted a policy to maximize domestic oilseed crushing capacity instead of importing protein meal and vegetable oil. The government implemented border measures to support this policy and invested heavily in crushing facilities. As a result, China's soy complex trade has seen a dramatic swing from large state-sanctioned imports of soybean meal and soybean oil to importing enormous quantities of soybeans. Soybean imports jumped from only 3.9 million tons in 1998/99 to a record 10.1 million tons in 1999/2000.

A continuation of these forces is expected to result in large increases in China's soybean imports in the baseline, growing nearly 8 percent per year from 15.7 million tons in 2002/03 to about 31 million tons in 2011/12. Even with such rapid growth in soybean imports and domestic crushing, increased imports of both soybean meal and soybean oil are also projected to meet the growth in demand, particularly in the latter half of the projection period.

Government policy favors domestic meat production over meat imports, accomplished through high meat import tariffs and a restrictive import-licensing regime. As a result, China is not projected to be a significant importer of beef and pork over the next decade despite strong income growth and subsequent meat demand growth. However, China's poultry imports are projected to grow steadily through 2011.

East Asia. This region's trade outlook is dominated by a major shift from importing feedstuffs to importing meat and other livestock products. Although consumption of livestock products grows modestly at about 1 percent per year through 2011, meat imports grow at a much faster 2-percent annual rate as they satisfy all new demand for meat, as well as gradually replace declining domestic production.

Agricultural trade in this region remains heavily dependent on feed-livestock interactions and each country's willingness (or lack thereof) to look to international markets to help meet demand. International trade commitments dictated by the Uruguay Round agreement play a major role in determining agricultural trade levels in Japan, South Korea, and Taiwan. Without these trade commitments, agricultural imports would be significantly smaller as all three countries retain trade barriers that are highly protective of their domestic agricultural sectors.

International trade commitments have lowered the barriers to meat imports. Japan's reductions in import barriers under the Uruguay Round ended in 2000, and no further changes are projected through 2011. However, if a new multilateral agreement on agriculture emerges, the barriers—the gate price system for pork (which acts as a variable levy on imports) and high tariffs on beef— are likely to fall further. Minor reductions in South Korea's import tariffs continue to take effect through 2004, but a major milestone was reached at the beginning of 2001, when the last of the meat quotas (on beef) was eliminated. Subsequent trade litigation before the WTO obliged South Korea to level the playing field for retail sales of imported beef, and much freer marketing of imported beef in the projection period from 2002 on should raise import volumes. Taiwan was voted into the WTO in November 2001, after the projections were made, and its WTO commitments are thus not reflected in the projections. However, Taiwan had already reduced barriers on some livestock product trade in advance of its WTO entry.

Japan, the world's largest import market for meats by value, will continue to show modest growth in meat imports at about 1.3 percent a year. Income growth is expected to resume after 2002, at 1.9 percent per year. As this happens, meat consumption will grow slightly. Production of all meats is expected to continue to decline, accounting for some of the growth in imports. Discovery of BSE disease in Japan has shaken consumer confidence and led to a sudden drop in beef consumption. The projection assumes that this will be temporary, and anticipates growth of over 1 kilogram per person per year in beef consumption over the projection period. The renewed use by Japan in 2001 of safeguard mechanisms that raise the gate price of imported pork

is not assumed to alter annual pork supply and demand in a significant way, but will push trade in frozen pork into the second quarter of each new year (i.e., the first quarter of Japan's March-February fiscal year) when the safeguard is not in effect.

South Korea's pork industry has largely worked through the consequences of the 2000 outbreak of foot-and-mouth disease, and hopes to resume exports to Japan in 2002. Korea is expected to both import and export pork in the next decade. Strong demand for pork bellies and certain other cuts in Korea is being met by imported pork. The newly-liberalized beef import market should promote greater imports from the United States and Australia. Strong domestic subsidies for beef in Korea will keep production from collapsing, but are unlikely to lead to increases in production.

Taiwan's livestock sector has been deeply affected by liberalization accompanying its WTO membership application, and by the lingering effects of the 1997 outbreak of foot-and-mouth disease (FMD) on its huge hog farms. In advance of its entry into the WTO, Taiwan's volume of imports for certain formerly banned animal items (offal, chicken meat, and pork belly) has already reached the levels agreed upon for year one of its WTO accession under various bilateral WTO market access agreements with WTO-member countries. The increased competition caused by imports of these animal products will intensify the current structural adjustment in Taiwan's hog and poultry industries.

The outbreak of FMD in March 1997 virtually shut down Taiwan's pork exports and forced Taiwan to cull about one-third of its hog population. Exports of uncooked pork are not expected to resume for a few years, and even then they will show only gradual growth. With a strong poultry industry and a very large domestic demand for pork, however, livestock production is projected to recover gradually from the FMD shock even though Taiwan will still be out of Japan's non-processed pork market until late in the projection period. Feed grain and protein meal consumption and imports, though much smaller than the pre-FMD levels, are projected to recover and grow gradually.

One consequence of increased meat imports in East Asia is reduced demand for feedstuffs for domestic livestock production. Japan will see gradual reductions in feed use, while South Korean and Taiwanese demand will grow only slightly. Korea's feed use is expected to reach levels of the mid-1990s by the end of the projection period, given relatively optimistic projections for poultry meat production.

All three East Asian economies are assumed to maintain tight state control over rice trade. Japan and South Korea will continue to meet their minimum access commitments, but will not import above those levels. The tariff levels for over-quota rice imports announced by Japan prohibit significant additional trade.

Food grain consumption has flattened out in the maturing markets of Japan, South Korea, and Taiwan. Vegetable oil consumption is expected to increase modestly. However, vegetable oil tariffs give a preference for oilseed imports for domestic crushing. In Japan, the major oilseeds for crushing will continue to be soybeans and canola, which will compete on the basis of prices in the meal and oil markets. Palm oil imports into Japan will show some growth because of food

processing needs. In Korea, a near-zero tariff on soybeans encourages their importation. However, soybean crushing in Korea has been put under pressure by the lowering of tariffs on vegetable oil imports, which will continue. Over one-third of Korea's soyoil consumption was imported in 2000, with further growth expected.

The projections assume that East Asian governments will continue enormous expenditures to help domestic agriculture restructure itself. A continued outflow of labor from farming will help full-time farmers achieve larger operations and economies of size.

Southeast Asia. The Southeast Asia region is expected to show economic growth in the next decade, but at rates well below those prevailing before the Asian financial crisis in 1997. Import demand for grains, oilseeds, and oilseed products are projected to follow a similar pattern paralleling economic growth. The region's economies presently suffer from reduced demand for manufactured products caused by slower growth in the rest of the world; from competition from China in attracting foreign investment and trade; from inadequate educational infrastructure; and, in the case of Indonesia and Burma, from continued political instability.

Broiler, pork, and egg production are expected to continue to grow quickly, fueled by rising consumer demand over the longer term. Although local feed production is likely to respond to rising demand, most of the region's economies have limited capacities to produce feed energy and protein. As a result, increasing imports of feedstuffs are expected. Increasingly, corn must compete with feed wheat as a feedgrain in nearly all Southeast Asian countries, along with cassava and broken rice in Thailand. Relative prices are critical in determining what is fed. Soymeal use prospects are also linked to the expectations of further growth in animal feeding in the region. Indonesia, Malaysia, the Philippines, Thailand, and Vietnam are all projected to show strong long-term growth in import demand for coarse grains and protein meal.

Rice imports in the region are expected to continue to expand, since Indonesia and the Philippines remain handicapped by land constraints and slow increases in yields, but also are experiencing population growth and substitution of rice for corn in diets. Indonesia's imports are projected to exceed 3 million tons in most years, making it the world's largest importer. Prospects for strong import growth of wheat continue because foods such as noodles and bread account for a growing share of diets in the region.

Large exportable supplies of palm oil from Malaysia and Indonesia continue to depress the world vegetable oil market well into the projection period as new generations of palm tree cohorts begin to produce for the market.

The region is expected to continue to see the expansion of cotton yarn production, boosted by the Multi-Fiber Agreement's phaseout in 1995, as low labor costs spur production of yarn, fabric, and textiles for export.

South Asia. India's strong economic growth, projected at about 6 percent per annum during 2002-2011, will provide the potential for demand driven growth in agricultural production and trade. The diversification of farm output and improved agricultural marketing are expected to be key policy challenges during the coming decade, as the government seeks to reduce large food

grain surpluses. More emphasis is expected on improving domestic market institutions and incentives for private sector participation. Despite the removal of quantitative restrictions on agricultural trade in response to WTO commitments, relatively high bound tariffs provide the scope to limit access of most major farm imports. Liberalizing reforms, particularly those that would open trade, are likely to remain slow and gradual in the politically sensitive farm sector.

Large food grain surpluses, particularly of wheat and rice, are the result of high government price supports since the mid-1990s, relatively low market prices for oilseeds and other competing crops, and sharply lower grain offtake from public stocks due to reduced consumer subsidies. Although oilseed prices are expected to strengthen with recent higher oil tariffs, it is unlikely that the government will be able to take swift or decisive action to reduce wheat and rice price supports or to boost their subsidized distribution. The surpluses of rice and wheat are projected to decline slowly during the baseline, with smaller hikes in price supports, reduced government procurement, small increases in subsidized distribution, and modest levels of exports. Rice exports are expected to remain below the levels achieved in the 1990s because high domestic rice prices limit the price competitiveness of India's relatively low-quality rice. The surpluses of mostly low-quality wheat are generally not exportable without subsidy, but low levels of exports to neighboring South Asian and Middle Eastern countries are expected to continue.

India's vegetable oil imports, now the largest in the world, are projected to show strong growth because of rising incomes and relatively slow growth in domestic production. The pace of import growth will hinge largely on future adjustments in import tariffs, and the impact of any adjustments on domestic supply and demand. Tariffs have been increased sharply in the last year, now ranging from 45 percent for soybean oil to 75 percent for crude oils and 92 percent for refined oils, but trade impacts have been limited due to generally weak world prices, particularly for palm oil. It is assumed that the government will maintain the recent higher tariff levels, with import demand being tempered by higher domestic consumer prices and modest gains in domestic production. Crude and refined palm oil products should continue to dominate India's vegetable oil imports, but the relatively low bound tariff on soybean oil is expected to boost the soybean oil share of imports, at the expense of rapeseed and sunflower seed oils.

India's exports of soymeal are expected to continue to grow, but at a slower pace than during the 1990s. Export growth is expected to slow due to area constraints on oilseed production and rising feed demand from the dairy, layer, and broiler sectors. Despite strong growth in mill demand, domestic cotton production continues to be characterized by weak producer prices, inadequate plant protection, low yields, and poor quality. Although yields could be given a quick boost if Bt cotton is approved for cultivation, it is assumed that production and quality problems will be resolved only gradually. Imports are expected to remain relatively high through the projections, with exports recovering slowly.

Economic growth prospects for Pakistan have been weakened by high levels of risk associated with political uncertainty and terrorist activity, declining capital inflows, chronic budget deficits, and continued low rates of domestic savings and investment. Aid inflows may partially offset the economic impacts of the recent actions in neighboring Afghanistan, but income growth through 2010 is expected to remain slower than during the 1990s.

Pakistan sharply reduced wheat imports 2 years ago, largely as a result of a surge in domestic production and a reduction of unofficial exports of wheat and flour to Afghanistan. Increased government price incentives had contributed to more timely planting and consequent higher yields on the large share of wheat area that is double-cropped with cotton. However, the improved wheat productivity comes at the cost of reduced cotton area and yields, and it is not expected that this policy will be sustained over the longer term. Wheat imports are projected to rebound during the projection period, as price incentives shift back in favor of cotton.

Pakistan's cotton yields are expected to grow slowly as pest-resistant varieties are developed and plant-protection practices are improved. Most cotton production is likely to be processed internally to meet domestic and export demand for cotton-based products, and imports of high-quality cottons for blending are likely to rise gradually. Small increases in rice yields will allow rice exports to slowly expand. Vegetable oil imports are projected to show strong, steady growth due to relatively low tariff protection and limited domestic production potential. Growing livestock product demand is expected to lead to increasing soybean meal imports and the emergence of feed corn imports, albeit very small, during the projection period.

Bangladesh is expected to maintain 3.5 to 4.5 percent annual economic growth over the projection period, contributing to moderate gains in imports of rice, wheat, cotton, and vegetable oil. Growth in production of rice and wheat remains slow due to the decisive role of weather which discourages investments in new technology and other inputs. Import levels continue to consist of a mix of food aid and commercial purchases. Demand from the export-oriented garment industry, bolstered by the MFA phaseout, is expected to push up cotton imports. Low tariffs and limited local production will lead to steady growth in imports of soybean oil.

Africa

Sub-Saharan Africa. Sub-Saharan Africa's per capita GDP is expected to grow at a positive rate of about 2.5 percent annually over the projection period, representing a significant reversal from the 0.2-percent rate of decline during the 1985-2000 period. However, a high population growth rate and political and social problems in the several of the region's largest countries (e.g., Congo, Sudan, and Zimbabwe) continue to prevent stronger growth. In addition, Sub-Saharan Africa's grain production is not expected to keep pace with the rise in potential demand.

To partially meet this shortfall, total food grain imports are projected to grow about 1.2 percent per year, rising from their current level of about 13 million tons to near 17 million tons in 2011/12. Despite this growth, grain imports only represent about 17 percent of total supplies over the baseline. Furthermore, increases in total food grain consumption are not expected to keep pace with the region's strong population growth, implying a slight decline in per capita consumption of bulk grains over the period.

The region's food grain imports are linked to the global availability of food aid and movements in international commodity prices. Global food aid is assumed constant in value through 2011, but steady increases in nominal commodity prices over the baseline period result in slowly declining food aid volumes (-0.8 percent per year). However, since the region is recognized as the most vulnerable with respect to food security, it is assumed that Sub-Saharan Africa's share

of global food aid donations will rise at a 2-percent rate through the baseline. By 2011/12, the region's share of global food aid is projected at 40 percent, up from a 32-percent share in 2001. Food aid imports are allocated across wheat, corn, and rice with shares of 44, 41, and 15 percent, respectively.

Despite the importance of food aid to the region, food aid imports remain a small share of total grain imports. Commercial purchases currently account for about 80 percent of Sub-Saharan Africa's food grain imports, and this share is projected to remain steady over the projection period. Commercial imports are dominated by wheat (over 50 percent) and rice (nearly 40 percent), with corn, sorghum, and barley comprising the remainder.

South Africa is projected to regain its status as a corn exporter throughout the baseline, bolstered by growing international demand. Small area and yield gains for corn generate an exportable surplus that grows from 1.2 million tons in 2002 to 2.7 million tons by 2011, in large part due to a declining domestic per capita consumption rate for corn.

North Africa. Growth in the region's import demand for grains, feeds, and oils is projected to strengthen during 2002-2011, based on the outlook for improved economic growth, but only slow growth in crop output. In Morocco, Algeria, and Tunisia, cereal production improved substantially in 2001 after suffering consecutive droughts the two previous years. As a result, grain imports fall in the early projection years. Longer term, imports of grains and oilseeds are projected to rise as growth in demand for food and feed grain continues to outpace domestic production.

Limited arable land, small farm sizes, limited use of modern production techniques, and the lingering effects of drought all contribute to only modest gains for North Africa's crop production. In contrast, further progress with trade liberalization and privatization programs, and other specific economic reforms in individual countries of the region are expected to help sustain economic growth. The region's GDP is projected to grow at a rate of about 4 to 5 percent over the projection period.

Egypt's large and steadily growing population (estimated at 69.5 million in 2001), coupled with limited arable land and dependence on the Nile for water, is expected to maintain strong demand for wheat and feedstuffs from international markets. Real GDP growth is projected at 4-5 percent annually during the projection period. In addition, revenue from the discovery of sizable natural gas reserves and their development for export is expected to contribute to economic growth when production comes on line in 2003. As a result, rising consumer demand and recent trade policy reforms are expected to generate more growth in corn and soybean imports.

Steadily increasing corn imports are projected in response to the booming poultry and livestock sectors, and to growing demand for starch and sweeteners. Soybean imports are expected to expand rapidly due to the startup, after several years of delay, of two new private soybean-crushing facilities in Alexandria (in late 2001) and in Damiatta (in 2002). Consequently, growth in imports of soybean meal is expected to slow. Wheat imports are expected to increase gradually, driven primarily by population growth.

Egypt's rice exports are expected to benefit from a series of mini-devaluation's of the Egyptian pound relative to the U.S. dollar. Egypt's rice production was up sharply in 2001, due to widespread cultivation of a new variety with yields averaging nearly 40 percent higher than traditional varieties. Consequently, rice exports are expected to increase to more than 650,000 tons early in the baseline. However, gradually rising domestic demand is expected to cut into Egypt's export surplus and reduce exports to about 600,000 tons by 2011.

Middle East

Macroeconomic performance in the Middle East region remains strongly tied to the typically uncertain outlook for petroleum export earnings, which are projected to grow slightly faster than inflation through the projection period. In addition, a strengthening global economy after 2003 will benefit the region. Real annual GDP growth is projected at about 4 percent between 2004 and 2011, while population growth is still around 2 percent. As a result, annual per capita GDP growth in the region averages about 2 percent during the period.

Iran. Projections for Iran assume a continual movement towards integration into the world economy. Real per capita annual GDP growth is projected at about 2 percent over the period, driving increases in demand for meat, particularly poultry. Growth in the livestock sectors, while sufficient to meet domestic demand, will increase demand for corn, barley, and soybean meal imports, as domestic grain and oilseed production potential is limited. Per capita wheat consumption, already at high levels, is expected to remain flat despite higher incomes. Nevertheless, import demand will continue to rise because of strong population growth and constraints on domestic production.

Iraq. Iraq remains bound by international sanctions and government policies that divert domestic resources to support a large military and internal security forces and to key supporters of the regime. Under the UN's oil-for-food program, Iraq is allowed to export as much oil as required to meet humanitarian needs—food, medicine, and some infrastructure spare parts. Oil exports are now more than three-quarters of their pre-war level. Per capita food imports have increased significantly. Domestic agriculture receives very limited internal investment. However, the absence of open conflict in recent years has allowed some modest recovery in crop production. Yet, Iraq remains highly dependent on imports of wheat, rice, and other foodstuffs to meet domestic needs. Increases in coarse grain production are absorbed by the poultry sector where production is projected to rise almost 5 percent yearly. However, poultry production is starting from a small base and no protein meal imports are projected to support its growth. In addition, poultry per capita consumption levels of about 6 to 7 kilograms per person are small compared with other Middle Eastern countries, and are projected to grow only slightly more than 1 percent per year.

Saudi Arabia. Saudi Arabia is the world's leading importer of barley, as well as a major importer of rice, wheat, other feed grains, and protein meal. Several factors are expected not only to reinforce this pattern, but to generate increases in import demand for food and feed through the projection period. First, Saudi Arabia's projected population growth rate of about 3.3 percent per year through 2011 is among the highest in the world, implying strong demand growth for calories. In the long run, rapid population growth is expected to undercut GDP gains

and Saudi Arabia's per capita income growth is projected to remain below 1 percent per annum. Although stronger than during the early 1990s, this projected per capita income growth is well below the Middle Eastern average of 2 percent.

Second, the country's economy is heavily dependent on the performance of the petroleum export sector. Saudi Arabia has a fourth of the world's proven oil reserves with one of the lowest costs of extraction, implying high per barrel profits for decades into the future. Third, Saudi Arabia's limited arable land is further constrained by one of the driest climates in the world. The remarkable grain production surge that occurred in the late 1980s and early 1990s came at the expense of the country's precious aquifers. Since the mid-1990s, concern over the depletion of water resources has constrained grain area and production. Fourth, Saudi Arabia (like most Moslem countries) has a strong preference for home-grown livestock in order to ensure that animals are slaughtered according to Islamic Rites. As a result, continued strong expansion of the livestock and poultry sectors to meet growing domestic demand is projected to boost imports of feed grains and protein meals. Fifth, a large expatriate community of "guest workers," many from traditional rice-eating nations of South and Southeast Asia, will continue to fuel demand for wheat and rice during the projection period.

Turkey. Turkey's near-term outlook is clouded by the financial crisis of February 2001. The resulting large currency depreciation and fall in income will both work to reduce demand for agricultural imports and will alter Turkey's trade balance in favor of exports early in the period. However, the economy is expected to return to 4-percent annual growth for 2004 through 2011. The strong GDP growth outlook translates into very healthy per capita gains as Turkey's population is expected to grow, but at a declining rate, through 2011 when the population growth rate dips below 1 percent. In addition, continued strong urbanization is expected to drive the demand for increasing shares of meat, fruit, and vegetables in consumer diets. This will impact agricultural trade from two directions. First, high-valued crops such as fruits and vegetables displace traditional grain crops in prime growing areas near major urban cities, thus limiting domestic output of grains. Second, demand-driven increases in livestock production necessitate ever-increasing volumes of grain and protein meal. These two factors motivate strong growth projections for feed imports.

Turkey's poultry industry has suffered from the 2001 financial crisis, due to tight credit availability and a decline in demand. Therefore, a significant, albeit temporary, decline in poultry production is expected. Because of the effect of the crisis on poultry, the demand for soybeans and soybean meal declines slightly in 2002 before growing 3.5 percent per year through 2011. Beef production continues to grow unabated by the current crises and, along with it, feed grain imports continue to grow (over 6 percent per annum) through 2011.

Textiles and clothing are Turkey's most important industry and largest exports. Cotton imports are projected to increase modestly in the next few years. However, the longer run scenario for cotton in Turkey depends primarily on two factors. First, the phaseout of the Multi-Fiber Agreement (MFA) will favor cotton imports and textile production by low-wage labor markets (see box, "Effects of the Multi-Fiber Arrangement Phaseout in 2005"). The MFA phaseout is assumed to benefit Turkey's textile and clothing sector, and to keep milling demand for raw cotton growing steadily through 2011. Second, the completion of the Southeast Anatolia GAP

irrigation project is expected to double cotton production in Turkey and lead to a long-term decline in cotton imports. However the project's completion date has proven elusive, despite forecasts that it will occur sometime between 2005 and 2010. It is assumed to come online gradually during this baseline, and result in no growth in imports after 2004.

Strong Growth in Feed Demand Projected for North Africa and the Middle East

Already a major destination for global feedstuffs, North Africa and the Middle East (NAME) is projected to experience continued growth in import demand for grain and protein meals through 2011. Coarse grain imports into the region are projected to expand by 34 percent from 24.5 in 2001 to 32.8 million tons—over one-fourth of total world coarse grain imports—in 2011. Imports of soybeans and soybean meal (in soybean equivalents) are expected to expand by 36 percent from 8.3 to 11.3 million tons, for nearly an 8-percent share of world imports. Rising populations (projected to grow about 1.6 percent annually through 2011), and an increasing average real GDP growth rate (forecast between 4-5 percent annually in most countries) are expected to sustain strong demand growth for animal products—the real catalyst behind growing feed demand.

Currently, many of the countries within NAME maintain restrictive policies on imports of poultry and red meat, including outright bans and/or high import duties, in order to bolster domestic production. Most Moslem countries have a strong preference for home-grown livestock in order to ensure that the animals are *Halal* (lawful) and *Zabihah* (slaughtered according to Islamic Rites) in order to be suitable for consumption. Strong regional demand for animal products has bolstered NAME's output of animal products between 1990 and 2001. Poultry production grew at an annual rate of 4 percent over this period; red meats, 1.8 percent; eggs, 2.6 percent; and milk, 2.1 percent.

Feed requirements have grown in step with the livestock and poultry sectors. However, most NAME countries share the common circumstance of limited arable land and inadequate water resources which constrain their capacity to produce feed grains and oilseeds.

Limited Resource Base Constrains Feed Production

Traditionally, animal feeding in NAME countries relied mostly on combining small quantities of coarse grains and oilseed meals with crop residues such as straw from wheat, rice, and barley, or stalks from corn, sorghum, and cotton. With the modernization of animal husbandry practices and the introduction of feed manufacturing, the use of feed concentrates based on coarse grains and protein meals has increasingly replaced traditional feedstuffs.

In 2000, the NAME region was home to over 381 million people. The region's population is projected to grow at a robust 1.8 percent annual rate, pushing the total population to 463 million by 2011. However, prospects for meeting the region's growing feed requirements internally are dim based on limited grain and oilseed production potential. According to FAO, only about 6

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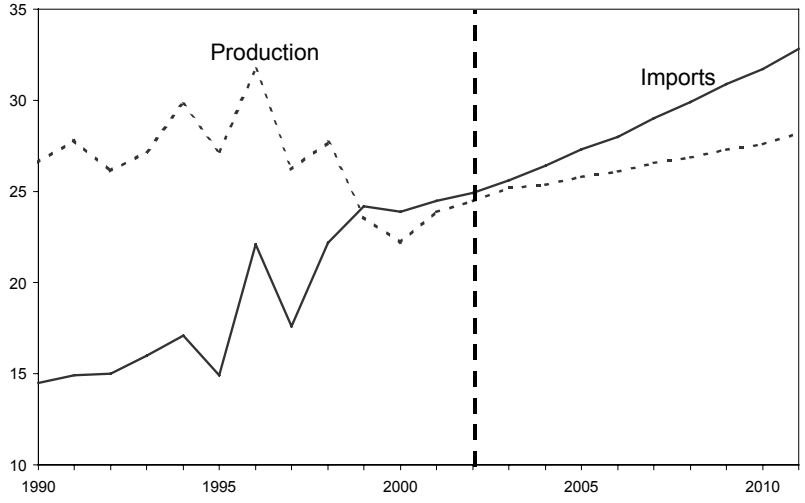
Strong Growth in Feed Demand Projected for North Africa and the Middle East--continued

percent—64 million hectares—of the region's total land area is suitable for crop production. Of this area, 13 percent or 8.3 million hectares is dedicated to tree crops. Almost one-third of the area under crop production depends on irrigation water to produce a harvest. Growing populations, particularly in large urban centers, are gradually cutting into the water supplies available for irrigation. Salinity is a constant problem. In addition, non-irrigated cropland is subject to the region's highly erratic and unpredictable rainfall patterns.

Almost 29 percent, 302 million hectares, of total land area is used for pasture (FAO). However, the efficiency of livestock grazing is closely related to precipitation, which largely determines the amount of forage produced. Widespread drought across most of North Africa in 1997 and again in 1999 and 2000, severely curtailed forage production and necessitated large increases in feed imports. Parts of the Middle East experienced severe drought in 1999 and 2000. Some modest recovery occurred in 2001, although some countries in the region—Eastern Turkey, Iran, and Iraq—still suffered drought in 2001.

Poor precipitation in recent years has had important consequences on production and trade. NAME's coarse grain production declined from 31.7 million tons in 1996 to only 22 million tons in 2000, and oilseed production was also reduced (figs. 5 and 6). Consequently, import demand has risen sharply to meet domestic feed requirements. A return to more normal precipitation patterns is expected to slightly reduce cereal and protein meal demand in 2002 and possibly 2003. Longer term, the region's grain and oilseed production is projected to resume normal growth and approach the record levels of the mid-1990s. However, the region's growing demand for animal feeds is expected to outpace domestic output growth by 2004, and once again generate record import demand through the remainder of the projection period.

Figure 5
Limited production growth projected to bolster coarse grain imports by the North Africa & Middle East (NAME) region*
Million metric tons



*Baseline projections, 2002-2011.

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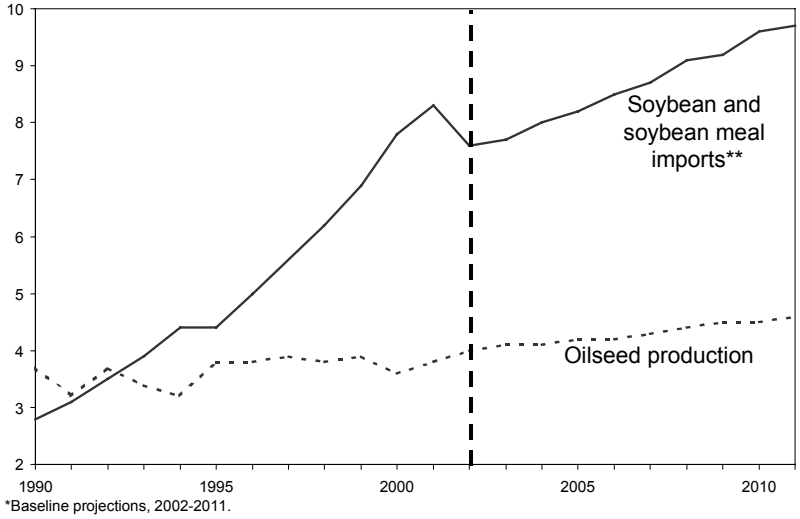
Strong Growth in Feed Demand Projected for North Africa and the Middle East--continued

Figure 6
Soybean and soybean meal imports by NAME countries projected to grow robustly through the projection period*
Million metric tons



*Baseline projections, 2002-2011.
**In soybean equivalents.

Growing Feed Import Dependency

The widening imbalance between feed requirements (especially those providing high energy and crude protein) and feed production has translated into increasing dependency on international markets for coarse grains and oilseeds. In the past several years, the value of feed imports into NAME countries has exceeded $3 billion. Nearly three-fourths of feed imports have been coarse grains, while oilseeds and protein meals have comprised over 20 percent. The rest has been small amounts of prepared feeds, fish and meat flour, bran of cereals, and alfalfa.

Between 1990 and 2001, soybean and soybean meal imports in soybean equivalents grew from a 70-percent share (2.8 million tons) of domestic use to a 77-percent share (8.4 million). During the same period, the corn-import share expanded from 46 percent (6.6 million tons) to 63 percent (15.3 million), and the barley-import share rose from 31 percent (7.4 million) to 43 percent (9.4 million). This pattern of import dependency has been reinforced by the development of new marketing structures since the late 1980s resulting from widespread policy reforms that greatly liberalized trade in many NAME countries. Thirteen of the 22 countries in the NAME region are WTO members and can be expected to continue to reform their trade practices. Another 4 countries (Algeria, Lebanon, Saudi Arabia, and Yemen) have WTO observer status and will begin or have already begun negotiations for accession. Only Libya, Iran, Iraq, and Syria do not participate at any level in the WTO.

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Strong Growth in Feed Demand Projected for North Africa and the Middle East--continued

The United States has been a major beneficiary of NAME's growing feedstuff imports. By 2000, the NAME region was the largest foreign market for U.S. soybean meal (accounting for 21 percent of total U.S. soybean meal exports) and the second largest market, after Japan, for U.S. corn with a 22-percent share of total U.S. corn exports.

In the mid-1990s, corn overtook barley as the principal coarse grain imported by NAME countries, due mainly to rising poultry production. Egypt is traditionally the region's largest corn importer, generally taking about one-third of the region's imports, although Saudi Arabia, Algeria, Turkey, and Iran each import more than 1 million tons annually. The United States—the region's largest corn supplier—has more than doubled its exports to NAME countries in the past 10 years, from under 5 million tons in 1989 to over 10 million in 2000. During the projection period, corn imports are expected to account for an ever-increasing share of the region's total coarse grain imports, rising from about 59 percent (14.6 million tons) in 2002 to 62 percent by 2011 (20.4 million tons).

The NAME region represents the world's largest barley importing block, averaging over 9 million tons (55-percent of world imports) since 1996. Saudi Arabia is the region's principal barley importer with nearly a 30-percent global market share. Major competitors for NAME's barley imports include the EU—France, Germany, and the United Kingdom—and Australia. NAME imports of other coarse grains—such as sorghum, rye, and oats—are relatively minor.

NAME's Oilseed Crush Gaining in Importance, But Meal Imports Still Dominate

Oilseed-based meal production has been increasing steadily in NAME countries since the early 1990s. However, most NAME countries still import the majority of their protein meals (over 60 percent of the region's consumption was imported in 2000), due to a lack of modern crushing facilities. But the region's crushing capacity is expected to expand rapidly in the next several years as at least 11 new soybean processing plants are in various stages of construction throughout the region—3 plants in Iran, 2 plants each in Egypt and Dubai, and 1 plant each in Jordan, Syria, Tunisia, and Turkey. The combined capacity of these plants is estimated to approach 8 million tons per year. Many of the countries where the plants are being built have variable import tariffs that favor the import of whole oilseeds instead of meals and oils, and virtually assure a profitable crush margin. As these plants gradually come on line, it is expected that they will result in a shift from meal and oil imports to increases in whole seed imports for domestic crush. For example, two new, private crushing facilities scheduled to start operations at the end of 2001 in Alexandria and in 2002 in Damiatta, Egypt (with capacities of 5,000 and 1,100 tons per day, respectively), are expected to rely totally on soybean imports.

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Strong Growth in Feed Demand Projected for North Africa and the Middle East--continued

Soybean meal's share of the region's protein meal production has grown steadily from 42 percent in 1990 to 57 percent in 2001. The rapid increase has mainly been due to two factors. First is a preference for soybeans by the domestic oilseed crushing industry. Second is a decline of cotton-sown area, and consequently cottonseed and meal production. As a result, soybean meal has been replacing cottonseed meal in feed concentrates. Traditionally, cottonseed dominated the region's production of oilseeds, accounting for about 60 percent of oilseed harvested area and 70 percent of oilseed production in recent years. However, area has been leaving cotton since 1996 due to declining relative returns, and production has been stagnant despite strong yield gains.

Soybean production is fairly new to the region and, despite a preference for soybeans by domestic crushers, farmers consider current yields too low to compete with other crops for the use of land. It is expected that soybean yields will not increase sufficiently to generate profitable returns during the projection period, thereby maintaining the region's strong dependence on foreign sources for both oilseeds and protein meals.

NAME's total oilseed meal imports—composed of 90 percent soybean meal, 9 percent sunflower, and the rest cottonseed, rapeseed, and linseed meals—more than doubled from 2 million tons in 1990 to 5.1 million tons by 2001. Total soybean meal imports for the region are projected to grow to 6.1 million tons by 2011. Egypt, Saudi Arabia, and Turkey are the principal recipients of soybean meal shipments to the region.

In terms of whole oilseeds, nearly two-thirds of NAME's oilseed imports have been soybeans in recent years, while the rest has been primarily sunflower seeds and cottonseed. Soybean imports by the region are projected to grow from about 2.6 million tons in 2002 to 3.6 million tons in 2011. Historically, the United States has been the principal supplier of soybeans to the region. However, since 1997, Argentina and Brazil have entered the NAME market and are now aggressively competing with the United States. As a result, the United States has seen its market share decline from a pre-1998 average of 93 percent to only 58 percent by 1999, while Argentina's and Brazil's shares have grown to 15 and 10 percent, respectively. About half of U.S. soybean exports to NAME are shipped to Israel, which has the largest crushing capacity in the region, with Turkey and Egypt taking about 40 percent.

Imports of sunflower seeds into the NAME region have also increased sharply over the past decade and now account for about a fourth of all oilseed imports. Turkey has been the largest single importer, taking over half of the region's imports. Jordan and the United Arab Emirates are also significant importers of sunflowers. Other oilseed imports such as cottonseed, rapeseed, linseed, safflower, and sesame come primarily from the EU, but generally account for less than 10 percent of total oilseed imports. During the projection period, soybean's share of oilseed imports is expected to grow to about 80 percent, while sunflower's share dips to about 16 percent.

Western Hemisphere

Canada. Canada is projected to remain a major producer and exporter of wheat (spring wheat and durum), barley, oats, rapeseed, beef, and pork through 2011. A small domestic market keeps Canada's agricultural sector focused strongly on the international marketplace where the outlook for a return to growth for the world economy by 2003, particularly for the United States and Asian economies, is expected to improve Canada's export prospects. In addition, exchange rates are expected to favor Canada's export competitiveness in international wheat, rapeseed, and meat markets. The Canadian dollar is assumed to continue to weaken vis-à-vis the U.S. dollar, devaluing by an additional 4 percent over the projection period.

Canada is the world's second largest country with nearly 10 million square kilometers. However, a short growing season (90-120 days) limits production to spring-planted small grain and oilseed crops through most of Canada's vast central Prairie provinces of Alberta, Saskatchewan and Manitoba. Returns in the near term favor wheat recapturing some of this area. Over the longer term, however, the more rapid growth in global vegetable oil and meal demand is expected to increase the competitiveness of oilseeds, particularly canola.

Canada's wheat and oats exports are expected to resume steady annual growth rates (nearly 1 percent for wheat and just under 2 percent for oats) through 2011, after recovering from weather-reduced supplies which led to a drop off in exports in 2001. Canada's barley exports (particularly malting barley) also make a strong recovery, but strong international competition and increased domestic feed demand are expected to dampen exports of feed barley mid-way through the period, before some recovery is made after 2008. Malt barley exports remain strong and represent a growing share of Canada's total barley exports.

Canadian canola has a high-quality oil component with nearly a 40-percent crushing yield. As a result, Canada's rapeseed exports are projected to benefit from increasing global demand for vegetable oils through the projection period, but exports and production gains remain modest due to strong competition for area from wheat and barley, and strong international competition from other oilseeds, particularly soybeans and palm oil.

The elimination of freight subsidies in 1995 continues to shape the outlook for Canadian agriculture and trade. In particular, the livestock sectors have benefited from the reductions in domestic grain and oilseed prices that have resulted from the rising cost of moving grain from the interior Canadian prairies to export positions on the west coast or the St. Lawrence Seaway. Also, U.S. and EU farm subsidies have helped Canadian livestock producers by lowering feed grain prices at the expense of grain farmers.

Continued expansion in hog production and slaughter capacity is expected to lead to increased hog slaughter in the coming years. Processing plants that have yet to increase capacity, and even some that have, are expected to continue to expand to compete for a share of the increase in hog supply. Pork exports, which almost doubled between 1996 and 2001 to about 710,000 tons, are expected to continue to increase, albeit at a slower pace than the 1990s, averaging 1.8 percent

annually through 2011 when exports exceed 860,000 tons. Beef exports are projected to grow at a faster pace (2.8 percent per annum) reaching 759,000 in 2011.

Along with the expansion in livestock production, feed demand is expected to increase. Canada imports modest amounts of soybean meal from the United States. However, protein meal has encountered increased competition from dry peas (field peas) in livestock rations. Canadian production of dry peas has increased significantly since the mid 1990s. Much of the projected increase in energy demand is expected to be met by strong yield growth in domestic corn production and by increased feeding of barley. However, there is considerable uncertainty surrounding this outlook as potential corn area is limited to southern and southeastern Ontario and the extreme southwestern corner of Quebec where the growing season runs from 120 to 150 days. Corn competes with soybeans and winter wheat production in this southeastern part of Canada. With the type of growth expected in Canada's livestock industry in the next decade, favorable feed grain price projections are necessary for domestic production to keep pace with feed demand. Otherwise look for increased feed imports, particularly U.S. corn.

Production of specialty crops, including peas and lentils, has also benefited from the 1995 transportation reform, as producers have moved to diversifying their operations. In addition to specialty crops, canola production and processing has also expanded to take advantage of value-added opportunities. A greater percentage of canola production is expected to be crushed domestically. As a result, the growth rate of oil and meal exports is projected to be significantly higher than that of seed exports. Exports of high-value products have recently overtaken bulk commodity exports as the largest earner of foreign exchange in the agricultural sector. This pattern is expected to continue through the projection period.

Another uncertainty is the extent to which the easing of budgetary pressures translates into expanded support for the agricultural sector. Depressed agricultural commodity prices of the past three years have strained Canada's agriculture. The federal and provincial governments have several programs in place to help support domestic agriculture, although expenditures remain considerably lower than in the 1980s. Current programs include the Net Income Stabilization Account, Crop Insurance, the Canadian Farm Income Program (which went into effect in 2001), and various Provincial Stabilization programs. The government is concerned, however, that current payments have become too focused on emergency aid. It is currently exploring the feasibility of revamping farm income safety net programs with a comprehensive policy that would require farmers to comply with rigid environmental, food safety, and risk management provisions if they expect to qualify for aid. As of the completion of this baseline, no decisions had been made on changing current policies, and similar levels of support are assumed under the baseline. Other policies assumed to remain in place include the Canadian Wheat Board's monopoly marketing powers over wheat and barley in Western Canada and the supply management programs for dairy, eggs, and poultry products that isolate these products from world markets.

Mexico. Mexico is expected to show the fastest economic and population growth of the 3 North American countries over the next decade. Strong per capita real GDP growth (3 percent annually), along with trade liberalization and domestic policy reform, will be the key factors shaping the outlook for Mexican agriculture during 2002-2011. Production capacity will remain

limited by scarcity of water and land, and by low levels of technology, while rising incomes drive up demand for livestock products and feeds. Mexico is expected to be a progressively larger importer of grains, oilseed products, and meats during the projection period.

In recent years, Mexico has experienced increasing domestic pressure to limit imports, in large part because of continued low internal prices for most agricultural commodities and concern about the impact of eliminating TRQs in the next few years. However, longer-run agricultural policy is expected to continue to be driven by the Alianza para el Campo, of which the PROCAMPO program is a major component, and by NAFTA. Under PROCAMPO, the government continues to reduce its role in supporting grain prices. PROCAMPO direct payments, which require planting but are otherwise decoupled, will continue to be phased out. Mexico is also expected to continue to reduce consumer subsidies. Stiff competition from imports is expected to reduce area planted to coarse grains and limit wheat area.

Under NAFTA, all tariffs on baseline commodities will be eliminated by 2008, with a number of them being eliminated in 2003. Because of the price-competitiveness and quality of U.S. corn, pork, poultry, and eggs, it is assumed that Mexico will import at least the tariff-rate quota quantities. In the case of poultry, it is assumed that Mexico will continue to not enforce the TRQ, leading to modest growth in imports from the United States.

New programs aimed at improving agricultural productivity are assumed to have a small impact on farm output during the projection period. The new programs include initiatives for water distribution and irrigation investment, improved genetic material and equipment for livestock producers, technology transfer for the cattle and oilseed sectors, certified seed exchange, and an extension initiative for corn. The objective is to provide producers with the tools to operate in an environment largely free of government intervention but, until there is concrete progress in implementing the programs, it is assumed that impacts will be relatively small.

South America. Growth prospects for the region are dominated by the two largest economies in the region, Brazil and Argentina. Virtually all of the region's economies are expected to register strong economic growth starting in 2003 (at or above 4 percent per year), with the exception of Argentina whose recovery starts later (2004) and is less robust (averaging slightly above 3 percent per year).

Argentina. From 1991 through 2001, Argentina maintained a one-to-one link between the peso and the U.S. dollar, in nominal terms. This link is assumed to continue throughout the baseline, and does not reflect the currency devaluation of January 2002. In real terms, however, the baseline assumes the value of Argentina's peso depreciates slightly against the dollar through the projections. This real exchange rate assumption helps to maintain Argentina's competitiveness vis-à-vis the United States.

Argentina's agricultural production is expected to grow strongly through the projection period, however, it becomes more focused on its top export earning commodities—soybeans and soybean products, wheat, and corn—following the recent trend. Between 1999 and 2001, area devoted to soybeans, wheat, and corn has increased by about 15 percent, while area planted to sunflower seeds, sorghum, barley, and rice has declined by nearly 38 percent. However, most

future growth is derived from higher yields, rather than area expansion. Total crop area is projected to expand at a meager rate of only 0.3 percent per annum. Yields of wheat and corn are still considerably lower than in the United States, but continued adoption of higher-yielding plant varieties and more intensive input use are expected to generate a steady 1-percent yield growth for most crops.

Argentina's soybean production is projected to grow at a 2.7 percent annual rate based on both area and yield gains. An efficient crushing sector with plenty of capacity is expected to help maintain Argentina's status as the world's leading exporter of soybean products. Exports of both soybean meal and oil grow in excess of 3 percent per year, compared with soybean export growth of slightly more than 2 percent.

Argentina's livestock sector was dealt a severe blow when a widespread FMD outbreak in March 2001 was followed with bans on imports of Argentine "fresh and chilled" beef by the United States and other importing countries. Argentina had just recently obtained FMD free status and was hoping to target beef exports to high-valued markets in the United States and East Asia. Instead, most of Argentina's beef exports to those markets will be limited to processed products for the foreseeable future. As a result, beef and veal production in Argentina grows at a slow 0.8-percent annual rate during the baseline, and Argentina's beef exports (which show continued growth) are expected to remain far below their levels of the mid-1990s.

Brazil. Brazil's agricultural production and trade prospects are extremely favorable in the long-term, and are expected to benefit from on-going improvements in infrastructure. Improvements in waterway and railroad transportation systems are expected to lower both internal production costs and commodity export prices. Production costs decline due to falling costs of delivering inputs to producers in the interior. Export prices are lower because the products are produced more cheaply and because the transport cost of the back haul from the production site to the export position is lower. The result is increased competitiveness for Brazil commodities in international markets.

The conversion of undeveloped land to arable land in Brazil's interior states is expected to gain momentum in the next decade, leading to further gains in soybean, corn, and cotton area and in cultivated pastures to support livestock expansion. Such area growth will raise national average yields for each of these crops and benefits will be realized from large farm sizes and use of "state-of-the-art" technology in expansion areas. Furthermore, this expansion will push soybean production from these areas far beyond that of the traditional producing areas in South and Southeast Brazil. However, infrastructure development remains the key to the pace of agricultural expansion in the vast interior lands.

Brazil's soybean production is projected to grow at a remarkable 5 percent annual rate based on both rapid area gains in excess of 3 percent per year as soybeans capture the lion's share of new cropland expansion. Yield growth of about 1 percent per annum also contributes to output growth. Brazil's crushing sector is less efficient than that of its two principal competitors—the United States and Argentina—yet Brazil is expected to maintain its status as the world's second-leading exporter of soybean products behind Argentina. Brazil's exports of soybean and soybean meal (in soybean equivalents) are projected to grow by nearly 5 percent per year,

pushing Brazil's total world market share from under 28 percent in 2001 to almost 35 percent in 2011. Brazil's soybean oil exports also respond to growing global demand for vegetable oil and grow rapidly starting in 2006.

Production gains in corn and soybeans will fuel growth in Brazil's rapidly expanding poultry and pork sectors. Increased meat production is expected to generate strong growth in exports of both poultry and pork.

Area planted to wheat in Brazil is expected to show little growth, however, because production in the temperate southeastern areas faces competition from more efficient producing areas in neighboring Argentina and current varieties for these crops are not economical to produce in the tropical setting of the country's interior. As a result of limited wheat production growth in the face of strong urbanization and income growth, Brazil's wheat imports are expected to grow at about 3 percent annually, reaching 9.7 million tons by 2011. This import level maintains Brazil as the world's leading wheat importer throughout the projection period.

Transition Economies

Former Soviet Union (FSU). The countries of the former Soviet Union (FSU) are richly endowed in natural resources, and Russia, Ukraine, and Kazakhstan have the potential to develop into agricultural powerhouses. However, such development is not expected to occur during this baseline projection period, as agricultural production for the FSU countries remains below the high levels achieved, albeit with the aid of large subsidies, during the mid-1980s. In general, the agricultural sectors of the FSU countries are still mired in the remnants of the old Soviet system and are struggling to establish market economies. Poor production incentives within the large agricultural collectives of the region continue to subvert potential productivity gains. Russia's agricultural sector, largest of the region, remains beset by uncertainty over land ownership rights which has discouraged needed investment and restructuring. Agricultural productivity throughout the FSU region is expected to rise only slightly during the next decade. This reflects pessimism that Russia and its FSU neighbors will enact the institutional reforms in agriculture necessary to promote productivity growth.

Both Russia and Ukraine have large areas of arable land, well-suited for field crop production. However, Russia has historically been unable to meet its own internal demand for grain. Despite being one of the world's leading wheat producers, Russia has sustained large net imports of wheat for most of the past several decades. This pattern is expected to continue through the projection period with Russian net wheat imports of between 2 to 2.5 million tons per year. In addition, Russia is expected to import increasing quantities of corn reaching nearly 1 million tons by 2011. Barley is expected to be Russia's only grain crop produced in excess of domestic demand. Russia's barley exports (predominantly feed barley) are projected to range from under 1 million tons to about 1.5 million by 2011.

Most of Russia's wheat and corn import needs will be met by other FSU countries, particularly Kazakhstan and Ukraine as they can offer the lowest price and suspect quality may put off many other international buyers. The fertile black soil of Ukraine is among the world's finest and has traditionally generated more than one-fourth of former Soviet agricultural output of meat, milk,

grain, and vegetables. An area almost the size of Texas, Ukraine's population of 49 million is small relative to its agricultural output leaving sizable exportable supplies. Ukraine is expected to be a major exporter of wheat (2.5 to 5.8 million metric tons) and coarse grains (1.5 to 3.5 million metric tons) through the baseline period. Kazakhstan wheat is expected to dominate grain production in the "other FSU" countries. "Other FSU" wheat exports are nearly 2 million tons early in the projection period (mostly destined to Russia and nearby markets), but decline to about 0.5 million tons by 2011 as rapidly growing internal demand cuts into exportable surplus production.

Russia and Ukraine—the two pre-eminent economies and agricultural producers within the FSU—enjoyed marked economic growth in 2001, due to the continued recovery from the 1998 financial crisis in Russia. The financial crisis triggered the exodus of capital from the country, which caused the ruble to depreciate severely. A capital flight contagion effect caused Ukraine's currency to depreciate as well. The currency depreciation stimulated domestic agricultural production by substantially improving the price competitiveness of domestic producers vis-à-vis the world market. High oil prices have also allowed the Russian economy to prosper. GDP in both Russia and Ukraine is projected to grow at average annual rates of about 4 percent through 2011.

The populations for both Russia and Ukraine are projected to decline over the projection period. However, their improving economies are expected to lead to an increase in food consumption, particularly of meat, driven by rising per capita consumption rates for all three meat groups—beef, poultry, and pork—through 2011. Ukraine's domestic livestock sectors are projected to grow sufficiently to cover the increase in internal demand. Russia's livestock production remains costly and inefficient, and is unable to respond to rising demand. As a result, meat imports by Russia are expected to grow strongly through the forecast period. In 2001, Russia was the world's leading importer of poultry meat, second leading importer of pork, and third leading importer of beef. These rankings are preserved in the baseline. U.S. poultry exports to the FSU region have already rebounded in 2001 to pre-crisis levels and are projected to capture most of Russia's projected imports of 1.9 million tons by 2011. Russia's beef imports are primarily from the EU, while Brazil and the EU are expected to vie for Russia's pork trade.

Central and Eastern Europe (CEE). As a region, the countries of Central and Eastern Europe continue to reform their economies, a process started in the early 1990s. By and large, the region's agricultural potential remains underdeveloped, although some progress has occurred in recent years and is projected to continue through the baseline. Significant foreign investment in the region has increased productivity in both farming and the food processing sectors.

Strong GDP growth rates in the 4 to 5 percent per annum range across the region are projected through 2011. With almost no population growth in the outlook, the strong income growth translates into very robust per capita income gains and significant growth in demand, particularly for animal products. The livestock sectors begin to grow, albeit slowly. As a result, protein meal imports rise modestly through the projection period. Most meat output growth is for internal consumption, but some pork and poultry exports begin to emerge during the projection period.

Coarse grain production in Central and Eastern Europe begins to recover from the decline engendered by the transition from communism to democracy, but, production remains far below the levels reached in the early 1980s. However, significantly lower animal populations permit some of the production gains to enter international markets. Corn exports from the region grow rapidly (9.5 percent per year) and reach a projected 6.1 million tons by 2011.

Most CEE countries are members of the WTO and have been since the mid-1990s. None of the countries are projected to accede to the European Union during the baseline period, although as many as eight countries could join by 2005. FSU countries remain major trade partners, especially for Poland. However, the sharp drop off in exports to Russia associated with the currency crisis of 1998 has led to a reorientation of their trade to Western Europe.

Commodity Trade Highlights

Coarse Grains

Demand for coarse grains is expected to grow robustly over the next decade, driven by widespread economic growth and expanding meat production. World coarse grains trade is expected to reverse a period of stagnation that began in the early 1980s, and grow 2.2 percent annually from 2002 to 2011. Rising incomes and associated gains in per capita meat consumption, particularly in developing countries, are key drivers of projected gains in coarse grain use and trade.

About two-thirds of global coarse grain supplies are used as animal feed. Coarse grain that is traded is also primarily used as feed. A key factor that weakened global coarse grain demand during the 1990s was the drop in livestock numbers and feeding that occurred in the FSU and CEE as these economies underwent structural reform. However, steady long-run growth in the livestock sectors of developing countries in Asia, Latin America, North Africa, and the Middle East is expected to overtake and replace the lost feed demand of the FSU and CEE. Global coarse grain trade is projected to surpass the 1981 record of 108 million tons in 2006 and expand to nearly 127 million tons by 2011.

Industrial uses, such as starch production, ethanol, and malting, are relatively small but growing. Food use of coarse grains is concentrated in parts of Latin America, Africa, and Asia and has generally declined over time as consumers tend to shift consumption toward wheat, rice, or other foods as their incomes rise.

Higher coarse grain imports are projected for China, North Africa, the Middle East, Southeast Asia, and Latin America. East Asian imports are projected to remain mostly steady, as these countries tend to maintain stable domestic livestock and poultry production, while meat imports satisfy most of the growth in internal demand. Taiwan's and South Korea's feed grain imports are expected to increase slowly, while Japan's decline. After slow growth in the first year of the baseline, reflecting recovery from drought, feed grain imports by North Africa and the Middle East are expected to show strong long-term growth and represent a growing share of global coarse grains demand. The FSU, one of the world's largest importers during the 1980s, is

expected to be a modest net exporter of coarse grains, mostly barley, as animal numbers increase only gradually.

Except for corn, coarse grain area has been falling for decades in most countries, as producers turned to more profitable crops. Foreign corn area is expected to continue to increase at the strong pace of recent decades and, with corn yield growth much stronger than for other coarse grains, corn will increasingly dominate feed grain markets while sorghum and feed barley production decline. However, growing demand and attractive prices for malting barley are expected to provide some support to global barley area and production.

U.S. exports of coarse grains are projected to decrease initially in 2002 because of expected strong competition from Canadian and EU barley and Argentine corn exports. In the longer run, the CEE and FSU regions are also expected to expand coarse grain exports. U.S. coarse grain exports expand after 2002, but competition remains strong.

World corn trade echoes total coarse grain trade by first declining in 2002, before growing throughout the rest of the baseline period. Global corn trade is expected to exceed the 1989 record of 80 million tons in 2007, reaching 92.1 million tons by 2011. The largest gains in corn imports are expected to occur in China, Southeast Asia, Latin America, North Africa, and the Middle East, where demand for livestock feed is expected to expand steadily but production potential is limited. With China reducing corn exports during most of the period, Argentina, Eastern Europe, and the United States will be the major beneficiaries of increasing import demand for corn.

U.S. corn exports are expected to decline in 2002, largely due to reduced Canadian imports, before growing through the rest of the period. U.S. corn exports increase to 61.6 million tons in 2011, slightly below the 1979 record level of 61.8 million. The United States remains the dominant exporter in world corn markets, accounting for more than two-thirds of global corn trade through the period.

Global barley trade is expected to expand throughout the baseline at a 2-percent annual rate. Import growth is expected in China and other malting barley markets. Feed barley imports by North African and Middle Eastern countries (dominated by Saudi Arabian imports) are expected to expand slowly through the period. Australia and the FSU and CEE regions gradually increase their barley exports over the baseline period, while exports from Canada and Turkey decline. Canada's barley exports expand in 2002, but the higher profitability of other crops is expected to lead to a decline in barley area and exports thereafter.

The EU, with abundant barley supplies, increases its barley exports by nearly 4 percent per annum and is the world's leading barley exporter throughout the period. In light of projections for a weak euro and lower internal prices due to Agenda 2000 reforms, expected market prices indicate that EU barley can be exported without subsidy throughout the baseline. Instead, WTO limits on subsidized EU coarse grain exports are shifted from barley to rye and oats. However, the EU is expected to have difficulty finding markets for its large rye stocks.

Sorghum trade is projected to increase gradually (1.5 percent per year) through the baseline, driven almost entirely by Mexico which favors sorghum imports as less politically sensitive than corn.

Wheat

World wheat trade (including the wheat equivalent of wheat flour) is projected to grow at a 2.5-percent annual rate from 2002 through 2011. This projected growth rate is a reversal of the 1980s and 1990s when trade either declined or stagnated. Growth in imports is concentrated in the developing countries, primarily North Africa, the Middle East, Brazil, China, and Pakistan. Import demand from Mexico and Sub-Saharan Africa is also expected to grow steadily over the period. Wheat exports by most major exporters rise over the period. The EU gains market share of world wheat exports through 2011, while the United States' share holds fairly steady. The export shares for all other major exporters including Canada, Australia, and Argentina decline.

Developing countries, bolstered by strong growth in North Africa and parts of the Middle East, account for most of the projected increase in global import demand. Per capita income growth in developing countries is expected to encourage a shift in consumption from roots, tubers, pulses, and coarse grains to more wheat-based products. Developing-country wheat import demand is further reinforced by population growth rates that remain nearly double the growth rates of developed countries. In developed countries, per capita income growth is associated with greater consumption of wheat use in processed food products, but a shift away from unprocessed wheat-based products. In the United States, total use of wheat is growing sluggishly as increases in food use are driven almost exclusively by very modest population growth. The very slow growth in U.S. domestic use underscores the importance of global trade for future U.S. wheat production and prices.

Limits on export subsidies included in the Uruguay Round agreement, as well as budgetary pressures, are expected to make export subsidies less important in the future than they have been in the past for determining wheat market shares. The baseline assumes that none of the budgeted U.S. EEP funds are used for wheat exports through the projection period. Instead, exporter market shares are likely to be determined by the cost effectiveness of wheat production, transportation, and marketing.

After initially declining in 2002/03, U.S. wheat exports are expected to grow through the rest of the projection period. Nevertheless, the U.S. share of the world wheat market holds in a 24 to 26 percent range, below its trade share of the late 1990s, due to continued competition. The EU is expected to boost market share significantly over the next several years as projections of a weak euro allow wheat (and barley) to be exported without subsidies. Agenda 2000 reforms lower internal grain prices early in the projection period. However, a projected decline in the crop area set-aside rate, limited cropping alternatives, and abundant wheat stocks will fuel exports through 2011. The EU share of world wheat trade is projected to increase from 14.5 percent in 2002 to 21 percent by 2011.

Weak exchange rates are also expected to encourage wheat exports from the FSU and CEE. In addition, these regions are expected to see production boosted by steady growth in yields through

the projection period, further increasing exportable supplies. Throughout the period, the FSU is projected to become a growing net exporter of wheat. Within the FSU, Russia remains a net importer of between 2 to 3 million tons of wheat, while Ukraine and Kazakhstan are expected to expand their production and exports.

In Canada, reform of the transportation system that reduced the Canadian Wheat Board's favored status and increased demand for barley are expected to keep wheat area from expanding. Canada's wheat yield growth was very slow over the last decade and, given varietal constraints, is projected to remain limited for the next decade. As a result, increased domestic demand is expected to limit export growth. In Australia, increasing wool prices and limited areas with enough rainfall will lead to some wheat area contraction. Argentina is expected to shift area between wheat, corn, and oilseeds, depending on which has the most attractive world price, but total area is limited. Productivity gains for corn are expected to outpace wheat, causing a gradual decline in wheat area.

Rice

Global rice trade is projected to grow nearly 3 percent annually from 2002 through 2011. By 2011, global trade is projected to exceed 30 million tons, more than 32 percent above the record of 26.6 million set in 1997/98. Projected trade growth is faster than in the 1980s, but slower than in the 1970s and 1990s. Rice trade as a share of total use remains very small relative to other cereals, despite a projected small increase to almost 7 percent by 2011.

International rice trade is consists predominantly of long-grain (indica) varieties, which will also account for the bulk of trade growth over the next decade. Indica rice is imported by a broad spectrum of countries in Asia, the Middle East, Sub-Saharan Africa, and Latin America. Indonesia, Iran, Iraq, and the Philippines are among the top long-grain markets.

In contrast, most japonica imports are by middle and higher income countries, primarily Japan, South Korea, Turkey, and Jordan. Expansion in medium-grain (japonica) trade is expected to be much slower, despite the increases since 1995 in medium- and short-grain rice imports by Japan and South Korea under the Uruguay Round Agreement. Japan's minimum access imports under the World Trade Organization (WTO) are scheduled to remain fixed at the 2000/01 level (682,000 tons) until another agreement is reached. South Koreas' WTO minimum access imports are scheduled to continue expanding through 2004 when they reach 205,000 tons. Accession of Taiwan to the WTO would further boost global japonica imports.

Global rice production is expected to only grow slowly over the forecast period, primarily due to a slowdown in area increases. Expansion in global acreage is expected to remain extremely small, as it has since 1975, as modest area gains in South Asia, the Philippines, Thailand, and several smaller producers are partially offset by land leaving the sector in China and Brazil. Global yield growth has slowed since the early 1990s, but continues to expand modestly with varietal improvements.

Asia will account for the bulk of the growth in global rice consumption, even though per capita consumption in the region is projected to decline. Per capita rice consumption in middle and

higher income Asian countries has been declining for several decades, particularly in Japan, South Korea, and Taiwan, and is expected to continue to decline, reducing total rice consumption in these countries. Higher incomes lead to declines in rice consumption in these countries in favor of other foods, such as wheat products, fruits and vegetables, and meat. Little or no growth in per capita consumption is projected for the largest rice consuming countries in Asia. In China, the world's largest rice consuming country, per capita consumption began to decline in the 1990s and is projected to continue declining, a result of rising incomes, urbanization, and shifting diets. Even with a rising population, China's total food consumption of rice is projected to decline over the next decade. Per capita growth is projected to be negligible in India, Indonesia, and Bangladesh. However, growing populations will push total rice consumption higher over the next decade in these three major rice-consuming countries.

In contrast, per capita consumption is projected to continue rising in other regions. These are primarily lower income rice producing countries, such as the Philippines, and higher income non-Asian countries, such as Canada, the EU, and the United States. Per capita consumption is also projected to continue expanding in the Middle East, Egypt, and Central and Eastern Europe. Per capita consumption in Brazil, the largest non-Asian rice consuming country, has been declining since the 1990s and is projected to continue declining over the next decade. As a result, total rice consumption in Brazil is projected to fall despite an expanding population.

The United States is a net exporter of rice, shipping high-quality indica and japonica rice to markets worldwide. However, both U.S. rice exports and the U.S. share of global rice trade are projected to slowly decline over the next decade. Fractional growth in U.S. production, continued expansion in domestic use, and higher U.S. prices relative to Asian competitors are expected to prevent any increase in the volume of U.S. rice exports over most of the baseline period.

U.S. rice exports are projected to increase in 2003 and remain flat for the next 2 years as large U.S. stocks are slowly drawn down. However, from 2006 through the end of the baseline period, U.S. rice exports decline as strong growth in domestic consumption outpaces stagnating production. U.S. stocks are steadily drawn down and the U.S. price premium over Asian competitors widens. By 2011, total U.S. rice exports are projected at less than 2.5 million tons, while total imports are expected to rise to 440,000 tons, leaving the United States a net exporter of about 2 million tons of rice. This compares with the estimated 2.3 million tons of net exports in 2000/01.

The United States accounted for more than 20 percent of global rice trade during the 1970s and was the largest exporter several years during that decade. From 1991 to 1995, the U.S. share of the export market for rice varied from 14 percent to 17 percent, but averaged less than 12 percent from 1996 to 2001. It is projected to slowly decline to about 8 percent by 2011.

Thailand is projected to remain the world's largest rice exporter over the next decade, with exports rising from less than 7 million tons to almost 10 million by 2011. Vietnam is projected to remain the number two rice exporter, with shipments expanding from about 4 million tons to 5.7 million. China is projected to slowly expand exports over the next decade and will remain

the third largest exporter after 2002. Export growth by India and Pakistan will be much slower than for the top 3 exporters. India's internal price supports typically make it non-competitive in the global market. Pakistan has little ability to substantially expand rice production. Among smaller exporters, Australia, Argentina, and Uruguay are projected to slowly expand exports, while little or no growth is projected for Egypt and the EU.

Historically, trade in international rice markets has exhibited greater volatility than in other global cereals' markets. Much of this volatility stems from a high concentration of global rice production in South and Southeast Asia where much of the production is heavily dependent on the timing and amount of rainfall during the monsoon season. In addition, only a small share (currently about 6 percent) of world rice production is traded each year. These factors will continue to affect the world rice market during the next 10 years, with the potential to create dramatic annual swings in trade that could deviate significantly from the trends projected in this baseline.

Cotton

World cotton trade is expected to average 1.3-percent annual growth during 2002-2011, reversing much of the decline suffered during the 1990s. World cotton trade fell from a peak of 33.4 million bales in 1988 to 23.7 million in 1998, in large part due to declining Russian imports. China also switched from a large importer to exporter in 1998. The outlook is for import growth in Russia, China, and elsewhere during the forecast period and world exports are projected to reach 33 million bales by 2011.

The United States is expected to remain the world's leading exporter of cotton with exports in the 10 to 11 million bales range throughout the projection period. U.S. cotton exports are projected to benefit from the Multi-Fiber Arrangement phaseout after 2004 and the subsequent expected increase in raw cotton consumption by developing countries. However, as a share of world trade, U.S. exports peak in 2003 at 37 percent, then decline gradually to about 30 percent by 2011. This is still well above its average share of global trade during the 1990s.

Foreign export growth is expected to recover during 2002-2011, but to remain below the long-term trend. By 2011, foreign exports are expected to total 23.1 million bales. Foreign export growth will be supported by some resumption of trade relations among countries of the FSU, and by growing import demand from China, Latin America, and Southeast Asia. Growth in foreign consumption and production of cotton both slowed substantially during the 1990s, largely due to difficulties with the transition to market economies in the FSU and CEE regions. Recovery became evident late in the 1990s and is expected to continue during the next decade. Rebounding Russian mill consumption since 1999 and the likelihood that China will again become an importer following cotton-sector policy reforms underlie much of the expected growth in world cotton trade during the next 10 years.

In addition to Russia's return to growth, several countries that were net suppliers to world markets as late as 1990 have become importers instead. In past years, increasing consumption in Mexico, Brazil, and Turkey in part represented shifts in consumption away from importing countries to non-importing producers. As consumption gains have consistently outpaced

production in all three countries, they have begun to steadily import, driving world trade higher. Even India and Pakistan became frequent net importers during the second half of the 1990s.

However, a key uncertainty is the extent to which earlier gains in cotton consumption, associated with a shift in consumer fiber preference toward cotton and away from synthetics, can be sustained. Cotton competes with manmade fibers (e.g., polyester, nylon, and olefin), as well as wool, linen, and silk in the production of textiles. Sustained Asian investment in polyester capacity suggests vigorous competition for fiber share in coming years. The WTO-mandated end of textile import quotas starting in 2005 also has the potential to significantly transform the global textile industry for all fibers, adding further uncertainty to the outlook.

Highlights for Major Foreign Cotton Importers. The principal use for raw cotton fiber (lint) is the production of textiles which, in turn, are used to produce apparel, home furnishings, and industrial products. In traditional cotton-importing countries (e.g., Japan, South Korea, Taiwan, and the European Union), cotton consumption is expected to decline steadily. Production disadvantages in the textile sectors of traditional importers will accelerate declines in their raw cotton consumption early in the projection period in the face of strong competition from emerging Asian textile suppliers. However, the EU is expected to remain the world's largest importer of cotton through 2008.

China's consumption is expected to outpace production during 2002-2011, and positive net imports are forecast to resume now that stocks have fallen. China is expected to overtake the EU as the world's largest importer during the projection period. Cotton production in China has been hampered by competition from other crops and by growing pesticide resistance by major cotton pests, although recently yield growth has resumed. Further losses are not expected, although production prospects in China, the world's largest cotton producer, are uncertain following extensive policy reforms for cotton since 1999.

The North China Plain rebounded as a production region during 2000 and 2001, following chronic bollworm infestations during the early 1990s. However, it remains far short of its former role as China's pre-eminent growing region. The Yangtze region's cotton area was much more stable than the North China Plain's during the 1990s, however, it has declined in importance relative to Xinjiang in the far West. China's total area devoted to cotton is expected to remain well below the peaks seen in 1984 and 1992. China's yield growth recovered during the 1990s, but the termination of a government price floor suggests the incentives for maintaining input levels may be smaller during the forecast period. However, the widespread adoption of Bt cotton in eastern China suggests that fewer inputs may be required.

China's future production and consumption prospects are both subject to considerable uncertainty. Since China is often one of the world's largest importers over some of the projection period, differing assumptions on supply and use developments could significantly influence world trade and U.S. exports. During the course of recent policy reforms, China's cotton prices and farmer enthusiasm have varied widely from year-to-year, and it is unclear where China's privatization of cotton marketing will take it. Specific areas of uncertainty include the extent to which planted area might return to cotton production after a 5-year, 1.2-

Effects of the Multi-Fiber Arrangement Phaseout in 2005

International trade in textiles and apparel has been governed by quantitative restrictions under the Multi-Fiber Arrangement (MFA) and earlier agreements for more than 30 years. In addition, developing countries have maintained severe border restrictions independent of international trade agreements. One of the major results of the WTO's Uruguay Round was the conclusion of the Agreement on Textiles and Clothing (ATC), which provides for the dismantling of these restrictions. Under the Uruguay Round ATC, the MFA restrictions are to be phased out over a 10-year period ending at midnight on December 31, 2004.

The ATC provides the legal framework leading to a complete integration of the textile sector into the General Agreement on Tariffs and Trade (GATT) at the end of the transition period. The MFA phaseout is comprised of two parts: a four-stage process eliminating import restraints contained in bilateral agreements previously negotiated on products covered under the MFA, and an increase in quota growth rates for products still under restriction during the transition period. The ATC also deals with other non-MFA restraint measures relating to textiles and clothing.

With the elimination of the MFA quotas and other restrictions, tariffs will become the primary mechanism for border protection as the same rules will apply to trade in textiles and clothing as in other non-agricultural goods. In the long run, the restraint reductions will effectively improve market access for developing countries' textile and clothing products in developed countries. And at the same time, developed countries are already achieving the reciprocal access to developing countries' textile and apparel markets that was lacking before the Uruguay Round Agreement (Hamrick, et al.; 2000).

To account for the MFA phaseout, the process of converting raw cotton fiber into apparel was broken into two steps.

- **Textile production:** The fiber must be spun into thread or yarn, then woven into fabric. Both functions are relatively capital-intensive.

- **Apparel production:** The textiles are cut and sown into clothing, home furnishings, etc. Apparel production is labor-intensive.

Market-oriented trade reform is expected to speed the transfer of production to countries where resource endowments and technology result in the most efficient—i.e., lowest cost—production. In the case of apparel production, labor is the decisive input factor. Textile production often

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million-hectare decline, the extent to which cotton consumption can maintain its initial post-reform surge, and the evolution of agricultural trade policy as China's reforms continue.

In Indonesia and Turkey, consumption and import expansion are expected to resume due to comparatively cheap labor, favorable exchange rates, and foreign investment in their textile

Effects of the Multi-Fiber Arrangement Phaseout in 2005--continued

occurs alongside of apparel production, although it need not since capital and technology are the critical inputs. Capital and technology are significantly more mobile than labor, although certain conditions may restrict their mobility in international markets. As a result, the MFA phaseout may affect a country's textile and apparel sectors to different degrees depending on labor, capital, and technology (MacDonald, et al., 2001).

To project the effects of the MFA phaseout, all countries were classified into three separate groupings based principally on their labor markets.

Low-cost labor markets are defined as countries with per capita income at or below that of China. In this group of countries, better access to cheap labor under the MFA phaseout raises demand for textiles by the apparel industry to such an extent that the textile industry also benefits despite being high-cost capital markets. As a result, cotton demand for these countries accelerates slightly upward starting in 2005. This translates into greater import demand for cotton based on each country's domestic production capacity and responsiveness.

Medium-cost labor markets are represented by a set of middle-income countries—e.g., Thailand, South Korea, and Taiwan. In this group of countries, apparel production becomes less competitive without the aid of border protection. Losses in the apparel industry offset gains in the textile industry. As a result, cotton demand is neutral to the MFA phaseout, but grows or declines at whatever rate existed in the absence of the MFA phaseout.

High-cost labor markets are represented by higher-income countries—e.g., U.S., EU, Australia, and Japan, as well as Mexico and Turkey. In this group of countries, losses in the apparel industry spill over into the textile industry, thereby reducing cotton demand starting in 2005 from whatever rate existed in the absence of the MFA phaseout.

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industries. Indonesia is expected to be the third largest importer in the world throughout much of the forecast period, and Turkey is expected to be the fourth largest. Turkey is expected to benefit from continued integration into the EU. Turkey's cotton production is expected to continue to rise, particularly in Southeast Anatolia.

The largest expected increase in cotton import volume during 2002 to 2011 (after China) is forecast for Bangladesh. Currently, garments account for around 80 percent of Bangladesh's exports, and much of these garments are produced from imported textiles. Bangladesh's per capita income is currently among the lowest in Asia, even on a purchasing-power-parity basis, implying a very low-wage labor pool. As a result, it is likely to be an increasingly important garment exporter during the forecast period. However, Bangladesh also began developing a spinning industry during the 1990s, and cotton imports during 1993-2001 grew 12 percent annually. The growth rate is expected to slow to 6 percent during the forecast period, second only to China in percentage as well as volume terms.

After years of plummeting cotton consumption, some FSU countries are beginning to increase consumption again, while CEE consumption in aggregate continues to lag. For even the most dynamic of the region's traditional importers, cotton consumption and imports are expected to remain well below historic levels throughout 2002-2011. However, Central Asian countries, like Uzbekistan, are likely to consume more cotton than in the past as government policies favor investment in local textile industries.

Highlights for Major Foreign Cotton Exporters. Australia and the French-speaking countries of West Africa will continue to channel most of their growing cotton output into the export market throughout the forecast period. There is little prospect of either exporter processing a significant amount of its cotton output domestically, although in the very long run a larger textile industry is likely to develop in Africa.

The Central Asian countries of the FSU will continue exporting cotton to non-FSU markets at higher levels than during the 1980s. These countries are also expected to increase their exports within the FSU. Central Asia's ability to export, however, will be heavily dependent on yield gains. Past environmental damage due to high levels of input use and poor water management have rendered useless much of the area abandoned in Central Asia during the 1990s, and this area is expected to remain out of production during the projection period. In addition, efforts to diversify agricultural production will sustain area for grains and other crops at the expense of cotton. Uzbekistan and Turkmenistan have also consumed growing quantities of cotton in recent years and are likely to continue to maintain policies that favor textile investment for much of the forecast period. This will be a further constraint on their raw cotton exports.

Supply prospects in Central Asia, currently the source of nearly one-quarter of world cotton exports, are an important uncertainty in the global outlook. Economic and agricultural reform has been slow in the region's major producers, so reform's long run impacts on yield growth and cross-commodity competition remain conjectural. According to the World Bank, the region's largest exporter, Uzbekistan, is pursuing policies that tax agriculture substantially in order to promote industrialization. Under these circumstances, Central Asia's exports are expected to grow more slowly than the rest of the world, and the region's share of world trade falls to 15 percent by 2011.

Soybeans and Products

World trade in both total oilseeds and soybeans is projected to increase faster during 2002-2011 than during the 1980s, but much more slowly than in the early 1990s. Global exports of soybeans and soybean meal are projected to rise at annual rates of 3.4 and 2.3 percent over the projection period, reaching 78 and 53.5 million tons, respectively, by 2011. Combined exports of soybeans and meal, on a soybean-equivalent basis, are projected to grow from 109.7 million tons in 2001 to 145.3 million tons by 2010.

World soybean oil trade is projected to grow 3.3 percent annually during 2002-2011, compared with 5-percent growth achieved in the 1980s and 1990s. Although both world and U.S. exports of soybean oil are projected to grow faster than soybean exports during 2002-2011, they are not expected to keep pace with trade in other vegetable oils. With the outlook for continued trade growth in oils relative to meals, incentives to produce high-oil content oilseeds and palm oil are expected to strengthen.

Soybeans and Soybean Meal. Projections of U.S. exports of soybeans and soybean meal are 30.5 million tons and 7.8 million tons, respectively, by 2011. The U.S. share of world soybean exports is projected to drop to 39 percent by 2011, reflecting strong competition. The U.S. market share of soybean meal trade is seen edging up to 16 percent by 2003, but by 2011 contracts to less than 15 percent again as foreign supplies expand. These projected U.S. market shares contrast with significantly higher trade shares for soybeans (73 percent) and soybean meal (24 percent) achieved in the 1980s, when U.S. production was a greater proportion of the world total. Limited expansion of U.S. acreage and slowing crush rates eventually constrict exportable supplies of soybeans and soybean meal. Another factor slowing U.S. soybean exports in the longer term is thriving exports of meat, especially poultry. This trend will boost the livestock population and boost the share of protein feed supplies consumed within U.S. borders compared with past years.

South American producers, particularly Argentina and Brazil, are expected to continue to expand their supplies of soybeans and products to international markets. In Brazil, steadily expanding domestic meal consumption and exports will support crush demand. However, for several years, Brazilian soybean exports are likely to moderate because of larger U.S. exports and tighter domestic supplies. Near the end of the baseline period, Brazil's soybean exports are expected to exceed U.S. exports. Argentina's small consumption base and substantial crush capacity assure long term growth in exports of soybean meal, but limits on soybean area should slow growth of soybean production and exports.

A projected decline in EU imports of soybeans and soybean meal is expected to contribute to slower growth in world soybean meal consumption over the projection period compared with the high 4.6-percent rate of the 1990s. The EU is traditionally the world's major source of import demand for soybeans and soybean meal. From 1996 through 2001, the EU accounted for over 42 percent of all imports of soybeans and soybean meal. EU market share is projected to decline to about 30 percent by 2011. Abundant EU grain stocks and lower internal grain prices (due to Agenda 2000 reforms) combine to reduce the relative cost of feeding grains versus soybean

meal. As a result, increases in grain feeding are expected to trim EU soybean meal consumption, as well as imports of soybeans and soybean meal.

However, offsetting much of the decline in EU demand is increasing East Asian protein meal consumption in the next few years, reflecting comparatively strong economies in China and other Asian countries. But China's policy maximizing domestic crushing capacity instead of importing protein meal and vegetable oil significantly influences the composition of world trade. China is expected to account for 80 percent of the world's growth in soybean imports over the next 10 years. With relatively small soybean meal imports by China, competition among the major soybean meal exporters is likely to intensify early in the projection period. For other soybean importing countries, favorable import prices for meal relative to soybeans are likely to pressure crush margins, and curtail their soybean imports in favor of the products. However, in the case of Mexico, low U.S. soybean prices are expected to continue to encourage steady imports.

Soybean Oil. Growth in soybean oil trade is projected to slow to 3.3 percent during 2002-2011, compared with about 8 percent in the 1990s when developing countries made sharp import gains. Strong consumption gains are again projected for the developing nations of Asia and Latin America, but will be partially offset by slower growth anticipated for Europe, the former Soviet Union, Japan, and the United States. India is expected to remain a large importer of soybean oil, but growth will be flat. In China, rising vegetable oil output should limit growth in its soybean oil imports. Furthermore, strong competition from other vegetable oils, particularly Southeast Asian palm oil, is expected to shift some demand away from soybean oil.

Growth in soybean processing in China, Brazil, and Argentina accounts for most of the projected gains in foreign soybean oil production. The U.S. share of global soybean oil exports is projected to edge up to 13.4 percent in 2002. But slower growth in domestic soybean oil production, greater South American competition, and global output gains for other vegetable oils should eventually pare the U.S. market share back to less than 11 percent, or about 1.3 million tons, by 2011.

Beef

World beef production and consumption are projected to show strong growth over the projection period. Some of the largest increases in production are expected to be in China, Mexico, Canada, and countries of the former Soviet Union. Argentina and Brazil have significant production potential, but foot-and-mouth disease (FMD) prevalence is expected to limit market opportunities and slow expansion. Global beef consumption increases are based on a return to strong GDP growth in most consuming countries. The majority of the increase in beef consumption is expected to be in Asia with the largest increases in China. However, Chinese trade policies are expected to favor domestic beef production and little increase in imports is expected. Mexico and Russia are also expected to show large increases in imports. Most of Russia's imports will be supplied by European countries and former members of the Soviet Union. The major Asian markets—South Korea, Japan, Taiwan, and Philippines—are all expected to grow steadily through the projection.

The United States will supply an increased share of world beef exports over the projection period. U.S. export volume is expected to increase by 39 percent over the period, compared with a 23-percent increase in exports by the nine other major beef exporters. As a result, the U.S. share of beef exports among major exporters will increase from about 19.5 percent to nearly 22 percent. Over 90 percent of the increase in U.S. beef exports are destined for its traditional markets of Japan, Korea, Mexico, Canada, and the Caribbean Islands. Most of the remainder will be shipped to the relatively small but fast growing fed-beef markets of Taiwan, the Philippines, and, to some extent, Egypt and Saudi Arabia.

The increased U.S. share of world beef trade is mainly the result of limited increases in supply from traditional competitors. Beef exports from New Zealand and Canada are expected to increase by about 22 percent and 35 percent, respectively, or less than the increase by the United States. Australian beef exports are expected to decline through the middle of the decade as that country rebuilds its herd. As a result, increased U.S. market share is expected to be especially significant in Asian markets where competition with Australia is the strongest.

Several smaller grass-fed beef suppliers, whose products do not compete with U.S. beef, are expected to increase exports by greater percentages than the United States. Ukrainian exports rebound by 75 percent from their reduced level following Ukraine's financial crises in the 1990s, but do not reach historical levels. Nearly all Ukraine's increased exports are marketed in Russia. Exports from Argentina declined sharply in 2001 because of bans following the discovery of foot-and-mouth disease. Longer term, exports from Argentina more than double over the projection period to exceed the levels of the past three years, but they do not reach record historical levels of the 1960s and 1970s. Exports from the EU increase over the next few years as concerns about BSE diminish, to again reach the WTO-maximum (817,000 tons).

Among traditional U.S. markets, the fastest growing is Mexico, which is expected to nearly double imports. Demand for U.S. beef in Mexico is supported by the close economic and geographic links between the Mexican and U.S. economies, continued strong growth in the United States, and tariff elimination under NAFTA.

Pork

World pork production and consumption are both expected to increase over the projection period based on expected higher producer returns and solid global GDP growth. Favorable resource bases create the potential for significant growth in the pork sectors of Brazil and Mexico. Factors that will determine the extent of growth of Brazilian and Mexican exports include macroeconomic stability and rates of improvement in infrastructure.

Brazil's projected rapid production growth through 2011 is the fastest among major exporters, but strong domestic consumption growth is expected to limit trade gains. However, Brazil is expected to improve its competitiveness in international markets, and begin to make headway into lower-priced markets. China, Mexico, and Canada also experience strong production growth during the baseline period. But strong domestic demand in both China and Mexico is expected to maintain their status as net pork importers through 2011.

Strong consumption growth is expected in Asia, particularly China. Sustained import growth also occurs in much of the rest of Asia as population and incomes increase, and as noncompetitive domestic production sectors decline.

Consumption in mature pork markets (the United States, the EU, Canada, and Japan) is expected to grow with population and income over the baseline period. In the EU (the world's leading pork exporter), exports are projected flat as domestic production gains barely keep pace with modest increases in use. In contrast, U.S. exports grow over 2 percent per year as production gains are projected to edge above only limited increases in domestic use. Canada, a low-cost producer whose export growth is particularly pronounced early in the projection period, is expected to contest for market share in Asian markets heretofore dominated by the United States and the EU.

Poultry

During the 2002-2011 forecast period, poultry meat production and consumption are forecast to grow rapidly, due primarily to cost advantages relative to both beef and pork. Worldwide trade in poultry products is also expected to increase, with about 3 percent annual growth for major exporters. Producers in major exporting countries will be faced with trying to find the most profitable markets for a wide variety of poultry products.

Projected gains in poultry meat consumption are due to a number of economic and social changes in both developed and developing countries. Over the forecast period, consumption in developed countries is expected to continue to move more heavily towards partially or fully prepared meals, due to time constraints on food preparation. For consumers in developing countries, growth in poultry consumption will be tied closely to increases in per capita disposable income and the influences of changing dietary habits and food consumption patterns. As populations in many developing countries become more urbanized, a larger share of total food expenditures is expected to be away from home. In this situation, higher poultry consumption will come from greater use of poultry parts rather than whole birds. The focus of worldwide poultry trade will be on moving poultry parts to those markets where the populations have a preference for them or markets that are seeking low-cost meat products.

Worldwide poultry production in the forecast period is expected to undergo further consolidation and integration in both the production and processing sectors. Much of this type of consolidation has already occurred in developed countries, but in many developing countries, poultry production and processing are still undergoing a shift from small local producers or subsistence production to larger operations directly tied to centralized processing facilities. The pace at which this changeover occurs in developing countries will depend on a number of factors, including the rate of income growth, the degree and speed of urbanization, the price of poultry relative to beef and pork, and the development of food marketing and transportation systems able to distribute a wide variety of processed products.

Most of the increases in poultry consumption during the forecast period is expected to come from Asian and Eastern European countries (including Russia). China is expected to be the largest source of growth in poultry consumption in Asia. The Chinese government has supported

increased poultry production as a more efficient use of feed grain supplies than pork production. Although China's poultry production and exports are both expected to increase, China is expected to remain a net importer of poultry due to rising incomes and changing eating patterns. Other major growth markets for poultry consumption are expected to be Eastern Europe and Russia. In these areas, the majority of growth in poultry consumption will come from higher imports. Domestic poultry production in Russia is expected to increase only gradually. While Eastern European and Russian poultry importers have relied on U.S. products in the past, this is a price sensitive market that is expected to see greater competition in the future, especially from Brazilian poultry exports.

Trade in poultry parts and prepared products is expected to increase during the baseline period as processors in the major exporting countries seek to identify other markets where specific poultry parts are preferred by consumers and can obtain a higher price. The basis of this increase in trade is a shift in consumption from whole birds to parts. The U.S. poultry sector is based on the domestic consumption of white meat poultry products and the export of less desirable (by U.S. standards) dark meat products to other countries. However, in other exporting countries where a preference for dark meat predominates, there could be a reversed marketing pattern where white meat is the exported product.

The expectation of higher levels of poultry trade over the forecast period hinges on a continued drop in the levels of trade restrictions. These restrictions can take the form of product quotas, import tariffs, or sanitary restrictions of some kind. While multilateral trade agreements have lessened trade restrictions to some degree, over the baseline period the poultry industry will have to address conflicts regarding growing conditions, disease restrictions, slaughtering methods, processing conditions, and other issues such as labeling and record keeping requirements.

Table 36. Coarse grains trade baseline projections

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
						Imports, million metric tons						
Importers												
Former Soviet Union[1]	1.1	1.4	1.5	1.6	1.7	1.8	1.9	2.1	2.2	2.4	2.5	2.7
Eastern Europe	2.9	1.4	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.5	1.6	1.6
Japan	19.9	19.6	19.6	19.5	19.4	19.3	19.3	19.2	19.1	19.0	18.9	18.8
South Korea	8.7	7.3	7.3	7.2	7.3	7.4	7.5	7.6	7.8	7.9	8.1	8.3
Taiwan	5.1	5.1	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.4	5.4	5.4
China	2.4	2.8	3.4	4.0	4.3	5.3	6.1	6.8	8.1	8.9	9.7	11.2
Mexico	10.4	10.8	10.9	11.1	11.3	11.5	11.7	12.0	12.4	12.5	12.9	13.1
European Union[2]	3.1	3.2	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Latin America[3]	10.5	10.5	10.6	11.2	11.4	11.7	12.0	12.4	12.8	13.2	13.5	13.9
North Africa & Middle East	23.9	24.5	24.9	25.6	26.4	27.3	28.0	29.0	29.9	30.9	31.7	32.8
Other Asia & Oceania	5.7	5.9	5.5	5.6	5.8	6.0	6.2	6.5	6.8	6.9	7.0	7.3
Sub-Saharan Africa[4]	1.6	1.6	1.7	1.7	1.8	1.8	1.8	1.9	2.0	2.0	2.0	2.1
Other foreign[5]	6.2	5.6	3.3	3.3	3.3	3.3	3.4	3.4	3.4	3.5	3.5	3.6
United States	2.7	2.5	2.9	3.0	3.0	3.1	3.1	3.2	3.2	3.2	3.2	3.3
Total trade	104.1	101.9	100.7	102.9	104.9	107.8	110.3	113.4	117.0	120.1	122.8	126.7
Exporters						*Exports, million metric tons*						
European Union[2]	10.1	8.2	9.2	10.1	10.8	11.8	12.0	12.0	12.1	12.2	12.3	12.4
China	7.0	4.0	3.8	2.6	2.4	2.2	2.0	1.8	1.6	1.4	1.2	1.0
Argentina	11.4	11.4	12.5	13.2	13.6	14.1	14.3	14.7	15.1	15.7	15.9	16.6
Australia	4.4	4.5	4.3	4.3	4.2	4.2	4.2	4.3	4.3	4.3	4.4	4.4
Canada	3.6	2.5	3.9	3.8	3.4	3.4	3.5	3.6	3.6	3.8	3.9	4.1
Republic of South Africa	0.9	1.5	1.2	1.4	1.6	1.7	1.9	2.0	2.1	2.3	2.4	2.7
Eastern Europe	1.3	3.4	3.1	3.6	4.0	4.2	4.6	4.9	5.1	5.7	6.1	6.7
Former Soviet Union[1]	2.4	4.6	4.0	4.2	4.3	4.2	4.5	4.8	5.1	5.4	5.8	6.3
Other foreign	0.0	3.0	2.8	3.0	2.7	2.6	2.6	2.5	2.5	2.5	2.5	2.8
United States	56.7	58.9	55.9	56.6	58.0	59.2	60.6	62.7	65.3	66.7	68.2	69.6
						Percent						
U.S. trade share	54.4	57.8	55.5	55.0	55.2	54.9	55.0	55.2	55.8	55.6	55.6	55.0

1/ Includes intra-FSU trade.
2/ Excludes intra-EU trade, covers EU-15.
3/ Excludes Mexico.
4/ Includes Republic of South Africa.
5/ Includes unaccounted.
The projections were completed in October 2001 based on policy decisions and other information known at that time.

Table 37. Corn trade baseline projections

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
						Imports, million metric tons						
Importers												
European Union[1]	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Former Soviet Union[2]	0.3	0.4	0.6	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.1	1.2
Egypt	5.0	5.1	5.1	5.1	5.4	5.7	6.0	6.4	6.8	7.2	7.5	7.9
Other N. Africa & Middle East	9.7	9.8	9.5	9.7	10.0	10.3	10.5	11.0	11.3	11.8	12.0	12.5
Japan	16.0	15.7	15.6	15.5	15.5	15.4	15.3	15.3	15.2	15.2	15.0	15.0
South Korea	8.5	7.0	7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9
Taiwan	4.8	4.8	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.1	5.1	5.2
China	0.1	0.2	0.8	1.3	1.6	2.5	3.2	3.8	5.0	5.7	6.5	7.8
Indonesia	1.3	1.5	1.5	1.5	1.6	1.8	1.9	2.0	2.1	2.1	2.2	2.2
Malaysia	2.4	2.5	2.5	2.6	2.6	2.7	2.8	2.8	2.9	3.0	3.1	3.1
Other Asia & Oceania	3.2	3.3	3.0	2.9	3.0	3.2	3.4	3.6	3.7	3.8	3.8	4.0
Mexico	5.5	6.0	6.2	6.2	6.3	6.4	6.5	6.6	6.8	6.9	7.0	7.0
Central America & Caribbean	3.5	3.7	3.3	3.4	3.5	3.6	3.7	3.9	4.0	4.1	4.2	4.3
Brazil	0.3	0.5	0.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Other South America	5.7	5.8	5.9	6.1	6.3	6.5	6.7	6.9	7.1	7.3	7.6	7.8
Sub-Saharan Africa[3]	1.3	1.3	1.4	1.4	1.5	1.5	1.6	1.6	1.7	1.7	1.8	1.8
Other foreign[4]	5.2	3.7	1.0	1.1	1.0	0.9	0.8	0.8	0.7	0.8	0.8	0.8
United States	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total trade	75.5	74.2	71.6	73.2	74.9	77.1	79.1	81.6	84.5	87.0	88.9	92.1
						Exports, million metric tons						
Exporters												
European Union[1]	0.2	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
China	7.0	4.0	3.8	2.6	2.4	2.2	2.0	1.8	1.6	1.4	1.2	1.0
Argentina	10.5	10.7	11.7	12.5	12.8	13.3	13.6	14.0	14.3	14.9	15.2	15.9
Brazil	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1
Republic of South Africa	0.9	1.5	1.2	1.4	1.6	1.7	1.9	2.0	2.1	2.3	2.4	2.7
Eastern Europe	0.9	2.5	2.6	3.3	3.6	3.9	4.2	4.5	4.7	5.2	5.5	6.1
Former Soviet Union[2]	0.2	0.2	0.5	0.7	0.7	0.9	1.0	1.0	1.1	1.1	1.2	1.4
Other foreign	1.5	1.5	1.5	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.9
United States	49.3	52.1	48.9	49.5	50.8	52.1	53.3	55.2	57.8	59.1	60.3	61.6
						Percent						
U.S. trade share	65.2	70.2	68.3	67.7	67.8	67.6	67.4	67.7	68.4	67.9	67.8	66.9

1/ Excludes intra-EU trade, covers EU-15.
2/ Includes intra-FSU trade.
3/ Includes Republic of South Africa.
4/ Includes unaccounted.
The projections were completed in October 2001 based on policy decisions and other information known at that time.

Table 38. Sorghum trade baseline projections

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
						Imports, million metric tons						
Importers												
Japan	2.0	1.9	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Mexico	4.7	4.5	4.5	4.5	4.7	4.7	4.8	4.9	5.2	5.2	5.4	5.5
North Africa & Middle East	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
South America	0.6	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Sub-Saharan Africa	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Taiwan	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other[1]	0.7	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5
Total trade	8.3	7.4	7.9	7.8	7.9	8.0	8.0	8.1	8.4	8.4	8.5	8.7
						Exports, million metric tons						
Exporters												
Argentina	0.7	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.7	0.6	0.5	0.5
Australia	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Other foreign	0.9	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
United States	6.1	6.1	6.4	6.4	6.5	6.5	6.6	6.7	6.9	7.0	7.2	7.4
						Percent						
U.S. trade share	73.4	81.9	80.6	81.3	81.6	81.2	82.3	82.7	82.0	83.3	84.7	85.1

1/ Includes unaccounted.
The projections were completed in October 2001 based on policy decisions and other information known at that time.

Table 39. Barley trade baseline projections

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
						Imports, million metric tons						
Importers												
Former Soviet Union[1]	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.9	1.0
Japan	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
South Korea	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Taiwan	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
China	2.3	2.5	2.6	2.6	2.7	2.7	2.8	2.9	3.0	3.1	3.2	3.3
European Union[2]	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Latin America[3]	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.8	0.9	0.9	0.9
Algeria	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5
Saudi Arabia	4.0	5.0	5.3	5.5	5.5	5.7	5.7	5.8	5.9	5.9	6.0	6.1
Morocco	0.6	0.7	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6
Tunisia	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7
Iran	0.9	0.7	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.1
Iraq	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Turkey	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Other N. Africa & M. East	2.3	1.8	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.8	2.8	2.9
Other foreign[4]	1.6	1.1	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4
United States	0.6	0.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Total trade	16.6	16.8	17.8	18.4	18.6	19.2	19.4	19.7	20.1	20.5	20.9	21.4
						Exports, million metric tons						
Exporters												
European Union[2]	8.0	6.0	7.5	8.4	9.1	10.1	10.3	10.3	10.4	10.5	10.6	10.7
Australia	3.6	3.7	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.7	3.7	3.7
Canada	2.0	1.0	1.9	1.8	1.4	1.4	1.4	1.4	1.4	1.5	1.6	1.6
Former Soviet Union[1]	2.0	4.1	3.2	3.2	3.2	2.8	2.9	3.1	3.3	3.5	3.6	3.9
Eastern Europe	0.4	0.8	0.5	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4
Turkey	0.2	0.2	0.5	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Other foreign	0.2	0.4	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
United States	1.3	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
						Percent						
U.S. trade share	7.6	3.9	3.7	3.5	3.5	3.4	3.4	3.3	3.2	3.2	3.1	3.1

1/ Includes intra-FSU trade.
2/ Excludes intra-EU trade, covers EU-15.
3/ Includes Mexico.
4/ Includes unaccounted.
The projections were completed in October 2001 based on policy decisions and other information known at that time.

Table 40. Wheat trade baseline projections

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
						Imports, million metric tons						
Importers												
Algeria	5.0	5.0	4.4	4.5	4.6	4.6	4.6	4.7	4.8	4.8	4.9	4.9
Egypt	5.8	5.8	5.9	5.9	6.0	6.0	6.1	6.1	6.2	6.2	6.3	6.3
Morocco	3.3	3.0	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.8	2.8	2.8
Iran	6.5	6.5	4.7	4.8	5.0	5.1	5.3	5.4	5.6	5.7	5.9	6.0
Turkey	0.5	1.2	0.7	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.1	1.0
Other N. Africa & Middle East	12.8	13.0	13.2	13.4	13.6	13.9	14.1	14.3	14.5	14.8	15.0	15.2
Sub-Saharan Africa[1]	8.2	8.4	8.5	8.7	8.7	8.8	9.0	9.1	9.3	9.4	9.5	9.6
Mexico	3.1	3.4	3.4	3.6	3.7	3.7	3.8	3.9	4.0	4.0	4.1	4.2
Central America & Caribbean	3.3	3.4	3.4	3.5	3.5	3.6	3.6	3.7	3.7	3.8	3.8	3.8
Brazil	7.2	6.5	7.3	7.3	7.7	8.0	8.3	8.5	8.8	9.1	9.4	9.7
Other South America	5.7	5.7	5.8	5.8	5.9	6.0	6.0	6.1	6.1	6.1	6.2	6.2
Former Soviet Union[2]	5.7	5.3	5.6	6.0	6.2	6.5	6.8	7.0	7.2	7.4	7.6	7.8
Japan	5.9	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.7	5.7
South Korea	3.1	4.3	3.9	3.9	3.9	3.8	3.8	3.8	3.8	3.7	3.7	3.7
Indonesia	4.0	4.2	4.3	4.3	4.5	4.6	4.8	4.9	5.1	5.2	5.3	5.4
China	0.3	1.0	2.3	3.6	4.6	5.1	6.0	6.8	7.4	8.0	8.7	9.1
Pakistan	0.2	0.5	1.1	1.3	1.7	2.1	2.4	2.7	3.0	3.2	3.5	3.7
Other Asia & Oceania	11.8	12.4	12.6	13.0	13.3	13.6	13.9	14.2	14.5	14.8	15.1	15.4
Other	11.4	11.3	11.3	11.3	11.5	11.8	12.0	12.1	12.2	12.3	12.6	12.7
Total trade	103.7	106.7	106.5	110.1	113.6	116.5	119.9	122.7	125.5	128.1	131.0	133.2
						Exports, million metric tons						
Exporters												
European Union[3]	15.0	12.0	15.4	16.9	17.3	18.5	21.2	22.1	23.5	25.1	27.1	28.0
Canada	17.3	15.5	17.0	18.0	18.1	18.1	18.2	18.2	18.3	18.3	18.4	18.4
Australia	16.0	16.0	15.6	16.3	17.2	17.3	17.3	17.4	17.4	17.5	17.5	17.6
Argentina	11.7	13.0	12.7	13.7	14.5	14.4	14.2	14.2	14.1	14.1	14.0	14.0
Former Soviet Union[2]	4.7	9.8	9.1	8.9	8.9	9.3	9.4	9.7	9.9	10.0	10.2	10.5
Eastern Europe	2.5	4.7	3.9	3.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
India	1.6	3.0	3.0	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.5
Other foreign	5.5	4.8	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	4.0
United States	28.9	27.9	25.9	26.5	27.9	29.3	29.9	31.3	32.7	33.3	34.0	34.7
						Percent						
U.S. trade share	27.9	26.1	24.3	24.1	24.6	25.1	25.0	25.5	26.0	26.0	26.0	26.1

1/ Includes Republic of South Africa.
2/ Includes intra-FSU trade.
3/ Excludes intra-EU trade, covers EU-15.
The projections were completed in October 2001 based on policy decisions and other information known at that time.

Table 41. Rice trade baseline projections

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
						Imports, million metric tons						
Importers												
Canada	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Mexico	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5
Central America/Caribbean	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.5	1.5	1.6
Brazil	0.5	0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.3
Other South America	0.4	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9	1.0
European Union[1]	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Former Soviet Union[2]	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8
Other Europe[3]	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
China	0.3	0.3	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.9	0.9
Japan	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
South Korea	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Indonesia	1.3	1.6	3.2	3.3	3.4	3.5	3.6	3.6	3.6	3.6	3.5	3.5
Malaysia	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Philippines	1.1	0.6	0.5	0.3	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.7
Other Asia & Oceania	2.5	2.4	2.1	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.4
Iraq	1.0	1.0	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.4	1.4	1.4
Iran	1.0	1.3	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.9	1.9	2.0
Saudia Arabia	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.3	1.3
Turkey	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Other N. Africa & M. East	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.4	1.4
Sub-Saharan Africa	4.6	4.4	4.4	4.5	4.7	4.9	5.0	5.2	5.3	5.5	5.6	5.8
Republic of South Africa	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Unaccounted	1.2	1.4	1.6	1.5	1.7	1.9	1.9	1.8	1.9	1.8	2.0	2.0
United States	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Total imports	22.2	22.2	24.4	25.0	25.8	26.7	27.3	27.8	28.4	29.0	29.6	30.2
						Exports, million metric tons						
Exporters												
Australia	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9
Argentina	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Other South America	1.1	1.0	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.6
European Union[1]	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
China	1.8	2.0	3.1	2.9	3.2	3.4	3.5	3.6	3.7	3.8	4.0	4.1
India	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1
Pakistan	2.3	2.0	1.8	1.8	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.1
Burma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Thailand	6.7	6.7	7.2	7.7	7.9	8.2	8.5	8.8	9.0	9.3	9.6	9.8
Vietnam	3.8	4.2	4.4	4.7	4.9	5.1	5.2	5.3	5.5	5.6	5.7	5.7
Other foreign	1.8	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6
United States	2.6	2.7	2.8	2.8	2.8	2.7	2.7	2.7	2.6	2.6	2.5	2.5
Total exports	22.2	22.3	24.4	25.0	25.8	26.7	27.3	27.8	28.4	29.0	29.6	30.2
						Percent						
U.S. trade share	11.7	12.2	11.4	11.1	10.7	10.3	9.9	9.6	9.3	8.9	8.5	8.2

1/ Excludes intra-EU trade, covers EU-15.
2/ Includes intra-FSU trade.
3/ Other Western Europe and Central and Eastern Europe.
The projections were completed in October 2001 based on policy decisions and other information known at that time.

Table 42. All cotton trade baseline projections

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
						Imports, million bales						
Importers												
European Union[1]	4.0	4.1	4.0	4.1	3.9	3.8	3.8	3.7	3.6	3.5	3.4	3.2
Former Soviet Union[2]	2.2	2.3	2.3	2.3	2.4	2.4	2.5	2.5	2.5	2.6	2.6	2.7
Indonesia	2.8	2.7	2.6	2.6	2.7	2.8	2.9	2.9	3.0	3.1	3.2	3.2
Thailand	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8
India	1.6	1.6	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6
Brazil	0.8	1.0	1.0	1.0	1.0	1.1	1.1	1.0	1.0	0.9	0.9	0.9
Eastern Europe	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9
Other Asia & Oceania	2.9	3.3	3.2	3.2	3.3	3.4	3.6	3.7	3.8	4.0	4.1	4.3
Japan	1.1	1.1	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.6
South Korea	1.4	1.3	1.3	1.3	1.2	1.2	1.2	1.1	1.1	1.1	1.0	1.0
China	0.2	0.7	2.3	2.7	3.0	3.1	3.3	3.5	3.9	4.2	4.4	4.6
Taiwan	1.0	1.2	1.2	1.1	1.1	1.1	1.2	1.1	1.1	1.1	1.1	1.1
Turkey	1.6	1.7	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0
Mexico	2.0	1.7	1.7	1.8	1.8	1.8	1.9	1.9	1.9	1.9	2.0	2.0
Other	2.7	2.8	2.7	2.8	2.8	2.9	2.9	3.0	3.1	3.1	3.2	3.3
Total imports	26.8	28.3	29.7	30.1	30.4	30.8	31.2	31.6	32.1	32.5	32.9	33.3
						Exports, million bales						
Exporters												
Former Soviet Union[2]	5.3	5.1	5.0	4.8	4.9	4.9	4.9	5.0	5.1	5.1	5.1	5.1
Australia	3.9	3.2	3.2	3.1	3.3	3.4	3.5	3.7	3.8	3.9	4.1	4.2
Argentina	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5
Pakistan	0.6	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.4
India	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.5	0.6	0.7	0.8
China	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3
Egypt	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Other Latin America	0.9	1.0	1.2	1.4	1.7	1.8	1.9	1.9	2.1	2.1	2.3	2.4
Sub-Saharan Africa[3]	4.4	4.9	4.6	4.5	4.6	4.8	4.9	5.0	5.1	5.2	5.3	5.4
Other foreign	3.2	3.1	3.0	3.0	3.1	3.2	3.2	3.2	3.3	3.4	3.4	3.5
United States	6.8	9.0	10.5	11.0	10.5	10.4	10.4	10.3	10.2	10.1	10.0	9.9
Total exports	26.3	28.0	29.4	29.8	30.1	30.5	30.9	31.3	31.8	32.2	32.6	33.0
						Percent						
U.S. trade share	25.7	32.2	35.7	37.0	35.0	34.2	33.5	32.8	32.0	31.3	30.6	30.0

1/ Includes intra-EU trade, covers EU-15.
2/ Includes intra-FSU trade.
3/ Includes Republic of South Africa.
The projections were completed in October 2001 based on policy decisions and other information known at that time.

Table 43. Soybean trade baseline projections

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
						Imports, million metric tons						
Importers												
European Union[1]	17.8	18.3	18.1	18.4	18.3	18.1	17.9	17.8	17.9	17.9	17.9	17.9
Japan	4.8	4.9	4.9	4.9	4.9	4.8	4.8	4.8	4.8	4.7	4.7	4.7
South Korea	1.4	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4
Taiwan	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.6
Mexico	4.4	4.6	4.7	4.9	5.1	5.3	5.5	5.6	5.8	6.0	6.2	6.4
Former Soviet Union[2]	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.3
Eastern Europe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
China	13.2	14.0	15.7	17.1	19.3	20.9	22.6	24.2	25.9	27.5	29.2	30.9
Malaysia	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7
Indonesia	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.8
Other	7.9	8.6	8.8	9.2	9.5	9.7	9.9	10.3	10.4	10.7	10.9	11.2
Total imports	54.2	56.9	58.7	61.0	63.6	65.5	67.3	69.5	71.6	73.7	75.8	78.0
						Exports, million metric tons						
Exporters												
Argentina	6.8	7.3	7.6	7.9	8.0	8.1	8.2	8.3	8.4	8.6	8.8	9.0
Brazil	15.1	16.9	18.8	19.7	21.8	23.1	24.6	26.1	27.9	29.3	31.1	32.4
China	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4
Other foreign	4.9	4.9	4.7	4.9	4.9	5.1	5.1	5.3	5.2	5.5	5.3	5.7
United States	27.2	26.7	27.5	28.3	28.6	28.8	29.1	29.4	29.7	29.9	30.2	30.5
Total exports	54.2	56.0	58.7	61.0	63.6	65.5	67.3	69.5	71.6	73.7	75.8	78.0
						Percent						
U.S. trade share	50.2	47.6	46.8	46.4	45.0	44.1	43.2	42.3	41.4	40.6	39.8	39.1

1/ Includes intra-EU trade, covers EU-15.
2/ Includes intra-FSU trade.
The projections were completed in October 2001 based on policy decisions and other information known at that time.

Table 44. Soybean meal trade baseline projections

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
						Imports, million metric tons						
Importers												
European Union[1]	20.3	21.1	21.1	21.1	21.2	21.0	20.6	20.4	20.4	20.5	20.6	20.3
Former Soviet Union[2]	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6
Eastern Europe	2.7	2.9	3.3	3.3	3.4	3.4	3.5	3.5	3.7	3.6	3.9	3.8
Canada	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Japan	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7
China	0.1	0.3	0.5	0.7	1.1	1.7	2.4	3.1	3.8	4.5	5.2	5.9
Southeast Asia	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.0	6.3	6.5
Latin America	3.9	4.1	4.2	4.2	4.3	4.4	4.5	4.5	4.7	4.7	4.9	4.9
North Africa & Middle East	4.4	4.5	4.8	4.9	5.1	5.2	5.3	5.5	5.6	5.8	5.9	6.1
Other	2.9	2.7	2.8	2.9	3.1	3.2	3.3	3.4	3.5	3.7	3.8	3.9
Total imports	40.3	42.1	43.4	44.0	45.3	46.1	47.1	48.0	49.7	50.8	52.8	53.5
						Exports, million metric tons						
Exporters												
Argentina	14.8	15.2	15.4	15.8	16.4	16.8	17.3	17.9	19.2	19.8	20.7	20.7
Brazil	10.5	10.9	11.4	11.4	11.8	12.0	12.3	12.5	12.7	13.0	14.0	14.4
India	2.1	2.3	2.3	2.4	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.8
European Union[1]	5.9	6.0	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
Other foreign	1.5	1.6	1.6	1.6	1.6	1.7	1.7	1.8	1.8	1.8	1.9	1.9
United States	6.9	6.7	6.8	7.0	7.2	7.3	7.3	7.4	7.5	7.6	7.7	7.8
Total exports	41.6	42.7	43.4	44.0	45.3	46.1	47.1	48.0	49.7	50.8	52.8	53.5
						Percent						
U.S. trade share	16.5	15.7	15.8	16.0	15.8	15.8	15.6	15.5	15.1	15.0	14.6	14.6

1/ Includes intra-EU trade, covers EU-15.
2/ Includes intra-FSU trade.
The projections were completed in October 2001 based on policy decisions and other information known at that time.

Table 45. Soybean oil trade baseline projections

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
						Imports, million metric tons						
Importers												
European Union[1]	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
China	0.1	0.2	0.3	0.5	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0
India	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4
Other Asia	1.3	1.6	1.6	1.7	1.8	1.8	2.0	2.0	2.1	2.2	2.4	2.4
Latin America	1.4	1.5	1.4	1.4	1.5	1.5	1.5	1.5	1.6	1.6	1.7	1.7
North Africa & Middle East	2.0	2.1	2.2	2.3	2.3	2.4	2.4	2.5	2.6	2.6	2.7	2.8
Former Soviet Union & Eastern Europe[2]	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Other	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4
Total imports	7.6	8.3	8.4	8.7	9.0	9.3	9.7	10.1	10.6	10.9	11.4	11.7
						Exports, million metric tons						
Exporters												
Argentina	3.3	3.3	3.3	3.4	3.7	3.8	3.9	4.0	4.3	4.4	4.7	4.6
Brazil	1.5	1.6	1.4	1.4	1.5	1.6	1.9	2.2	2.3	2.5	2.8	3.1
European Union[1]	1.7	1.7	1.8	1.9	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7
Other foreign	0.7	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0
United States	0.6	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3
Total exports	7.8	8.5	8.4	8.7	9.0	9.3	9.7	10.1	10.6	10.9	11.4	11.7
						Percent						
U.S. trade share	8.1	13.1	13.4	13.2	12.9	12.6	12.2	11.8	11.4	11.2	10.9	10.8

1/ Includes intra-EU trade, covers EU-15.
2/ Includes intra-FSU trade.
The projections were completed in October 2001 based on policy decisions and other information known at that time.

Table 46. Beef trade baseline projections

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
						Imports, thousand metric tons, carcass weight						
Importers												
United States	1,375	1,401	1,417	1,497	1,542	1,588	1,497	1,406	1,361	1,315	1,270	1,225
Japan	1,027	940	960	981	1,028	1,054	1,077	1,095	1,114	1,132	1,147	1,160
South Korea	280	230	250	290	308	327	348	370	393	417	443	471
Taiwan	87	79	83	86	92	97	103	109	115	121	127	133
Philippines	118	70	110	127	130	137	148	160	173	187	202	215
European Union[1]	448	400	440	440	440	440	440	440	440	440	440	440
Russia	496	600	650	718	755	792	825	851	875	904	932	962
Eastern Europe	62	59	47	60	64	66	66	64	62	60	58	55
Egypt	188	75	130	134	134	136	139	141	139	140	140	144
Saudi Arabia	66	66	69	73	77	81	86	90	95	100	105	111
Mexico	420	430	440	481	517	564	616	656	691	730	773	821
Canada	275	310	325	327	329	331	333	335	337	339	341	343
Major importers	4,842	4,660	4,921	5,214	5,416	5,614	5,678	5,717	5,795	5,886	5,977	6,079
						Exports, thousand metric tons, carcass weight						
Exporters												
United States	1,141	1,020	1,061	1,100	1,145	1,191	1,236	1,270	1,304	1,349	1,395	1,417
Australia	1,329	1,345	1,370	1,358	1,308	1,285	1,270	1,279	1,287	1,288	1,291	1,290
New Zealand	442	500	530	579	605	616	622	623	621	618	614	608
Other Asia	301	375	410	418	425	431	434	442	451	458	465	472
European Union[1]	640	477	600	749	817	817	817	817	817	817	817	817
Eastern Europe	97	86	79	75	72	70	66	65	64	63	61	60
Ukraine	192	100	75	82	90	98	107	118	130	143	158	174
Argentina	348	150	250	258	269	281	294	310	325	340	357	373
Brazil	480	600	623	609	591	572	561	563	568	578	591	608
Canada	547	560	575	602	621	640	654	677	694	719	733	759
Major exporters	5,517	5,213	5,573	5,829	5,943	6,000	6,062	6,164	6,261	6,373	6,481	6,580

1/ Excludes intra-EU trade, covers EU-15
The projections were completed in October 2001 based on policy decisions and other information known at that time.

Table 47. Pork trade baseline projections

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
						Imports, thousand metric tons, carcass weight						
Importers												
United States	439	415	435	447	458	467	476	485	492	499	503	508
Japan	995	920	945	978	1,007	1,038	1,048	1,064	1,083	1,099	1,116	1,132
China	177	120	140	171	198	194	194	198	204	205	207	209
Hong Kong	300	335	360	369	378	388	397	407	417	428	439	450
South Korea	173	120	140	142	144	146	149	151	153	155	158	160
Russia	470	600	630	649	668	688	709	730	752	775	798	822
Mexico	276	300	310	319	329	339	349	359	370	381	393	404
Canada	68	75	85	86	88	89	90	92	93	94	96	97
Major importers	2,898	2,885	3,045	3,160	3,269	3,349	3,414	3,486	3,563	3,635	3,710	3,781
						Exports, thousand metric tons, carcass weight						
Exporters												
United States	592	699	649	669	692	714	737	760	794	816	839	873
Brazil	163	240	290	305	320	336	352	363	374	385	397	409
Canada	656	710	730	745	759	775	790	804	818	832	847	862
Mexico	59	60	60	61	62	64	65	66	68	69	70	72
European Union[1]	1,470	1,220	1,320	1,185	1,150	1,175	1,185	1,190	1,195	1,205	1,210	1,220
Eastern Europe	312	259	289	295	301	307	313	322	332	342	352	363
Taiwan	0	0	0	0	0	0	0	0	10	15	20	25
China	73	110	145	110	98	99	99	97	95	94	94	93
Major exporters	3,325	3,298	3,483	3,369	3,383	3,470	3,541	3,602	3,686	3,759	3,828	3,916

1/ Excludes intra-EU trade, covers EU-15.
The projections were completed in October 2001 based on policy decisions and other information known at that time.

Table 48. Poultry trade baseline projections

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
						Imports, thousand metric tons, ready to cook						
Importers												
Russia	1,151	1,300	1,325	1,434	1,495	1,560	1,602	1,655	1,707	1,764	1,820	1,882
European Union[1]	307	317	350	343	336	329	319	313	307	303	300	300
Japan	740	684	710	715	748	769	791	811	831	850	868	887
Hong Kong	280	270	280	284	288	293	297	302	306	311	315	320
China	1,041	950	950	993	1,037	1,084	1,133	1,184	1,225	1,268	1,358	1,406
South Korea	78	100	110	115	118	119	122	126	129	132	136	140
Saudi Arabia	346	400	425	428	439	445	453	462	472	482	490	499
Mexico	357	375	405	420	435	450	470	512	538	573	611	665
Canada	154	150	157	166	169	172	176	179	182	185	189	192
Major importers	4,454	4,546	4,712	4,898	5,065	5,220	5,364	5,544	5,697	5,869	6,088	6,290
						Exports, thousand metric tons, ready to cook						
Exporters												
Brazil	949	1,215	1,580	1,706	1,803	1,873	1,939	2,007	2,063	2,110	2,171	2,243
European Union[1]	1,032	1,018	1,050	1,002	1,012	1,022	1,032	1,043	1,053	1,074	1,095	1,117
Hungary	108	110	105	109	109	121	126	131	137	143	149	155
China	504	520	530	538	560	586	615	641	668	700	740	772
Hong Kong	9	8	9	9	10	10	11	11	11	12	12	13
Thailand	336	380	418	433	441	452	461	469	477	485	492	499
Saudi Arabia	20	20	20	23	24	28	30	33	36	39	42	44
United States	2,825	3,079	3,141	3,197	3,258	3,320	3,400	3,482	3,552	3,602	3,656	3,707
Major exporters	5,783	6,350	6,853	7,015	7,218	7,411	7,613	7,817	7,997	8,164	8,358	8,549

1/ Excludes intra-EU trade, covers EU-15.
The projections were completed in October 2001 based on policy decisions and other information known at that time.