

Agricultural Trade

Growth in the volume of global and U.S. agricultural trade is projected to be relatively strong during the next 10 years, aided by ample global supplies and steady demand growth. Demand prospects are supported by the outlook for healthy economic growth in most of Asia, Latin America, North Africa, and the Middle East, moderate gains in developed countries, and continued progress towards freer trade through ongoing unilateral policy reforms and existing multilateral agreements. The solid prospects for trade expansion in these regions are expected to more than offset relatively weak growth in parts of Asia, Africa, and the former Soviet Union.

Despite robust demand, global and U.S. commodity prices and trade value are expected to remain weak over the first half of the baseline because of large stocks and continued farm output and productivity gains in exporting countries. Commodity prices and export earnings are projected to strengthen during the last half of the baseline because of steady growth in import demand and reduced stocks. Prospects for realizing the projected long-term recovery in commodity prices may, however, be dampened by continued strides in crop and livestock sector productivity in exporting countries.

Future trends in China's agricultural trade are key in the global outlook for commodity trade and prices. The baseline includes only modest growth in China's imports of wheat, coarse grains, cotton, and meats, but continued strong growth in import demand for soybeans and soybean oil. However, significant uncertainties exist regarding basic data and future policies in China, with the size of the country's agricultural economy increasing the potential significance of these issues for trade.

The projections (table 35) show improved growth in trade in several bulk commodities during 2000-09, compared with the 1980s and 1990s. Projected growth in wheat, coarse grain, and cotton trade is particularly strong compared with recent performance. 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. Developing country demand, boosted by the phase-out of the Multi-Fiber Agreement by 2005, is also key to the outlook for stronger growth in global raw cotton demand and trade.

Global trade in soybeans and products is, by contrast, projected to slow significantly compared with the rapid growth of the 1990s. Continued strong gains in developing country demand for feed protein is projected to be mostly offset by reduced demand in the EU resulting from slowed livestock output and increased substitution of grain for protein feeds following Agenda 2000 reforms. Growth in soybean oil trade is projected slower than the very high rate achieved in the 1990s due to somewhat slower growth in developing country imports and competition from other oils, particularly palm oil.

U.S. export volume is projected to strengthen for wheat, coarse grains, and cotton, but to slow for rice and soybeans and products. U.S. wheat and coarse grain exports expand along with world trade, although competition is expected to increase in both markets. By the middle of the projection period, U.S. wheat export growth is slowed when price conditions permit unsubsidized EU wheat to enter the market. Argentina and China are expected to remain strong

competitors for coarse grain market share, but EU exports will remain capped by limits on subsidized exports. U.S. raw cotton exports strengthen throughout the baseline, benefiting from both rising demand and reduced competition. U.S. rice exports are expected to fall during 2000-09 as domestic demand outpaces U.S. production. U.S. exports of soybeans and products slow sharply compared with the 1990s, reflecting projected trends in world trade, coupled with strong competition from Argentina and Brazil.

Table 35. International trade summary, by decade or indicated period 1/

Years	Coarse			Soybean	Soybean	Cotton	
	Wheat	Rice	grains	Soybeans	meal		oil
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	-0.5	7.5	0.5	5.6	4.4	7.4	-1.2
2000 to 2009	2.2	2.2	2.3	0.7	1.7	1.7	1.9
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	-1.4	2.2	0.9	4.5	3.4	7.9	-1.6
2000 to 2009	3.5	-2.4	2.7	-0.1	0.8	2.2	1.4
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	30.5	14.0	56.8	63.7	18.6	14.5	25.3
2000 to 2009	31.8	9.9	57.4	64.6	19.2	16.0	26.0

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.

Global meat demand and trade and U.S. meat exports are projected to recover from the recent slowdown in East Asian and FSU demand to show strong and steady growth during 2000-09. Growth in meat trade is supported by the economic rebound in the key Asian markets, and by already negotiated reductions in trade barriers. However, FSU imports are projected to recover only gradually and remain below the record levels reached in the late 1990s.

U.S. Agricultural Trade Value

The total value of U.S. agricultural exports is projected to remain flat in fiscal year 2000, but then grow for the rest of the baseline, reaching \$75.9 billion by fiscal year 2009. U.S. agricultural imports show steady annual growth to \$50.7 billion in 2009. The resulting agricultural trade surplus rises from a low of \$11.0 billion in 2000 to \$25.2 billion in 2009.

Continued low bulk commodity prices, large world supplies and foreign export competition, and a strong U.S. dollar led to lower export value in fiscal 1999, with exports of both bulk and high-value products (HVPs) declining. Fiscal 2000 U.S. export value is expected to remain about unchanged from fiscal 1999, at \$49 billion, as the value of HVPs begin to recover, but bulk export value remains depressed. Starting in 2001, growth in both bulk and HVP exports is expected to rebound for the remainder of the baseline. Averaging 5.6 percent per year during 1999-2009, projected bulk commodity value growth exceeds growth in both the 1980s and the 1990s, lending strength to total export earnings. Cotton and grain exports rebound significantly from the recession of the previous decade. HVP export growth is projected to average 3.8 percent annually during 1999-2009, slower than in the 1990s. The share of bulk products in agricultural exports rises slightly in the baseline.

Table 36. U.S. agricultural trade values, baseline projections, fiscal years

	1998	1999	2000										1999-2009 growth rate
			1/	2001	2002	2003	2004	2005	2006	2007	2008	2009	
<i>Billion dollars</i>													<i>Percent</i>
Agricultural exports:													
Animals and products	11.2	10.1	10.8	9.8	10.5	10.8	11.2	11.7	12.0	12.5	12.8	13.3	2.8
Grains, feeds, and products	14.1	14.4	13.4	14.4	15.1	16.7	18.1	19.4	20.5	23.3	23.6	25.0	5.7
Oilseeds and products	11.1	8.7	8.6	8.6	8.8	9.3	10.0	10.7	11.4	12.1	12.6	12.5	3.7
Horticultural products	10.3	10.3	10.5	11.8	12.4	12.9	13.5	14.1	14.7	15.3	15.9	16.5	4.9
Tobacco, unmanufactured	1.4	1.4	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	-1.6
Cotton and linters	2.5	1.3	1.5	2.2	2.6	2.8	2.6	2.6	2.7	2.9	3.0	3.1	8.9
Other exports	2.9	2.8	2.9	3.2	3.3	3.4	3.6	3.7	3.9	4.0	4.2	4.3	4.3
Total agricultural exports	53.6	49.0	49.0	51.2	53.9	57.2	60.3	63.5	66.4	71.2	73.3	75.9	4.5
Bulk commodities exports	20.1	17.8	16.8	18.1	19.0	21.0	22.5	24.2	25.7	28.9	29.6	30.8	5.6
High-value product exports	33.6	31.2	32.2	33.1	34.9	36.3	37.8	39.3	40.7	42.3	43.7	45.1	3.8
High-value product share	62.6%	63.7%	65.7%	64.7%	64.7%	63.4%	62.8%	61.9%	61.3%	59.4%	59.7%	59.5%	
Agricultural imports:													
Animals and products	6.8	7.1	7.2	7.5	7.5	7.6	7.8	7.9	8.1	8.2	8.3	8.5	1.9
Grains, feeds, and products	2.9	2.9	2.8	2.9	3.0	3.1	3.3	3.4	3.6	3.7	3.8	4.0	3.0
Oilseeds and products	2.2	2.0	1.9	1.8	1.7	1.6	1.6	1.8	2.0	2.3	2.6	2.9	3.7
Horticultural products	13.9	15.3	15.7	16.4	17.1	17.9	18.7	19.5	20.3	21.1	21.9	22.8	4.1
Tobacco, unmanufactured	0.8	0.7	0.7	0.7	0.7	0.8	0.9	0.9	1.0	1.1	1.1	1.2	4.5
Sugar and related products	1.7	1.6	1.6	1.8	1.8	1.9	2.1	2.1	2.0	1.9	1.9	1.9	2.1
Coffee, cocoa, and rubber	6.3	5.2	5.4	5.5	5.5	5.6	5.6	5.7	5.7	5.8	5.8	5.9	1.2
Other imports	2.4	2.6	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.3
Total agricultural imports	37.0	37.4	38.0	39.3	40.2	41.4	43.0	44.4	45.8	47.4	49.0	50.7	3.1
Net agricultural trade balance	16.6	11.6	11.0	11.9	13.7	15.9	17.3	19.1	20.6	23.9	24.3	25.2	8.1
<i>Million metric tons</i>													
Agricultural exports (volume):													
Bulk commodity exports	98.5	113.7	109.4	115.5	117.6	121.1	124.5	127.4	129.8	132.1	134.3	136.6	1.9

1/ The projections were completed in November 1999 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. High-value products (HVP's) 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. imports are projected to grow from \$37 billion in fiscal 1999 to \$51 billion in 2009, a 3.1-percent average annual increase. From 1995 to 1999, agricultural imports increased 7 percent on average per year, driven in large part by the robust U.S. economy and the strong dollar. The long-term import outlook is expected to be more in line with U.S. GDP growth over the coming decade. Imports of horticultural products, the largest component of U.S. agricultural imports, expanded by 10 percent annually from 1995 to 1999. Horticultural imports are expected to slow

to 4 percent growth from 2000 to 2009. Beverages, fruits, juices, and vegetables will be supplied largely by Mexico, Canada, Chile, and the European Union.

Foreign Agricultural Policy Assumptions and 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 November 1999. Bilateral agreements affecting agricultural trade between the United States and Canada, the United States and Mexico, the United States and Japan (beef and citrus), and the United States and South Korea (beef) are examples of agreements for which full compliance is assumed. In contrast, no compliance is assumed for any agreements not formally ratified by November 1999.

For multilateral agreements, the projections assume full compliance with the internal support, market access, and export subsidy provisions of the Uruguay Round Agreement on Agriculture by all parties to the agreement. Several potential multilateral agreements that could have a significant impact on agricultural trade are now under consideration, but are assumed *not* to occur in these projections. These include:

- No accession to the World Trade Organization (WTO) by the FSU, China, or Taiwan;
- No enlargement of the EU-15 to add one or more Central or East European countries;
- No implementation of more liberalized trade among the Asia-Pacific Economic Cooperation (APEC) countries;
- No expansion of NAFTA to include additional countries, and;
- No implementation of any reforms under consideration in 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 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 baseline projections for the EU continue to incorporate EU commitments under the Uruguay Round Agreement that limit subsidized exports and improve access to the EU market. Also incorporated are the Agenda 2000 financial and agricultural policy reforms that were adopted in early 1999. However, impacts of the anticipated accession of the Central and Eastern European (CEE) countries to the EU are not included in the projections. Although eastward enlargement

of the EU is likely to have significant implications for agriculture, it is not incorporated into the baseline because of the high degree of uncertainty regarding the final terms and timing of enlargement.

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. Tariffication of nontariff barriers and tariff reductions are expected to have little impact because the high tariffs established for most products are unlikely to permit significant additional imports. Continued high levels of import protection mean that price transmission from the world market will be negligible for all baseline commodities except oilseeds and products and, in the later years, wheat. The most important Uruguay Round commitments for the baseline are the limits on subsidized exports and the minimum import levels agreed under the market access provisions. Even with the Agenda 2000 reforms, there is uncertainty about the measures the EU will use to meet these commitments. It is assumed that the EU will use existing policy mechanisms to comply with WTO commitments without excessive stock accumulation.

Agenda 2000 includes reforms of the grains, oilseeds, dairy, and beef sectors for the period 2000-2006 (see box, page 94). The reforms shift more intervention from price supports to direct payments and modify supply control measures. The principal reforms and assumptions affecting the baseline are:

- The default land set-aside requirement is reduced from 17.5 percent to 10 percent for 2000/01-2006/07. A 10-percent set-aside rate is assumed in the baseline for 1999/2000-2007/08, increasing to 15 percent in 2008/09 because of rising coarse grain surpluses (see below).
- A 15-percent reduction in the cereal intervention price, phased in over 2000/01-2001/02, partially offset by an increase in direct area payments.
- For oilseeds, the area payment is reduced by 33 percent over 3 years, equaling the cereal payment by 2002/03.
- A 20-percent reduction in the intervention price of beef, phased in over 2000-2002, partially offset by increased headage payments.
- Dairy reform is delayed until 2005/06. The dairy quota is increased 1.2 percent for 2000/01-2001/02 and another 1.2 percent for 2005/06-2007/08. Though not specified in the package, dairy prices are assumed to be cut by 15 percent over 3 years starting in 2005/06.

For the baseline, basic support prices are set at Agenda 2000 nominal levels for most commodities, and the land set-aside is initially set at the new default rate of 10 percent. However, any commodity supplies in excess of intervention purchases and on-farm use that cannot be exported are assumed to depress internal market prices below intervention prices to clear domestic markets. For example, when Uruguay Round limits on subsidized exports of

European Union: Impacts of Agenda 2000

In March 1999, the European Union (EU) enacted Agenda 2000, a policy reform package including agricultural reforms, structural policies, a reinforced pre-enlargement strategy, and a financial framework for the 2000-2006 period. EU representatives have stated that Agenda 2000 will be the EU position in the upcoming WTO round on agriculture.

The Agenda 2000 agricultural reforms further shift the EU from price supports to direct payments in order to increase the competitiveness of EU agriculture, appease farmers, and avoid the buildup of intervention stocks. However, the baseline analysis indicates that the EU will continue to need subsidies to export most agricultural products. With export subsidies already restricted by Uruguay Round limits, this means that Agenda 2000 will have little impact on most world agricultural markets.

Agenda 2000 Package

The Agenda 2000 package includes reforms in the arable-crop (grains and oilseeds), dairy, and beef sectors:

- **Reduced intervention prices:** A 15-percent drop in the cereal intervention price over two years (2000/01-2001/02), a 20-percent drop in beef support price over 3 years (2000-2002), and a 15-percent decrease in dairy support prices to be phased in over 3 years starting in 2005/06.
- **Modified direct income support:** An increase of 9 euros/ton for cereal producers to compensate for half of the drop in the intervention price. Direct payments for oilseeds to be aligned to cereal aid (33-percent drop) over 3 years (2000/01-2002/03). An increase in per-animal beef payments in 3 steps starting in 2000 and a new payment per quantity of milk produced starting in 2005/06.
- **Reduced default land set-aside rate:** The default rate is reduced from 17.5 percent to 10 percent. The set-aside rate is to be set at the default rate unless all member states agree on a different rate.
- **Dairy reform delayed:** 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 for 2000/01 and 2001/02, and the other 1.2-percent increase will be spread over the remaining regions from 2005/06 to 2007/08.

Agenda 2000 Impacts

Arable Crops. The impact of Agenda 2000 reforms on cereals is contingent on world price developments. In the EU, all cereals receive the same intervention (support) price. With current baseline price projections, the 15-percent cut in the intervention price allows EU wheat to compete at world prices in 2004/05, allowing wheat exports to exceed the limit on subsidized

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European Union: Impacts of Agenda 2000--continued

exports set in the Uruguay Round. Without Agenda 2000, the EU wheat price would have been uncompetitive through more years of the baseline and exports would be constrained by the subsidized export limits.

For coarse grains, however, even the reduced intervention prices remain above projected world prices for the duration of the baseline and exports will remain constrained by the ceiling on subsidized exports. With these projections, Agenda 2000 is unlikely to help reduce the large current EU stocks of coarse grains.

There are uncertainties in assessing the impacts of the reforms on EU wheat exports. In particular, because EU wheat farmers have been insulated from world prices, it is unclear how they will react to market signals when wheat can be exported without subsidy. When the world wheat price rises above the intervention price, it will become the new price floor for EU producers. It is unclear how farmers will adjust wheat area relative to other crops in response to higher world and domestic market prices. It is also unclear to what extent farmers will opt to produce more food-quality wheat for export, at the expense of the higher yielding feed wheat. Significant changes in feed-wheat supplies would also affect feed rations and exportable supplies of coarse grains, such as barley.

The reduction in EU oilseed payments is expected to result in lower yields, but only a slight shift out of oilseed production. Over the longer term, a modest recovery in world oilseed prices is expected to partially offset the decline in producer support.

Dairy. Dairy reform has been postponed until 2005/06. Milk production will increase by 2.4 percent during the baseline due to the increased dairy quota, but it is unlikely that exports can also increase. Currently, all EU butter exports and nearly all skim milk powder exports are subsidized (see table 37). Analysis of EU export subsidy notifications to the WTO suggests that dairy prices are too high to allow unsubsidized EU exports; the 15-percent price reduction is far smaller than the subsidy for both butter and powder. Additionally, the EU subsidizes over 80 percent of its cheese exports, and has met its subsidized volume binding in the first two years of the UR implementation.

Table 37. EU dairy product export subsidies

Product	1995/96		1996/97		15-percent reduction in price <i>ecu/ton</i>
	Average subsidy <i>ecu/ton</i>	Share of exports <i>percent</i>	Average subsidy <i>ecu/ton</i>	Share of exports <i>percent</i>	
Butter	1,750	100.0	1,999	100.0	492
SMP	584	97.3	631	98.7	308

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European Union: Impacts of Agenda 2000--continued

Beef. Because the EU market price for beef is so far above world market prices, all EU beef exports are subsidized. Agenda 2000 reduces the support price by 20 percent (or 556 euros/ton), to a basic price of 2,224 euros/ton. The average export subsidy was 1,478 ecu/ton in 1995/96, 1,297 ecu/ton in 1996/97, and 888 ecu/ton in 1997/98 (note: 1 euro = 1 ecu). Thus, the proposed beef reforms will do little to help the EU increase beef exports. Additionally, much EU beef is a byproduct of the dairy herd. With the proposed increase in the dairy quota, beef production will not drop off significantly. This analysis assumes that the full producer price cut will not be transferred to consumers; rather they will experience less than a 5-percent cut in price. Therefore, Agenda 2000 is expected to do little to reduce beef surpluses through increased consumption.

Pork and Poultry. The decline in internal prices of cereals under Agenda 2000 will lead to lower feed costs. These lower costs are expected to lead to small increases in pork and poultry production. Most of the increase will likely be consumed in the domestic market, where these meats are preferred. A portion of EU pork and poultry output is also exportable on world markets without subsidy.

wheat and coarse grains are binding, excess supplies have to be absorbed on the internal market and drive internal market prices down.

Projected domestic and world wheat prices indicate that EU wheat can be exported without subsidy beginning in 2004/05. Coarse grain exports, however, continue to be constrained by the Uruguay Round subsidized export limits. By 2008, even with internal market prices falling well below intervention prices, coarse grain stocks accumulate to unsustainable levels. To prevent further stock buildups, it is assumed that the arable crop land set-aside will be increased to 15 percent. Imports of coarse grains reflect the EU's market access commitments for corn, while imports of other coarse grains are minimal. Beef exports are projected to remain at WTO-mandated limits on subsidized exports. Subsidized exports of pork and poultry are dictated by WTO commitments, while unsubsidized exports are projected to increase slightly.

Asia and Oceania

Australia. Production for export dominates Australian agriculture. Australian producers are expected to continue to adjust cropping patterns, and to switch between crop and livestock enterprises, to maximize returns. With increasing populations and incomes forecast globally, exports and production of the major commodities are forecast 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. Several new dams are in the planning stage.

While little growth in wheat area is expected, growth in wheat yields is projected to support increases in both exports and domestic feeding of wheat. Australia ships much of its rice to the

high-priced Japanese market, and is developing varieties specifically for that market. However, further growth in rice exports will be very limited due to constraints on increasing both area and yield. Increases in barley output will depend primarily on yield gains, with the share of barley area and exports devoted to malting barley continuing to rise. Cotton yield, production, and export growth remain heavily dependent on the availability of irrigation water and are projected to show only moderate gains. Although low prices and more favorable returns for other enterprises may limit growth of the cattle herd in the short run, beef production and exports are projected to increase in the medium term.

China. While China's growth has consistently been the strongest in Asia for some time, it is expected to level off from the double-digit pace of the early 1990s to a more sustainable annual rate of 7.4 percent over the next decade. With population growth averaging about 0.6 percent per year, per capita GDP gains will average an impressive 6.7 percent annually. However, future real income gains will be slowed by adjustment problems, particularly rising unemployment as privatization of state-owned enterprises accelerates, and by increasing competition from foreign firms. Credit supply will be directed less by government fiat and more by independent banks, so credit access will be increasingly market based. The country's high savings rate will keep interest rates relatively low in spite of increasing demand for investment. Competition for lower-value export markets should intensify as other developing countries, including Thailand, Vietnam, and India, increasingly enter those markets.

China's agricultural policy has been in a state of flux as government priorities have shifted and reform initiatives have been adjusted. After pushing responsibility for insuring adequate grain supplies down to the provinces (the "Governor's Grain Bag" System) in the mid-1990s, a "Grain Reform" policy was initiated in 1998 reversing several years of liberalization by severely restricting private grain marketing. These two policy initiatives, combined with excellent weather and a slowdown in consumer demand, resulted in rapid growth in government expenditures and burgeoning agricultural commodity stocks. As a result, agricultural imports have fallen dramatically and exports have risen.

In 1999, the government responded to the problems in agriculture by announcing strict new quality standards on government grain purchases, the gradual elimination of purchases of the lowest quality grains, and abolition of the government-set price for cotton and mandatory cotton sales to the government. Despite the negative impacts these changes may have on grain and cotton output in the near term, stocks are more than sufficient to forestall the need to significantly increase grain or cotton imports (see box on page 98).

In late 1999, China's National Bureau of Statistics released revised estimates for total cropped area in the country. The new data have no implications for the baseline projections because the official release reflects information already widely available for several years. The NBS estimates place total cropped area in 1996 at 130 million hectares, 37 percent higher than the previous estimate of about 95 million hectares. Crop production estimates for China are generally believed to be accurate, so the larger area estimate implies that official (and USDA) estimates of crop yields are overstated by an average of about 37 percent. Since the NBS has not released area estimates by crop, or for historical years, it is not possible at this time to revise the USDA area and yield series for individual crops. However, because the new larger area estimate

China: High Grain Stocks Outweigh Impact of New Price Policy

Beginning in late 1994, China's "Governor's Grain Bag Responsibility System" policy encouraged local administrators and farmers to boost grain output, increase grain stocks, and reduce dependence on imports (see table 38). However, the success of this policy introduced a new set of problems for China's leadership. Huge sums of capital have been spent to purchase and store grain. Farmers responded to the lack of quality differentiation in grain purchase pricing by increasing yields at the expense of quality, which produced growing stocks of undesirable low-quality wheat and rice. As stocks soared and production continued to rise, free market grain prices fell, which in turn affected the government's plan to bolster farm income.

Table 38. China: Summary of grain bag policy objectives and accomplishments, 1995-98

Grain bag policy objective	Results in 1995	Results in 1996	Results in 1997	Results in 1998
1. Increase grain area	110.1 mil. ha +0.5 %	112.5 mil. ha +2.3 %	112.9 mil. ha +0.3 %	113.8 mil. ha +0.8 %
2. Increase fertilizer output	25.5 mmt +12.1 %	28.1 mmt +10.2 %	28.2 mmt +0.4 %	30.1 mmt +6.7 %
3. Raise grain yields	4.66 mt/ha +3.53 %	4.89 mt/ha +5.04 %	4.82 mt/ha -1.45 %	4.95 mt/ha +2.70 %
4. Increase grain output	467 mmt +4.8 %	505 mmt +8.1 %	494 mmt -2.1 %	512 mmt +3.7 %
5. Guarantee grain stocks	+25 mmt	+52 mmt	Reported as "record high"	Reported as "record high" of 250+ mmt
On-farm grain stocks	+21 %	+33 %	+20 %	NA
6. Enforce grain transfers 1/	Partial	Partial	Partial	Partial
7. Stabilize urban supplies	Yes	Yes	Yes	Yes
8. Stabilize grain prices 2/ Monthly average price range (RMB/kg):				
Low month	2.61	2.70	2.22	2.26
High month	2.93	2.92	2.70	2.90
Percent difference	12.3%	8.1%	21.6%	28.3%
9. Raise government share of commercial grain sales 3/	Probably	Probably	Probably	Probably
10. Government control over grain imports and exports	Yes	Yes	Yes	Yes
<u>11. Increase grain self-sufficiency</u>	<u>97 %</u>	<u>99 %</u>	<u>100 %</u>	<u>100 %</u>

Source: USDA, Economic Research Service.

1/ Some provinces erected formal and informal barriers to grain transfers.

2/ Monthly average urban retail prices for milled indica rice.

3/ The protection price mechanism came into play in 1996 - 1998 for various grains, which means that the government was required to purchase more grain than usual. Also, the 1998 grain reform would theoretically place more food grains under government control.

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China: High Grain Stocks Outweigh Impact of New Price Policy--continued

In response to the problems caused by the “Grain Bag” policy, the government announced new grain regulations beginning in the year 2000. The plan reduces government support and purchase prices for lower-quality rice, wheat, and corn procured under fixed quotas, although the new quality standards have yet to be announced. Beginning in 2000, government support prices and fixed quota purchases will be eliminated for spring wheat produced in Inner Mongolia, northern Hebei, Heilongjiang, Jilin, and Liaoning provinces, for low-quality winter wheat produced in some provinces south of the Yangzi River, and for low-quality early indica rice.

Reduced government purchases, and elimination of low-quality purchases, imply reduced grain supply, higher domestic free market prices and, consequently, larger imports. However, the new policy is not expected to boost imports compared with earlier projections for three reasons:

- First, the central reason for the new policy is China’s enormous stockpile of grain and the consequent financial burden on central and provincial budgets. A gradual drawdown of those stocks is expected to more than offset any decline in grain output, moderate consumer prices, and prevent significant impacts on import demand. However, this scenario hinges on the assumption that the central government allows the sale of grain stores at current prices, which are significantly lower than the original purchase prices. There is a great deal of resistance on the part of the central government to incurring these financial losses. However, opposition to releasing stocks at prices below cost is weakening as the present value of the carrying costs grows relative to the one-time cost of selling off stocks at a loss. The principle effects of drawing down stocks are reduced imports of wheat, rice, and corn and an increase in corn exports, particularly sales from Northeast China to South Korea and Southeast Asia.
- Second, the economic growth forecast for China is now less optimistic than in previous projections. A sustained slowdown in domestic demand, combined with intractable structural problems in the financial and state-owned industry sectors, are expected to slow growth in income and agricultural product demand compared with earlier projections.
- Third, China increased government investment in agricultural research, development, and infrastructure during the mid- and late-1990s. Although there is a significant time lag before increases in investment have an impact on crop yields, this new investment is expected to boost China’s long-term crop yield growth higher than in earlier projections.

was first made available in 1993, the impacts have been accounted for in USDA projections by assuming that China’s unmet yield potential is greater than implied by the official data, raising future yield growth rates accordingly.

With respect to trade policy, the government recently resumed value-added taxes on oil meal imports and clamped down on edible oil import smuggling. Over the long-term, this policy shift is expected to result in sharply lower levels of meal imports, modestly lower edible oil imports, and much higher levels of soybean and rapeseed imports.

The net result of the recent agricultural policy changes, combined with slower growth in domestic demand and rising yields, is a reduction in China’s projected imports of key agricultural commodities. Wheat, corn, cotton, soybean meal, and soybean oil imports are all lower than previous baseline projections. The projections also show comparatively higher exports of corn and cotton, particularly in the near term.

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. More government investment in agricultural research and development and in agriculture infrastructure, such as irrigation and flood control, will be driving forces in reducing costs and increasing returns to farmers. In addition, production of most major crops is expected to rise as yields are boosted by more use of improved varieties, fertilizer, pesticide, and better management.

The long-term trend, however, is for China's agricultural trade system to gradually liberalize as the government attempts to reduce swelling financial outlays supporting the inefficient government-owned agricultural marketing and distribution system. The central government will maintain quotas for trade in key commodities, including wheat, rice, corn, and cotton. The share of trade handled by private, quasi-private, or even joint public-private trade companies is expected to expand gradually. Trade in other agricultural commodities will also be strongly influenced by government policy, but generally only through measures such as licensing, tariffs, and taxes.

The baseline projections assume that China is not a member of WTO during the projections period. However, the November 1999 agreement between the United States and China on China's accession to WTO suggests that China could become a member in the near future. A preliminary assessment of implications of the accession agreement relative to the baseline projections is discussed in the adjoining China WTO accession box.

East Asia. South Korea and Japan are projected to remain large net importers of livestock products. As dictated by the Uruguay Round agreement, barriers to imports continue to fall through 2004 in South Korea and through 2000 in Japan. Deficiency payments to assist the beef cattle sector and dairy import quotas will support cattle production at about present levels, but growing demand will be met through imported beef. Pork and poultry meat production in both countries has been strengthened by structural change and, in South Korea, encouraged by the weakness of the won. South Korea's exports of pork to Japan are expected to continue, but growing imports of pork cuts after the 1997 liberalization of trade will limit South Korean farmers' ability to expand production. Japan is expected to make maximum use of the pork and beef safeguard mechanisms negotiated in the Uruguay Round, which permit temporary hikes in tariffs and levies in order to limit imports. Feed imports will not grow, reflecting stable or declining livestock production in Japan and South Korea.

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. Taiwan's import ban on offal, chicken meat, and pork cuts (other than hams, loins, and shoulders) was lifted slightly and a quota instituted after the February 1998 agreement with the United States about WTO accession. The outbreak of FMD in March 1997 has completely shut down Taiwan's pork exports. Exports of uncooked pork are not expected to resume for a few years, and even then they will show only gradual growth.

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

China WTO Accession: Implications for Agricultural Trade

The potential impacts of China's future accession to the WTO are not included in the baseline projections because negotiations on the terms of accession are incomplete, and the timing of formal ratification remains uncertain. It is, however, likely that China will join the WTO during the projection period, and that the terms of accession will result in significant impacts on global agricultural trade. The assumptions used in the following analysis are based on the terms of the U.S.-China accord negotiated in November 1999, and provide a general assessment of its potential trade impacts. There is no assurance that any final China accession agreement will follow the terms or timing of these accords, but the results are useful to illustrate possible outcomes.

Overview of Terms of Accession

- **Trading Rights:** For many goods, the right to import is assumed to be expanded beyond the government to include any non-government entity. China has agreed to phase in these trading rights over three years. Trade in some goods, including wheat, corn, rice, cotton and soybean oil, will continue to be channeled through state trading enterprises (STEs). But, there will be commitments to end STE monopolies by allocating minimum amounts of the import quotas to non-STEs.
- **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 2000 and continuing, for most commodities, through 2004, when the average agricultural tariff will fall to 17 percent.
- **Tariff Rate Quota Administration:** Tariff-rate quotas (TRQs) are established for major bulk commodities, including wheat, corn, rice, cotton, and soybean oil. For these goods, a specified quantity of imports will enter at a low duty (not to exceed 10 percent), with additional imports assessed a higher duty. The TRQ quantities are assumed to begin in 2000 and increased annually through 2004. There is no minimum purchase requirement, but the TRQs are subject to specific disciplines that base import decisions on commercial, not political, factors. A share of the TRQ is reserved for import by non-STEs.
- **Export Subsidies:** China commits not to use export subsidies for farm products.
- **Domestic Support:** China commits to cap and reduce trade-distorting domestic subsidies.

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

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China WTO Accession: Implications for Agricultural Trade--continued

an upper bound on the potential increase in China's imports. High over-quota tariffs of 40-80 percent, although declining during the implementation period, limit the potential for over-quota imports.

Wheat: The TRQ amount is 7.3 million tons in 2000, rising to 9.6 million 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 government incentives for wheat producers, and slowing growth in domestic wheat use.

Rice: The TRQ amount is 2.7 million tons in 2000, rising to 5.3 million in 2004, with the quota split evenly between short- and long-grain rice. However, potential for short-grain rice imports is very limited because of large stocks and low domestic prices relative to world prices. There is more scope for imports of long-grain rice, but high stocks, relatively low internal prices, and government incentives for producers should constrain imports to below the TRQ level.

Corn: The TRQ amount is 4.5 million tons in 2000, rising to 7.2 million in 2004. In the near term, imports may not reach the TRQ level because high stocks and a weakening livestock sector 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 near future. Prospects for filling the quota improve in the longer term because of rapid projected growth in meat consumption and feed demand.

Soybeans and meal: No TRQ is established for soybeans or soybean meal. Both goods continue to be imported freely under relatively low tariffs.

Soybean oil: The TRQ commitment is 1.7 million tons in the year 2000, rising to 3.3 million in 2005, after which the TRQ is eliminated and imports are subject to tariff only. There is significant potential for the soybean oil quota to be filled under the new tariffs and trading rules because of strong domestic demand and high internal prices relative to world prices.

Cotton: The TRQ amount is 743,000 tons in the year 2000, rising to 894,000 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, but remain below TRQ levels under ordinary crop conditions.

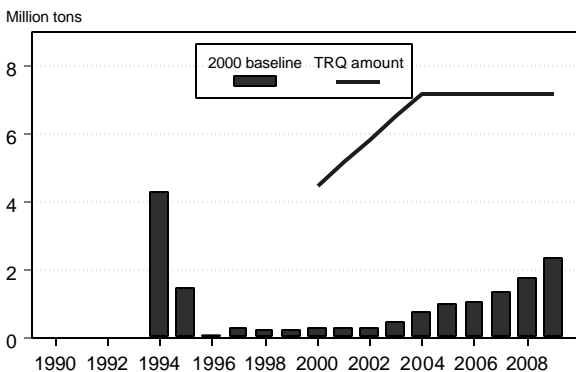
Meats: No TRQs are established, but China commits to significant cuts in many of its highest meat tariffs. Tariff reductions are likely to increase meat imports from currently very low levels. The agreement also lifts current bans on imports, assures acceptance of products certified by USDA's Food Safety 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.

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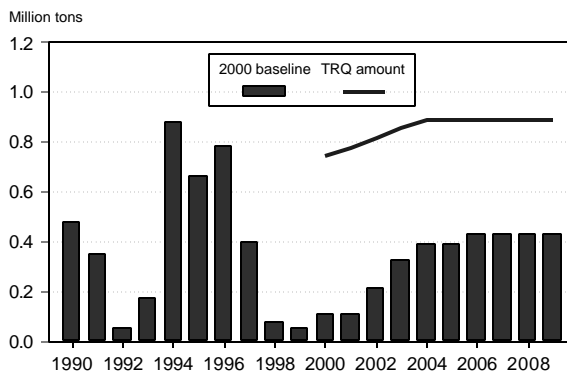
China WTO Accession: Implications for Agricultural Trade --continued

Figure 5. China's Baseline Imports and Proposed TRQs under WTO Accession

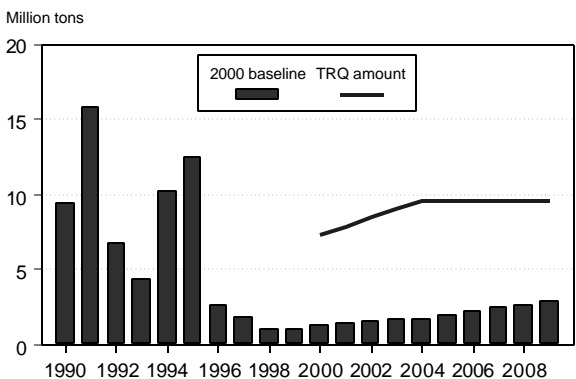
China: Corn Imports



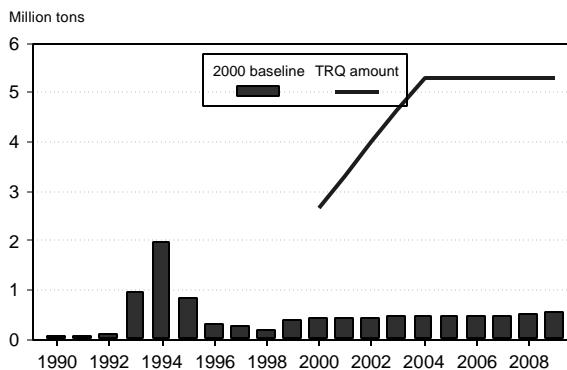
China: Cotton Imports



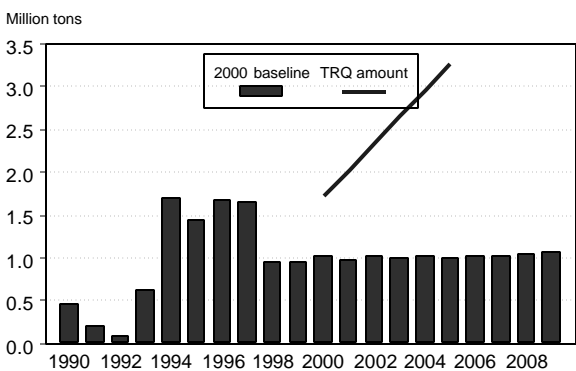
China: Wheat Imports



China: Rice Imports



China: Soybean Oil Imports



above those levels. The tariff levels for over-quota rice imports announced by Japan prohibit significant additional trade.

Wheat, barley, and soybean production in Japan, and barley and soybean production in South Korea, are maintained through border protection and government subsidies. Soybean crushing in South Korea has been put under pressure by the lowering of tariffs on vegetable oil imports, which will continue. The economic crisis in 1997/98 severely weakened the financial position of South Korea's crushing firms, and growing imports of soymeal and soyoil, at the expense of soybeans, are anticipated. The quota for corn for new industrial uses introduced during the Uruguay Round should expand Japan's non-feed imports of corn.

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 Asian financial crisis resulted in exchange rate instability and slowed economic growth throughout Southeast Asia during 1997-1999. Although positive GDP growth rates are expected to return to the region by 2000, average growth rates during the baseline period are expected to remain 2-4 percentage points below historical averages for several countries, including Indonesia, Malaysia, and Thailand.

Indonesia's economic and political stability was the most severely affected by the crisis, and prospects for recovery there remain the most uncertain. Indonesia is assumed to return to modest positive growth in 2000 and achieve 5-percent average growth for 2003-2009, 3 percent below historical performance. Agricultural policy is expected to evolve under the framework agreed to with the IMF, involving reduced government intervention, more privatization, and more open trade. Under the IMF agreement, the Indonesian agricultural state trading agency, BULOG, gave up its monopoly trade rights for rice, wheat, and soybeans, although it retains a key role in domestic rice purchasing, distribution, and inventory management.

Growth in production and consumption of livestock products in the region was dealt a severe setback by the financial crisis. Meat demand and output have now begun to recover from, in some cases, sharply reduced levels. Consumption and imports of feed grains and proteins have also suffered sharp reductions, but are now also beginning to recover.

Rice imports in the region are expected to continue to expand, as production in importing countries such as Indonesia, the Philippines, and Malaysia, remains handicapped by land constraints and slow increases in yields. Although wheat import demand in the region has been slowed in the near term by smaller incomes, higher local currency prices, and Indonesia's elimination of its consumer subsidy, longer-term prospects are still for strong import growth as wheat continues to account for a growing share of diets in the region.

The region's feed-livestock sectors contracted sharply during the financial crisis, but are expected to resume strong growth 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. Indonesia, Malaysia, the

Philippines, and Thailand are all projected to show strong long-term growth in import demand for coarse grain and feed protein.

The impacts of the crisis on the region's agricultural exports, including rice, palm oil, and poultry, are mixed. With their devalued currencies, Thailand and Vietnam are expected to remain large and very competitive rice exporters, and Thailand's exports of poultry continue to receive a competitive boost from devaluation of the baht. The financial and political instability in Indonesia have resulted in reductions in palm oil plantings; this is expected to slow long-term growth in exportable supplies.

South Asia. India's farm sector has benefited from improving terms of trade as agricultural price incentives have been maintained and liberalizing reforms have steadily reduced protection in non-farm sectors. The agricultural sector is also responding to the reduction of quantitative restrictions on agricultural imports and exports in response to WTO rulings, as well as the increased emphasis on export expansion as a source of growth. The pace of reforms is likely to be hastened by the strong government installed after the recent election. More emphasis is expected on improving domestic market institutions and competitiveness in the world market, as well as on trade liberalization and incentives for private sector participation.

India's food grain production has received a boost from government price incentives, and is also likely to benefit from the reduced protection of oilseeds resulting from the recent tariffication of vegetable oil imports. Surpluses of rice are projected to continue in the baseline, with India's relatively low-quality rice maintaining its price competitiveness and a significant global market share. The current large domestic surpluses of wheat, created in part by large increases in administered prices, however, are not exportable without subsidy under current world market conditions. Despite the surpluses held in northern areas, the high administered prices are permitting wheat imports to flow into southern ports. While some wheat imports are projected to continue, it is assumed that the government will gradually adjust administered prices to balance domestic supply and demand.

With the tariffication of vegetable oil trade remaining in place, India's vegetable oil imports are projected to resume rapid growth. Import demand will be boosted by lower domestic consumer prices for vegetable oil, as well as slowed growth in domestic oilseed production. India's exports of soymeal are expected to continue to grow, as soybean producer incentives are less affected than other oilseeds by lower internal oil prices, but export growth will be slowed by area constraints and rising domestic feed demand. Price incentives and productivity gains are expected to sustain strong growth in cotton production, with most production consumed domestically to meet domestic and export demand for cotton-based products.

Economic growth projections for Pakistan have been reduced because of declining capital inflows and continued low rates of domestic savings and investment. Agricultural policy is expected to continue to support gains in cotton area and yields. As a result, wheat yields are likely to remain well below potential due to late planting on double-cropped land. Dependence on imported wheat is projected to continue to rise.

Pakistan's cotton yields are expected to recover gradually from recent pest-related problems. As with India, most cotton production is likely to be processed domestically, contributing to strong growth in exports of cotton-based products. Small increases in rice area will allow rice exports to slowly expand. Relatively liberal import policies, combined with limited production potential, will likely lead to continued growth in vegetable oil imports. Growing livestock product demand is expected to result in growing soybean meal imports and, possibly, the emergence of feed corn imports during the baseline.

Africa and the Middle East

Sub-Saharan Africa. Growth in Sub-Saharan Africa's food grain production is projected at about 2.7 percent annually, just short of anticipated annual population growth. The region's food grain imports are linked to the global availability of food aid and its chronically limited capacity to import commercially. Food grain imports are projected to grow about 1.1 percent per year, rising from their current level of roughly 10 million tons to about 12 million tons in 2009/10. With these supply projections, total food grain consumption will rise at an annual rate of about 2.4 percent, implying a 0.3-percent annual decline in per capita consumption.

The global food aid assumptions underlying the projections (see box on page 107) call for the United States and other donors to maintain recent normal budget allocations to food aid, and imply that the volume of global food grain aid will decline about 2 percent annually. Food grain aid availability for Sub-Saharan Africa is, however, expected to remain roughly constant as an increasing share of available aid is allocated to the region's highly food-insecure countries.

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 75 percent of Sub-Saharan Africa's food grain imports, and this share is projected to rise to near 80 percent over the projection period. Commercial imports are constrained by the region's limited capacity to earn foreign exchange, and are projected to grow only about 1.2 percent per year.

North Africa. Growth in import demand for grains and feeds is projected to strengthen during 1999-2009, based on the outlook for improved economic growth, limited production potential in some countries, and more open trade policies.

In Egypt, progress has been made in expanding the role of the private sector, liberalizing the treatment of trade and investment, simplifying the tax regime, and reducing bureaucratic impediments and structural distortions. Egypt has overcome a series of exogenous shocks, including lower world oil prices, lower revenues from the tourist sector, lower volume of exports, and increasing flows of imports. Egypt's growth rate has held up relatively well, inflation has fallen to 3.4 percent, and its net international reserves remained on the whole strong during 1999. As a result, the economy is now more flexible, efficient, and open than it was few years ago. However, Egypt has a long way to go to complete the structural transformation of its economy. In particular, further progress is needed in raising national savings and investment to sustain the higher economic growth, reduce unemployment, and improve gains in living standards. Egypt has signed an Association Agreement with the European Union to open its

Projections for U.S. and World Grain Food Aid

Because food aid can significantly influence U.S. and world grain markets, donations of grain are included in the baseline projections. Globally, grain food aid averaged 10.8 million metric tons during the last 30 years, and accounted for 5 percent of total world grain exports. U.S. grain aid averaged about 6 million tons and accounted for nearly 8 percent of U.S. grain exports. U.S. and foreign grain aid have declined in the last decade, but are still important for some commodity and regional markets. Wheat tends to dominate world donations of food aid. In low-income food deficit countries, receipts of grain food aid can affect both consumers and producers.

Donations of food aid will be influenced by the intersection of food aid availabilities in donor countries and food aid needs in recipient countries. The major factors affecting food aid shipments are donor countries' funding for food aid and the price of the products that will be purchased with the budgeted funds. Projections for the volume of grain food aid depend on future grain prices, determined by changes in the world supply and demand for grains, and on assumptions about future food aid budgets.

For the United States, the majority of grain food aid is provided through P.L. 480 and Section 416 (b). P.L. 480 is subdivided into Title I (concessional sales, administered by USDA), and Titles II and III (grant aid, administered by the Agency for International Development). Donations under Section 416 are from stocks accumulated by, or products purchased by USDA's Commodity Credit Corporation. Grain donations under P.L. 480 and Section 416, including the Russian aid package, rose sharply in FY 1997/98 and 1998/99 (see figure 6).

Budget projections for the U.S. food aid programs are part of OMB's budget planning process. These budget projections show a drop in 1999/2000 because of sharply lower aid to Russia and smaller declines through 2004/05, followed by stable, inflation-adjusted levels for the remainder of the baseline. The projected volume of U.S. grain aid declines significantly for several years and then stabilizes, with subsequent small changes in donations changing inversely to real price changes.

The major foreign food aid donors are the EU-15, Japan, Canada, and Australia. Other donors include Switzerland, Norway, India, Saudi Arabia, Argentina, Turkey, New Zealand, and the U.N.'s World Food Program. To project grain food aid for these donors, it is assumed that, on average, these countries will maintain a constant real budget that is allocated to the purchase of grain. The volume of projected grain aid responds inversely to changes in the real price of grain. As a result, the volume of non-U.S. grain aid is very stable, declining slightly during the early part of the projection period and rising somewhat towards the end of the period.

Historically, there have been significant year-to-year variations in the value and volume of U.S. and foreign grain aid. The fluctuations have occurred in response to changing budgets, volumes of available products, or prices. On a volume basis, grain aid from the United States and the EU, the world's largest donors, have experienced greater year-to-year changes than aid from other donors. However, measured in terms of year-to-year percentage changes in the volume of aid, the donors

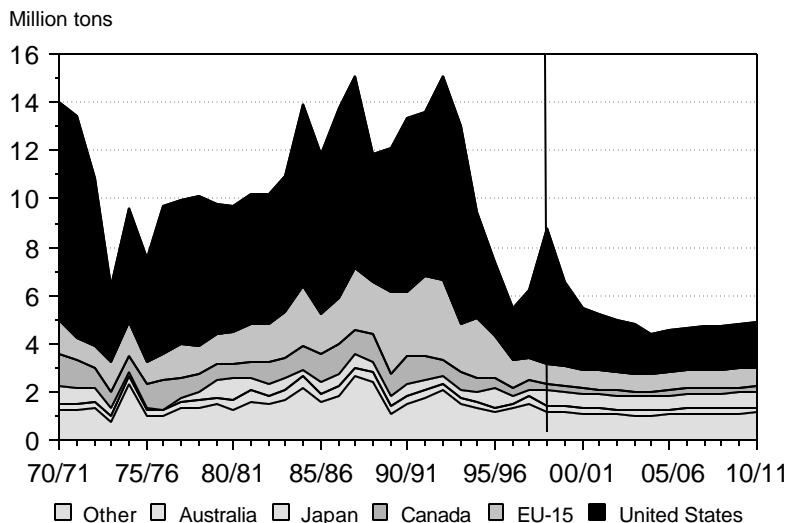
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Projections for U.S. and World Grain Food Aid -- continued

with the least volatility have been Australia, the United States, Canada, and the EU. Some of the smaller donors have demonstrated erratic year-to-year donations, but their impact on total food aid and on world markets is negligible.

The United States has dominated world food aid donations. During the 1970s and 1980s, U.S. grain aid generally accounted for 55 to 70 percent of the world total. In 1994/95, the U.S. share dropped below 50 percent for the first time, although the United States was still the largest single donor. The U.S. share of world grain aid is projected to decline further during the next several years to about 42 percent. The projections for total world grain food aid decline slightly during the next decade to about 5 million tons a year, down from more than 10 million tons during most of the 1980s. As this occurs, food aid's share of rising global grain trade declines from more than 5 percent during most of the 1980s to less than 2 percent by 2010. As a result of the declines in the volume of grain aid and of aid's share of total world grain trade, food aid is expected to have a reduced affect on world grain markets.

Figure 6. Grain Food Aid Donations



However, in Sub-Saharan Africa (SSA), the region with the greatest food aid needs, food aid will continue to be important. Per capita caloric consumption and consumption of grain is lower than any other region. The share of the population that is undernourished is also relatively high. Baseline projections for agricultural production in SSA suggests that growth in output will not fill the gap between food needs and availability. The financial capacity to increase commercial imports is also projected to be insufficient to fill the gap. As a result, an increasing share of global food aid is projected to be allocated to SSA, rising from 25 percent in the early 1990s and 30-35 percent in recent years, to about 45 percent by 2010. The volume of grain aid for SSA will remain about 2.0 to 2.5 million tons a year, as SSA's increasing share of global food aid is offset by a gradually declining level of world food aid. Other non-SSA traditional food aid recipient countries are projected to obtain an increasing share of grain import needs from commercial channels, rather than from food aid donations.

market to EU producers, eliminating tariffs on raw material and intermediate capital goods within 5 years, and on industrial goods by 2010. In return, Egypt will benefit from expanded EU quotas for agricultural and textile exports.

Egypt's real GDP growth is projected at 4-5 percent annually during the baseline. Rising consumer demand and recent policy reforms are expected to generate more growth in wheat, corn, and soybean imports. Corn imports have increased considerably in response to the booming poultry and livestock sectors, and to demand for starch and sweeteners. Soybean imports are expected to expand rapidly due to the recent development of crushing capacity in private sector. Consequently, growth in imports of soybean meal is expected to slow. Rice area has increased, mostly due to a shift out of cotton, boosting rice exports to more than 300,000 tons early in the baseline.

In Algeria, reform measures continue to stabilize and restructure the economy, which improved during 1999 due to increase in oil prices and near-record agricultural production. In late 1998, Algeria moved to a flexible exchange rate, resulting in depreciation of the overvalued currency, improved local producer incentives, and more capital inflows and investments. However, both wheat and corn imports are projected to rise, as growth in demand for food grain and feed grain continues to outpace local production gains.

Morocco has continued its structural reform and policy liberalization by phasing out food subsidies and replacing them with direct financial support to domestic producers to improve social conditions in rural areas. Reforms have led to more privatization, freer labor markets, a more flexible exchange regime, improved international reserves, and lower inflation (under 3 percent). Real GDP growth, forecast between 4 and 5 percent annually, coupled with a continuation of government reforms and recent steps to liberalize trade, sparks stronger growth in imports of grains, oilseeds, and sugar.

Tunisia is expected to continue its strong economic growth performance during the baseline period, backed by strong investment, decelerated inflation (down to 3.1 percent), increasing privatization to open the economy for foreign competition, and continuing reforms in banking, telecommunications, and transport sectors. Tunisia, which began liberalizing its domestic markets and trade in 1992, is projected to have annual real GDP growth of 5 to 6 percent a year and is expected to boost import demand for wheat, feed grains, soybean oil, sunflower oil, refined sugar, and livestock products. A member of the WTO, Tunisia has also signed a Free Trade Zone agreement with the EU, to gradually eliminate tariffs by 2008.

Middle East. Macroeconomic performance in the region improved in 1999, as the global economy strengthened and oil prices rose from 1997/98 lows. In part due to prospects for oil prices to remain relatively strong, the region's economies are projected to experience moderate economic growth during 1999-2009, somewhat higher than occurred during the 1980s. With annual population growth rates still above 2 percent, annual per capita GDP growth in the region is expected to average about 1.7 percent during 2000-2009. The region's economic performance will, however, remain strongly tied to the typically uncertain outlook for petroleum export earnings.

Prospects for Iran's economy remain highly dependent on both oil prices and the implementation of structural reforms. Livestock and dairy development will increase demand for corn and soybean meal imports, as domestic production potential is limited. Although per capita wheat consumption is likely to decline with higher incomes, import demand will continue to rise because of strong population growth and constraints on domestic production.

The political and economic outlook for Iraq remains very uncertain. Recent increases in oil export revenues have led to rising imports of wheat, rice, and other foodstuffs. The economy is assumed to maintain a moderate recovery path with 5-6 percent annual GDP growth. With a continued rebound in consumer demand and petroleum export revenues, food consumption is projected to expand from the lows of the early 1990s toward the higher levels achieved in the mid-1980s. Although the livestock sector has yet to begin its recovery, in part due to 1999 drought, expansion of poultry production is projected to stimulate rising imports of corn and feed protein, neither of which Iraq produces in sufficient quantities.

Saudi Arabia's economy continues to be heavily dependent on the performance of the petroleum export sector. The recent recovery in oil prices has again postponed structural reforms and privatization. The Kingdom's economy will, however, continue to be adversely affected by revenue shortfalls and under pressure to reform its policies. With population growth continuing to average more than 3 percent per year, per capita income growth is projected to remain modest, though stronger than the early 1990s. Concern with the depletion of water resources is expected to constrain grain output during the projection period. Imports of wheat and rice are projected to rise, as demand growth outpaces production. Continued strong expansion of the livestock and poultry sectors is also projected to boost imports of feed grains and oil meals.

Turkey's economy continues to struggle with high inflation and rising debt. The collapse of the Russian economy led to significant trade losses, and textile exports have suffered from increased competition. While Turkey's population growth rate is declining, its population is becoming increasingly urbanized, raising demand for livestock and poultry products. Per capita GDP is expected to be relatively sluggish in the near term, but average a robust 3 percent during 2001-2009.

Expanding urban areas are encroaching on agricultural land and raising environmental concerns in Turkey. The lack of a strong commitment to privatization and restructuring of the farm sector is expected to affect both agricultural trade and overall economic performance during the projection period. Lack of a coordinated livestock development program portends continued high meat prices. High grain price supports and import tariffs result in relatively high domestic grain prices. For the projections, it is assumed that there will be moderate reductions in producer supports and import tariffs for grains, more transmission of world prices into the domestic market, slowed growth in area and production, and rising net grain imports. Gains in cotton production have been tempered by slow area expansion in the Southeastern Anatolian Project (GAP), and reduced domestic and export demand. Cotton imports are expected to rise in the near term, but slow as the GAP cotton area comes on stream later in the projection period.

Western Hemisphere

Canada. The Canadian economy has weathered the international financial crisis well due to massive restructuring of both the external and internal sectors. With that, it is assumed that the Canadian dollar will appreciate gradually during the next few years, before returning to the longer-term pattern of depreciation against the U.S. dollar through the remainder of the baseline period.

Canada's farm sector is currently facing low commodity prices, which has led to government support through disaster assistance programs. Other domestic agricultural support programs are the Net Income Stabilization Account (NISA), Crop Insurance, Companion Programs, Advance Payments Program, and the Price Pooling Program for wheat and barley under the Canadian Wheat Board. In addition, Canada maintains supply management programs for dairy, eggs, and poultry products. Although disaster assistance is assumed to be limited to the current crop year, it is assumed that other programs remain near current levels of support during the baseline.

Canada is reviewing its transportation system. The new Canadian railway system is expected to be more "commercially oriented," likely lowering costs and improving the grain marketing system in the long run. The removal of transport subsidies in 1995 contributed to a number of important structural changes now shaping the outlook for Canadian agriculture and trade. These include the expansion of canola production and processing and more recently, the rapid expansion of hog operations, primarily in Manitoba.

Crop production patterns continue to favor canola in Western Canada, as has been the case in the past several years. Feed and industrial use are projected to grow as the livestock industry expands. Favorable world and U.S. economic prospects over the baseline period will bolster Canada's export prospects. Canadian exports depend heavily on the U.S. market, which accounted for about 57 percent of Canada's agricultural and food product exports in 1998. Asia as a whole bought nearly 19 percent of Canadian exports, declining from a 22 percent share in 1997. Strengthened economies in Asia during the baseline lead to improved export prospects for Canadian wheat and pork. This also implies higher feed demand and higher demand for feed imports from the United States.

Mexico. Mexico is expected to show the fastest economic and population growth in North America over the next decade. Relatively fast growth, along with trade liberalization and domestic policy reform, will be the key factors shaping the outlook for Mexican agriculture during 1999-2009. Mexico is expected to be a progressively larger importer of grains, oilseed products, and meats during the projection period. Production capacity will remain limited by scarce water and land and low levels of technology, while rising incomes drive up demand for livestock products and feeds.

Over the next year (1999/2000) Mexico will face increasing domestic pressure to limit imports because of the continued low internal prices for most agricultural commodities and upcoming Mexican presidential election in the summer of 2000. However, over the long 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. With lower import duties on corn, sorghum, and wheat, there will be more price transmission between the world and the Mexican domestic grain markets. Stiff competition from imports is expected to reduce area planted to coarse grains and limit wheat area. 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.

Under NAFTA, tariffs on all baseline commodities are to be eliminated by 2008. 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 steady, modest growth in imports.

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. Although recent economic performance in South America has been slowed somewhat by financial and trade impacts of the Asia crisis, most of the region's economies are expected to register strong economic growth rates during the next decade. Growth prospects are led by the two largest economies in the region, Brazil and Argentina. Like many countries in South America, they are expected to continue to benefit from their successful evolution from semi-authoritarian political systems and managed economies to political pluralism and market-oriented economies.

Brazil's agricultural production prospects are extremely favorable in the long-term, despite near-term constraints on investment in processing facilities and other infrastructure stemming from recent austerity measures. Domestic producers face strong price incentives in local currency terms due to the recent depreciation of the Brazilian currency. In the states of Maranhao and Tocantins in north-central Brazil, for example, the potential exists to increase soybean area from only 0.2 million hectares in 1998 to about 3 million hectares. Such growth would put these areas on a par with the main traditional soybean producing areas of Rio Grande do Sul and Mato Grosso.

In Brazil, waterway and railroad transportation are expected to gradually improve, making more agricultural production accessible to terminals and more competitive in international markets. The conversion of undeveloped land to arable land is expected to gain momentum in the next decade, leading to further gains in soybean area and, particularly, in cultivated pastures to support livestock expansion. Area planted to wheat and corn is expected to show little or no growth, however, because of competition from more efficient producing areas in neighboring Argentina.

Argentine production potential will continue to expand rapidly over the course of the baseline projection period, although this expansion may be tempered somewhat if global demand and commodity prices remain weak. In Argentina, future growth will likely manifest itself in the form of higher yields, rather than area expansion. Yields of wheat, and especially corn and soybeans, are still considerably lower than in the United States. However, with continued adoption of higher-yielding plant varieties and more intensive input use, Argentina may rapidly close this gap.

Argentina's transportation infrastructure, which has largely been privatized, continues to be upgraded to handle the expanding supply of products more efficiently and at lower costs. The livestock sector, which has recently been suffering through a period of depressed cattle prices, is poised to rebound. Argentina has been declared free of foot-and-mouth disease, opening new markets for Argentine fresh and frozen beef.

Transition Economies

Former Soviet Union. The economic crisis that hit Russia in August 1998 affected not only that country, but also the other countries of the FSU, in two main ways. The first was through capital flight contagion effects, and the second through disruption of trade with Russia. In the next few years, GDP growth in Russia and Ukraine is expected to be either negative or only slightly positive. By 2002, growth in both countries is expected rebound modestly to exceed 2 percent annually. After severe depreciation in 1998 and 1999, the Russian ruble and Ukrainian hryvna are expected to stabilize in value, and then begin to gradually appreciate in real terms after 2000, thereby reversing some of the recent depreciation. Agricultural productivity throughout the FSU region is expected to rise only slightly throughout the projection period. This reflects pessimism that Russia and its FSU neighbors will not enact the institutional reforms in agriculture necessary to promote productivity growth.

Economic and agricultural policy could change in Russia in the near term, as new elections for the legislature (Duma) were held in December 1999, and will be held for President in March 2000. The limited success of reform policies during the Yeltsin period, and particularly the hardships accompanying Russia's recent economic crisis, will probably produce a government that will not substantially accelerate the current slow pace of economic reform. This assumption underlies the baseline's cautious projections for growth in GDP and agricultural productivity.

The main effect of Russia's crisis on Russian and FSU agricultural trade is that the depreciation in FSU currencies significantly reduced the region's imports by raising the prices of imports relative to domestic output. Since the currencies are not expected to begin to appreciate for a few years, agricultural imports are expected to remain depressed in the short- to medium term. However, as currencies begin to appreciate in real terms and growth picks up in the next decade, imports are expected to rise. The main U.S. agricultural export to the FSU region during the reform period has been poultry, with most going to Russia. By the end of the projection period, U.S. poultry exports to the FSU are projected to rebound to about two-thirds the pre-crisis level.

Central and Eastern Europe. The CEE region suffered macroeconomic setbacks in 1999 brought on by fallout from financial crisis in Russia and, in the case of the Balkan countries, by

the war in Kosovo. Growth slowed in all CEE countries in 1999 and, as a result, near-term growth rates are expected to be somewhat lower than projected previously. Nevertheless, growth is still expected to be positive, averaging 2-3 percent per year in the early years of the baseline, and returning to a rate of 4-5 percent annually by around 2002.

Despite these setbacks, it is assumed that progress will continue towards market reform. As the economic transition proceeds, it is assumed that most of the rigidities inherited from the Communist period of central planning will be removed, leading to fuller transmission of world market prices to internal markets. The projections are based on the assumption that most world agricultural commodity prices will be fully transmitted to domestic markets and that import tariffs in most cases will not exceed 30 percent. In the short term, policies throughout the region have kept domestic producer prices near world levels. These measures have tended to counter the downward pressures on prices coming from lingering bottlenecks in the downstream sectors. As a result, it is assumed that domestic producer prices will not differ greatly from world market prices. Pressure to keep state budgets in balance is expected to remain the principal constraint on agricultural policy.

The projections also incorporate an assumption of a steady increase in efficiency in the agricultural sector, reflected in moderate gains in crop yields and greater feeding efficiency in the livestock sector. These productivity increases are expected to come about as a result of continuing progress toward market reform in all the CEE countries. Rising incomes and lower interest rates will bring badly needed investment to both agriculture and food processing. There will likely be some consolidation of the small fragmented farms that currently dominate much of the landscape. It is anticipated that land tenure will become more permanent, bottlenecks in issuing titles will be resolved, and true land markets will develop as capital markets improve.

The baseline assumes that none of the CEE countries will join the EU during the projection period. The EU has now agreed to open negotiations for accession with all the CEE nations. Although some CEE countries may join the EU by 2003, the timing and terms of accession are uncertain. When CEE countries do accede to the EU, significant changes in domestic and trade policies from those assumed here are likely.

Commodity Trade Highlights

Growth in the volume of global trade and U.S. exports of wheat, coarse grain, and cotton is projected to be stronger than the 1980s or 1990s due to ample world supplies and strong, broad-based demand growth in developing countries. Meat trade is also expected to show solid long-term expansion, particularly in Asian markets, but not to match the rapid growth achieved in the 1980s and 1990s. World rice trade is projected to continue to rise, but U.S. exportable supplies are expected to fall. In contrast to the gains anticipated for other commodities, global trade and U.S. exports of soybeans and products are projected to slow significantly during 2000-09, as a slowdown in EU demand offsets steady growth in most other regions.

Growth in import demand in developing country markets in Asia, Latin America, North Africa, and the Middle East is key to the baseline projections. In these regions, import demand prospects are linked closely to the outlook for improved rates of income growth, and associated

increases in food and feed consumption, as well as the ongoing process of unilateral liberalization of domestic and trade policy in many countries. However, the projection that China's imports of grains will show little increase, despite continued strong income growth, is key to the baseline. Also, the previously large markets in the FSU are projected to achieve only a modest recovery in economic growth and import demand for farm goods, including grains, meats, and fibers.

The United States is expected to continue to face strong competition for market share in most commodities. In the near term, the recent sharp currency devaluations in countries such as Brazil, the FSU, Indonesia, and Malaysia will stiffen competition oilseed, grain, and vegetable oil markets. Over the longer term, the competitiveness of South American exporters, particularly Argentina and Brazil, is expected to be strengthened by continued internal price stability, an improved environment for agricultural investment, and more adoption of available technology. China is also expected to remain a significant competitor in corn markets. With the exception of wheat, adoption of Agenda 2000 reforms is not expected to affect EU competitiveness. EU exports of coarse grain and meats remain constrained by export subsidy limits, but competition from unsubsidized EU exports of wheat is projected to emerge by the middle of the baseline. U.S. meat products are expected to remain highly competitive in world markets although other suppliers, including Argentina, Canada, Brazil, and Australia, are also projected to significantly expand exports.

Coarse Grains

Demand for coarse grains is expected to grow robustly over the next decade. World consumption of coarse grains is expected to increase 1.8 percent annually, significantly stronger than the 0.8 percent annual growth of the 1990s or the 1.2 percent rate of the 1980s. Projected growth is, however, well below the 7.6-percent annual gain of the 1970s. A key factor that weakened global coarse grain demand over the past decade was the drop in livestock numbers and feeding that occurred in the former Soviet Union and Eastern Europe as these economies experienced structural reform. With that structural shift now complete, these transition economies are expected to be a source of growth in grain feeding in the next decade.

About two-thirds of global coarse grain supplies are used as animal feed, and coarse grain that is traded is primarily used as feed. Rising incomes and associated gains in per capita meat consumption, particularly in developing countries, are a key driver of projected gains in coarse grain use and trade. Despite some weakness in demand in the early years of the baseline associated with economic problems in some countries, the developing countries of Asia, Latin America, North Africa, and the Middle East are expected to lead world growth in feed grain consumption and trade over the next decade. 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.

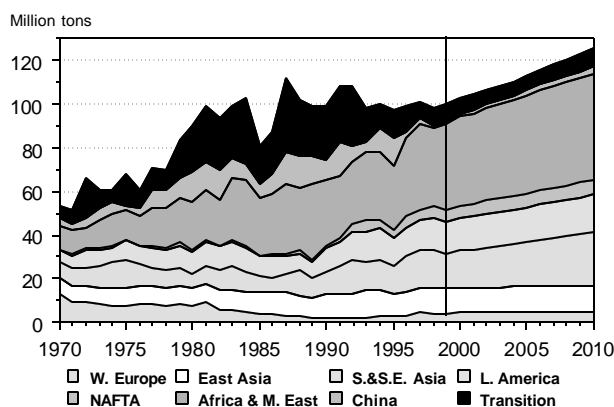
Foreign coarse grain production is projected to rise much more rapidly through 2009 than during recent decades. Except for corn, coarse grain area has been falling for decades in most countries, as producers turned to higher priority or more profitable crops. The baseline indicates that

Regional Commodity Trade Patterns

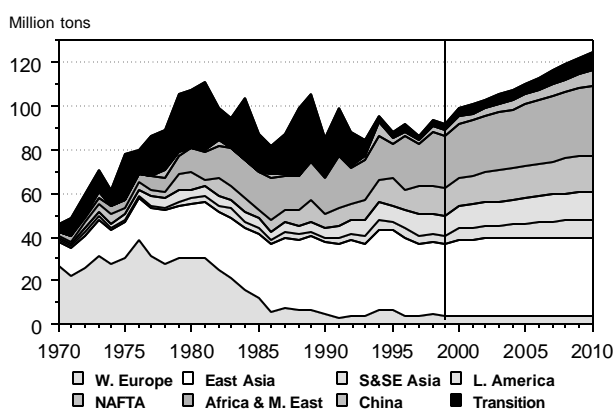
The charts in figure 7 show regional pattern of global commodity imports and highlight key sources of historical and projected growth in import demand. Global trade in both wheat and coarse grain was unstable with no overall growth during the 1980s and early 1990s. The major source of instability and weak growth in the wheat market has been the behavior of the transition economies of the former Soviet Union, as well as China. Similarly for coarse grains, instability and weak overall growth since 1980 has been primarily due to developments in the FSU, the drop in EU imports in the early 1980s and, to a lesser extent, the recent drop in China's imports. For both wheat and coarse grains, however, underlying growth in other regions, particularly the developing regions, has been relatively strong and stable. For the 2000-2009 period, both markets appear poised for growth even without significant contributions from the past sources of instability.

Figure 7. Imports by region, selected agricultural commodities

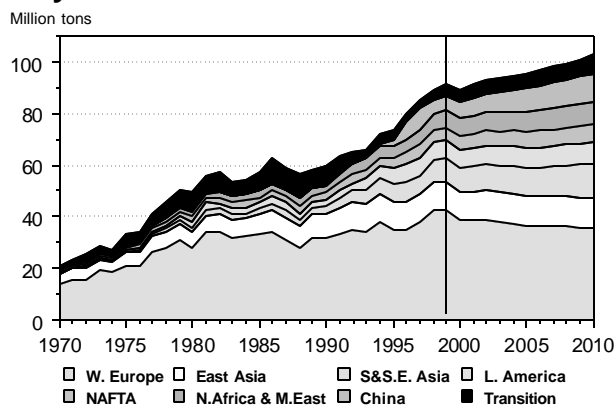
Wheat



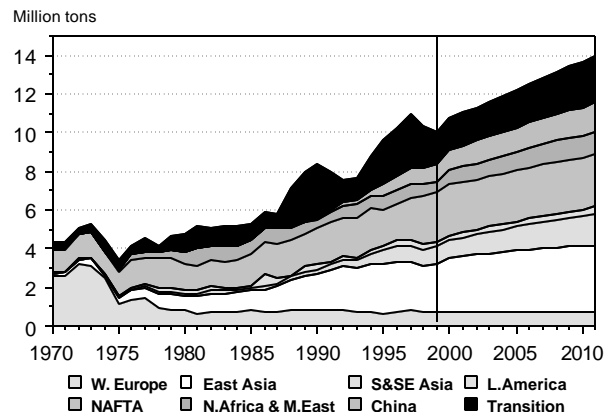
Coarse Grains



Soybeans & Meal



Meats



--continued

Regional Commodity Trade Patterns -- continued

In contrast to grains, the market for soybeans and meal (in soybean equivalents) has been more stable and has grown steadily, particularly since the late 1980s. Growth in the dominant EU market, as well as the other major developed and developing region markets, has been relatively steady. For 2000-2009, however, declining EU import demand is projected to slow overall trade growth somewhat despite continued expansion in other regions, particularly China.

Trade in meats (beef, pork, and poultry) has shown strong growth since the mid-1970s, with fluctuating demand by the transition economies of the FSU accounting for the bulk of any instability in trade volume. The East Asian markets have provided most of the impetus for growth, but there has also been steady expansion in other markets, including China, and Southeast Asia. Trade growth is projected to remain strong for 2000-2009 but, more than for other commodities, this outcome will depend on developments in the volatile FSU market.

foreign coarse grain area will stop declining. 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. Sorghum area is also projected to increase, with other coarse grain area increasing slowly. Growing demand and attractive prices for malting barley supports barley area, but low returns for feed barley result in a small decline in area.

Reversing a decline that began in the early 1980s, world import demand for coarse grains is projected to strengthen, with trade expanding 2.3 percent, or about 2.5 million tons, annually from 1999 to 2009. Global coarse grain trade is projected to exceed the 1980/81 record of 108 million tons in 2003/4 and reach 121 million tons by 2009. Strong economic growth is expected to fuel higher coarse grain imports in China, North Africa, Southeast Asia, and Latin America. East Asian imports are projected to remain mostly steady, despite near-term macroeconomic problems, as these countries tend to maintain domestic livestock and poultry production, while imports satisfy more of the growth in meat demand. Taiwan's feed imports are expected to recover somewhat as hog numbers rebound and poultry production continues to expand. Southeast Asian feed grain imports are expected to be slowed during recovery from the effects of the financial crisis, but show strong longer term growth. 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.

U.S. exports of coarse grains are projected to expand throughout the baseline. U.S. corn exports grow an average of 1.3 million tons per year, reaching 62.2 million by 2009. Total U.S. coarse grain export growth is projected at 2.7 percent per year, reaching 70 million tons in 2009, but remaining below the 1979/80 record of 71 million. The U.S. share of world coarse grain trade is projected to grow to 58 percent in 2005, but stabilize in the last few years of the baseline. Toward the end of the projection period, growth in U.S. market share is expected to slow as stronger prices boost foreign production and U.S. area expansion is increasingly limited by the CRP and crop competition.

Competitor coarse grain exports are also expected to increase, with Argentina gaining market share due to strong increases in productivity and infrastructure. Early in the baseline, Argentina offsets reduced competition from Eastern Europe. For the first 3 years of the baseline, China's exports are projected to exceed 6 million tons in order to dispose of burdensome corn stocks. China's exports are then projected to slow, with the country becoming a net importer of coarse grains by 2006, but significant corn exports out of the northern China are expected to be sustained throughout the baseline.

World corn trade is expected to expand rapidly, passing the 1989 record of 80 million tons in 2004/05, and reaching 91 million tons by 2008. 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 expand steadily, but production potential is limited. With China reducing corn exports during most of the period, Argentina and the United States will be the major beneficiaries of increasing import demand for corn.

For barley, much of the demand growth will occur in China and other malting barley markets. Feed barley imports by Saudi Arabia are expected to expand but, in most other markets, growth in feed barley imports is expected to be slower due to constrained supplies and substitution of other feeds. Canada and Australia are expected to expand area of wheat, canola, and malting barley at the expense of feed barley. Uruguay Round Agreement limits on subsidized EU coarse grain exports will constrain combined exports of barley, rye, and oats throughout the baseline. Future responses by other barley exporters to expected higher relative prices for competing crops (wheat and canola), and by barley importers to tight barley supplies, are important uncertainties in the outlook for coarse grain trade.

Sorghum trade is projected to increase gradually through the baseline as prices are attractive for Mexico and Japan. Trade in other coarse grains is projected to grow, but remain below 1995 levels throughout the baseline as EU has difficulty finding markets for rye.

Wheat

World use of wheat is projected to rise 1.4 percent annually between 1999 and 2009, significantly faster than the 0.8-percent annual growth achieved in the 1990s, but still slower than the 1970s or 1980s. Developing countries account for most of the projected increase in global use, but the transition economies of the former Soviet Union (FSU) and Central and Eastern Europe are expected to account for almost 20 percent, in sharp contrast with the last decade when consumption in the region contracted. Developed countries contribute about 13 percent of expected growth in wheat use. In the United States, total use of wheat is fairly stagnant as small increases in food use demanded by a slowly expanding population are partly offset by declining feed use. The very slow growth in U.S. domestic use underscores the importance of global trade for future U.S. wheat production and prices.

World per capita use of wheat and flour is projected to climb slowly from 98 kgs per year in 1999 to about 100 kgs by 2009. World per capita use peaked at 106 kgs in 1990, but then fell to 96 kgs in 1995 due to the sharp decline in consumption in the former Soviet Union and Central and Eastern Europe. Global food use of wheat is expected to increase at about the same pace as

population growth. Global wheat feed use, by contrast, is projected to grow at almost twice the rate for food use. Substantial increases in wheat feed use are expected in the FSU, China, and the EU-15, all regions where wheat prices and competing feed grain prices are not closely linked to world prices.

World wheat production is also projected to grow 1.4 percent annually during 1999-2009. Increases in wheat area, in part due to somewhat higher projected prices for wheat relative to competing crops, are expected to account for about one-third of production growth. However, world area is not expected to exceed the 1996 level until 2009, remaining almost 8 million hectares below the 1981 record of 239 million hectares. The global average wheat yield declined slightly in 1998 and 1999 from the record of 2.67 tons/hectare set in 1997, but is projected to climb about 1 percent annually during the 2000-2009 projection period. Trend growth in world wheat yields has been slowing for the last 3 decades, in part due to lower quality soils being brought into production, and to reduced budgets for research and development.

World wheat trade (including the wheat equivalent of wheat flour) is projected to grow 2.2 percent, or 2.1 million tons, annually during 1999-2009. Projected growth is sharply higher than in the 1980s or 1990s. Growth in imports is concentrated in the developing countries, primarily North Africa, the Middle East, China, Indonesia and Pakistan. Imports by the transition economies of the FSU and Eastern Europe are expected to continue to decline during the first half of the projections, but these declines will not be as globally significant as during the previous two decades.

Although nominal wheat prices are expected to increase over the next 10 years, real wheat prices are projected to continue to decline, limiting the incentives to grow wheat for export. The share of world exports supplied by Argentina, Canada, and Australia is projected to decline somewhat, while Eastern European exports expand. The United States is projected to increase its share of world wheat trade from 29 percent in 1999 to 34 percent in 2009.

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. However, a portion of budgeted U.S. EEP funds are assumed to be used for wheat starting in 2000/01, so targeted countries receive larger exporter subsidies than in recent years. However, exporter market shares are likely to be determined by the cost effectiveness of wheat production, transportation, and marketing. Wheat production and exports in the United States are expected to be limited by the slow growth in wheat yields compared with other crops, and by the amount of area in the Conservation Reserve Program. In Canada, increased transportation costs may encourage higher-valued oilseeds, limiting wheat area. In Australia, increasing wool prices, and limited areas with enough rainfall, will limit expansion. 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.

The EU is expected to lose market share during the next several years as exports are constrained by subsidy limits, and policies that concentrate on stable internal prices. Other exporters, including the United States, are expected to gain market share until nominal world prices rise sufficiently for the EU to be able to export wheat without subsidies. The baseline indicates that

unsubsidized EU wheat exports will be possible by 2004, leading to a recovery in EU market share during 2004-07. After 2007, however, the baseline assumes the EU increases its arable crop land set-aside in order to limit the buildup of coarse grain stocks. The higher set-aside also reduces wheat supplies, with EU competition in the wheat market subsiding during 2008-09.

Rice

Global rice trade is projected to grow more than 2 percent annually from 2000/01 through 2009/10. By 2009, global trade is projected to reach 28.5 tons, more than 9 percent above the current record of 26.2 million set in 1998. Projected trade growth is faster than in the 1980s, but slower than in the 1970s and early 1990s.

Trade is expected to continue to consist predominantly of long-grain (indica) varieties, despite the gains achieved in medium-grain (japonica) rice imports by Japan and South Korea under the Uruguay Round Agreement. Nominal prices are expected to rise throughout the projection period, while real prices are expected to fall, although less rapidly than in the past. Global medium-grain prices are expected to remain above long-grain prices due to limited world exportable supplies of high-quality japonica rice and rising import demand.

Foreign production is projected to rise gradually, growing about 1 percent per year. Projected growth is slower than in the 1970s and 1980s, when irrigation expanded more rapidly in Asia and Green Revolution technology was widely adopted. Expectations of slower production growth stem primarily from a slowdown in yield increases. Expansion in global acreage is expected to remain extremely small, as it has since 1975.

Foreign consumption is projected to rise slightly more than 1 percent annually, markedly slower than during the 1980s and early 1990s. Per capita rice consumption in higher income Asian countries has been declining, and is expected to continue to decline, as larger portions of the population achieve middle-class incomes and consumption of rice declines in favor of other foods, such as wheat products, fruits and vegetables, and meat. Per capita rice consumption in other key countries, such as China, is projected to decline during the coming decade, as consumers continue to diversify their diets away from rice in response to rising incomes.

These developments are expected to almost offset gains in total consumption in other regions where per capita consumption is projected to continue rising. These are primarily lower income rice producing countries--such as India, Bangladesh, Indonesia, and the Philippines--and higher income non-Asian countries--such as Canada, the EU, and the United States. Per capita consumption is projected to expand fractionally in the Middle East as well. Total rice consumption is projected to continue increasing in Central and Eastern Europe, even though per capita consumption has leveled off in both regions.

The U.S. export market share for rice varied from nearly 15 percent to just over 18 percent between 1991 and 1995, and averaged 12.6 percent from 1996 to 1999. It is projected to be 12 percent in 2001 and then slowly decline to a little more than 9 percent by 2009. No growth in U.S. production, continued expansion in domestic use, and high U.S. prices relative to Asian competitors are expected to prevent any increase in the volume of U.S.

rice exports over the baseline period. By 2009, total U.S. exports are projected at 2.4 million tons, while total imports are expected to rise to 0.46 million tons, leaving the United States a net exporter of 1.9 million tons of rice.

Historically, rice trade and prices have exhibited greater volatility than those of other cereals. This volatility stems from the dependence of many large producers and traders, including Indonesia, the Philippines, Bangladesh, Thailand, Vietnam, and India on the timing and amount of rainfall during the Asian monsoon season. In addition, only a small share (around 6 percent annually) of world rice production is traded. 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 and prices that could deviate significantly from the trends projected in this baseline.

Cotton

Growth in foreign consumption and production of cotton both slowed to negligible rates during the last 10 years but, until the Asia crisis, both had begun to rebound. Growth is expected to resume, but to remain slower than the long-term average growth rate of 1.8 percent throughout the projection period. World cotton consumption is projected to expand approximately 1.2 percent annually during much of 2000-2009, accelerating slightly after 2005 when the apparel import quotas established by developed countries through the Multi-Fiber Arrangement (MFA) are scheduled to end.

The MFA import quotas are scheduled for expansion and progressive elimination through January 1, 2005, and the long-run impact on cotton demand is highly uncertain. The removal of import restrictions should reduce the cost of imported apparel, raise its consumption, and indirectly increase fiber use. Another key uncertainty in the projections 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. Sustained Asian investment in polyester capacity up to the onset of the region's financial reversals suggests vigorous competition for fiber share in coming years, particularly during the early portion of the projection period.

Foreign production has shown little upward trend during the 1990s, as smaller harvests in China and the FSU have offset gains elsewhere. 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. Pesticide resistance and competition from other crops helped drive China's cotton area down 43 percent between 1992 and 1999. Although yields have been improving, China's future production--like Central Asia's--is likely to remain well below peak levels.

World cotton trade is expected to average 2-percent annual growth during 2000-2009, reversing much of the decline suffered during the previous 10 years. World cotton trade fell from a peak of 33.5 million bales in 1988 to as low as 25.5 million in 1992, in large part due to a decline in Russian imports. Trade again slipped to about 25 million bales in 1998 as financial crises again cut Russia's imports, as well as purchases by some Asian importers. China also switched from large importer to exporter in 1998, and remained an exporter in 1999. Import growth is foreseen

in Russia, China, and elsewhere after 1999, and, by 2009, world exports are projected at 31.5 million bales.

World trade contracted beginning in the late 1980s for two reasons: the virtual collapse of Russia as a consumer and importer of cotton, and the continued shift of spinning from traditional importers to cotton-producing countries. Neither factor is expected to be as important in the future. Russia's cotton consumption fell more than 80 percent between 1989 and 1996 during the restructuring of Russia's political, economic, and foreign trade systems. Elsewhere, other traditional cotton-importing countries found it less expensive to purchase cotton yarn and fabric for their textile industries as inexpensive textile imports flooded their markets, particularly from Pakistan through the early 1990s. These imports took the place of imported raw cotton.

With Russian and Central and East European consumption beginning to rebound after 1999, world cotton trade is likely to grow during the next 10 years. Also, since the mid-1990s, pest and disease control problems have constrained Pakistan's ability to maintain its earlier growth rates in cotton production, cotton consumption, and textile exports. This strengthened raw cotton demand by some cotton-importing textile exporters, and world imports excluding the FSU trended upwards during the 1990s. Finally, several countries that were net suppliers to world markets as late as 1990 have become importers instead. Earlier, increasing consumption in Mexico, Brazil, and Turkey in part represented shifts in consumption 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.

Foreign export growth is expected to recover during 2000-2009, but to remain below peak levels. By 2009, foreign exports are expected to total 23 million bales. Foreign export growth will be supported by some resumption of trade relations between countries of the FSU, and by growing import demand from China, Latin America, and Southeast Asia. Exports from the Franc Zone countries of West Africa are expected to grow rapidly, as are exports from Australia.

U.S. exports are also expected to trend up during 2000-2009, growing to 8.5 million bales by 2009. The U.S. share of world trade is likely to average about 27 percent, slightly above its average share during 1990-1999. Structural change in the U.S. textile industry is expected to mean an increasing share of U.S. cotton production is exported rather than consumed at home. Globally, U.S. cotton will account for about the same share of total consumption as it did during the 1990s, but exports will account for a larger portion of that share as the consumption occurs outside the United States. U.S. exports are expected to rise 1.1 percent annually during 2000-2009, slower than world trade, as foreign exports rebound a few years into the forecast period.

The rapid consumption growth of the 1980s, spurred by prolonged economic expansion and sharp share gains by cotton versus other fibers in some markets, is not expected to resume. In the short term, consumption growth by several cotton importers is likely to be constrained by relatively sluggish economic performance and economic restructuring. In the long term, the liberalization of textile trade under the Uruguay Round Agreement will also constrain cotton imports by the most developed traditional importers, such as the EU and Japan. In contrast, rapid consumption growth is expected in many developing countries and steady growth is expected to continue in major cotton-producing countries such as India. However, the pace of

this structural shift will depend on how the phase-out of MFA quotas is implemented. Also, while trade liberalization creates incentives to more rapidly shift the location of garment production from developed to developing countries, the incentives for shifting production of yarn and fabric are not as compelling. In this analysis, yarn and fabric industries are expected to shift as well as garment industries, albeit to a lesser extent.

Soybeans and Products

World trade in both total oilseeds and soybeans is projected to increase faster during 1999-2009 than during the 1980s, but much more slowly than the early 1990s. The global financial crisis will limit trade growth for oilmeals (including soybean meal) over the short term but is projected to strengthen as affected economies recover. During 1999-2009, global exports of soybeans and meal are projected to rise at annual rates of 1.0 and 2.0 percent, reaching 45.2 and 46.5 million tons, respectively, by 2009. Combined exports of soybeans and meal, on a soybean-equivalent basis, are projected to grow from 70.3 million tons in 1999 to 82.2 million tons by 2009.

World vegetable oil trade is projected to grow 2.9 percent annually during 1999-2009, compared to 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 1999-2009, they are projected to slow compared with trade in other vegetable oils. With the outlook for growth in oil trade to continue to outpace meal, incentives to produce high-oil content oilseeds and palm oil are expected to strengthen.

Soybeans and Soybean Meal. U.S. exports of soybeans and meal are projected at 27.6 million tons and 8.2 million tons, respectively, by 2009. The U.S. soybean market share is projected to cycle higher to 66 percent by 2003 as domestic supplies grow relative to foreign supplies. But once prices of competing crops strengthen relative to soybeans, cutting domestic soybean returns and production, the U.S. export share of soybeans is projected to drop back to 61 percent by 2009. Similarly, the U.S. market share of soybean meal trade also edges up to 21 percent by 2003 but contracts to 18 percent again by 2009 as foreign supplies rebound. These projected U.S. market shares contrast with significantly higher 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 the past.

Sharply lower prices are expected to slow foreign supply growth from rapid annual increases of the 1970s (9 percent), 1980s (6 percent), and 1990s (5 percent). Foreign soybean production is projected to climb just 2 percent annually from 1999, nearly reaching 100 million tons by 2009. Foreign soybean yields are forecast to rise at a modest 1.2 percent annually. In the near term, low prices and tight credit will reduce area harvested and application of inputs in these countries. A stronger soybean price situation by 2004 should improve returns and output by foreign producers. In Brazil, steadily expanding domestic meal consumption and exports will support crush demand. However, for several years Brazilian soybean exports are likely to suffer from

tight domestic supplies and the surge in U.S. exports. Argentina's small consumption base and substantial crush capacity assure long term growth in exports of soybean meal, but slower production growth should flatten soybean exports.

Gains in world soybean meal consumption from 1999 to 2009 are projected at 1.7 percent annually, compared to growth of 4.6 percent in the 1990s. Binding constraints on subsidized EU coarse grain exports, plus Agenda 2000 reforms that reduce the land set-aside and intervention prices, are projected to swell EU grain supplies and drive down internal prices. Despite declining protein meal prices, lower internal EU prices for grain feeds are expected to cut EU soybean meal consumption. Consequently, EU imports of soybeans and soybean meal are projected to decline.

Stronger economies in China and other Asian countries should reinvigorate protein meal consumption in the next few years. China's policy shift toward maximizing domestic crushing capacity instead of importing protein meal and vegetable oil will, however, significantly alter the composition of world trade. With a smaller Chinese soybean meal market, supplies from the major soybean meal exporters should worsen crush margins for importers, curtailing their soybean imports in favor of low-priced products. In the case of Mexico, however, low prices are expected to continue to encourage robust soybean imports.

Soybean Oil. Foreign soybean oil production is projected to rise 2.2 percent annually and reach 19.3 million tons by 2009. Growth in soybean processing in Mexico, Brazil, Argentina, India, and China accounts for most of the projected gains in foreign soybean oil production. World use of soybean oil is projected to expand at a 2.1-percent annual rate from 1999 to 2009, well below the nearly 5-percent rate of growth of the 1990s. Projected consumption gains are concentrated in the developing nations of Asia and Latin America, with less growth anticipated in western Europe, the FSU, Japan, and the United States.

Growth in soybean oil trade is projected to slow to 2.1 percent during 1999-2009, compared with about 8 percent in the 1990s when developing countries made sharp import gains. Future growth in soybean oil trade will be curbed by increased domestic vegetable oil output in China. Higher relative prices, particularly against Southeast Asian palm oil, will shift soybean oil demand toward competing oils.

The U.S. share of global trade soybean oil is projected to rise to 17 percent by 2005, peaking at 1.4 million tons. Slower growth in domestic soybean oil production, greater South American competition, and global output gains for other vegetable oils will pare the U.S. market share back to about 15 percent, or 1.3 million tons, in 2009.

Beef

World beef production and consumption are projected to increase about 2 percent annually between 1999 and 2009. The largest increase in production is expected to be in China. Other major beef-producing regions in which production growth is expected to exceed 1 percent annually are countries of the former Soviet Union (FSU), Mexico, Canada and Brazil. U.S. beef production will increase, and an increasing share will be higher quality hotel-restaurant-export

beef. Production and consumption in the EU are expected to continue gradually declining, with trade remaining constant at the permitted level of subsidized exports and stocks high.

About 60 percent of the growth in world beef consumption is expected to occur in Asia, as economic growth in that region returns to normal after the crisis of 1998. With feed production capacity limited in many Asian countries, a growing share of consumption is expected to be satisfied by imports. Nevertheless, growth in demand for beef in some Asian markets such as Japan may not match the rapid pace of the late-1980s and early-1990s because of the higher level of per capita consumption already achieved. While trade barriers have been lowered in recent years, tariffs in many Asian countries remain high. In China, increased consumption is expected to be met by domestic supplies because of import restrictions.

Other regions where significant increases in consumption are projected to occur include Brazil and Mexico, which may consume an additional 1.0 million tons and 0.7 million tons of beef, respectively, by 2009. Less significant increases in consumption are anticipated to occur in the countries of Central and Eastern Europe, and will depend upon the degree to which economic liberalization boosts incomes and maintains consumer price stability. While beef consumption in Russia is likely to rise above the current low levels associated with the economic crisis in that country, gains in meat consumption will be limited by weak income growth, the very slow recovery of domestic production, and strong competition from relatively cheap pork and poultry.

The major exporters are likely to put about 17 percent more beef on world markets by 2009. Subsidized exports by the EU are expected to decline according to the levels of subsidized exports committed to in the Uruguay Round. Australian exports are expected to remain steady at around 1.1-1.2 million tons, and the United States is projected to become the world's largest exporter of beef, largely due to a pickup in import demand in the Pacific Rim. Mexico also continues to become a major market for U.S. beef exports. However, the United States and other beef suppliers may face increasing competition from both Brazil and Argentina in Pacific Rim markets. Exports from New Zealand are not expected to increase significantly.

Pork

World pork production in the next 10 years is projected to increase at a slower rate than in previous decades. Moderate production growth is the primary consequence of lower pork prices. Some of the factors that contribute to lower pork prices include moderate growth in consumer income, and adequate supplies of meats that substitute for pork. World pork production growth is expected to average almost 2 percent during the 2000-2009 projection period. China is expected to be the primary growth area for pork production, with more modest increases projected for the United States, Canada, the EU, and Brazil.

Growth in pork consumption is projected to slow in developed economies, including the United States, Canada, the EU-15, and Japan, due to moderate income gains and competitively priced pork substitutes. Slower demand growth in developed countries is expected to be partially offset by stronger growth in Asia and Latin America. Consumer demand for pork is expected to grow significantly in China, Mexico, and Brazil.

Meat Imports by Japan and South Korea Projected Higher

Japan's beef and pork imports are the largest of any country (on a value basis), and Japan is a leading poultry meat importer as well. South Korea became a major beef-importing country in the 1990's, and is in the midst of a transition to importing a broad range of meat cuts and qualities that will boost world trade in the next decade. The United States has gained from the growing meat trade with East Asia. In 1997, U.S. exports of meat and offal to the two countries reached \$2.9 billion, 5 percent of total U.S. agricultural exports.

In 1998 U.S. trade value fell, affected by low meat prices and economic problems in East Asia. Confidence in the long-term economic health of South Korea and Japan was shaken, dampening expectations for future trade. However, 1999 has seen a fast recovery of growth in South Korea, and the return of a strong yen and some economic growth to Japan. Trade policy changes in South Korea, and economic shocks in both countries, have raised questions about future meat trade.

The long-term outlook for East Asia calls for higher imports than the 1999 baseline, although still somewhat lower than pre-crisis projections. Japan's total meat imports are projected about 6 percent higher than last year, mostly reflecting meat consumption projections that are about 3 percent higher. The production outlook continues to call for a modest decline, so consumption growth implies higher imports, which now supply about half of Japan's meat. Stronger growth in meat demand is tied to faster assumed growth in per capita income, and to lower import prices resulting from stable or declining international prices and the outlook for gradual appreciation of the yen. However, the economic outlook for Japan is key to the projections and is highly uncertain. Private bank and government debt are high, and sustained economic growth based on private consumption growth has yet to emerge. Thus, there is considerable downside uncertainty to the economic assumptions used here.

For South Korea, per capita income projections are also higher than in the 1999 baseline. In addition, the real value of the won is projected to be significantly stronger, lowering the price of imported meats to consumers. As a result, meat consumption is projected 4.5-5.5 percent higher than in last year's projections. South Korean production is also projected about 3 percent higher, but does not match the higher demand. Total meat imports are projected about 20 percent above the 1999 baseline, but still below pre-crisis projections.

Key assumptions and uncertainties involved in the projections include:

- **Demographics:** Populations in East Asia are aging. Japan's population growth has virtually ended, and the population is projected to decline beginning in 2007. As Japan's people age, somewhat reduced caloric intake and a more stable pattern of food consumption are likely. In South Korea, population growth continues, although more slowly than in the past, and the population is younger than in Japan--factors associated with higher meat consumption.

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Meat Imports by Japan and South Korea Projected Higher--continued

- **Meat production:** Throughout East Asia, farming is undergoing profound, rapid change. The size of farm operations is increasing while the number of farms is decreasing. Between 1991 and 1999, two-thirds of Japan's hog farms disappeared, along with over 40 percent of beef farms and one-third of broiler operations. Meat output declined only modestly, and the remaining farms are larger and generally more competitive than those that disappeared. In South Korea, most broiler and pork production is now tied into integrated supply chains and farms have achieved economies of size as they have grown larger.
- **Meat preferences:** Strong meat preferences have emerged that differentiate meat both by cut and by quality. The positioning of the wagyu beef breed as the source of premium, highly-marbled beef in Japan has thus far reserved a valuable niche for Japan's farms. Increasingly, the dairy herd is being used to generate higher-quality beef through cross-breeding with wagyu. In South Korea, a major effort is being made to position the traditional Hanwoo breed as a premium source of beef. The pronounced Korean preference for beef and pork ribs means that prices of these cuts are high, and lower-cost imports are attractive.

Both in South Korea and Japan consumers prefer chicken legs and dark meat, and assign a low value to chicken breasts. This fosters U.S. exports, since preferences in the United States are for white, rather than dark meat. In Japan, there is a preference for chilled or fresh meat, as opposed to frozen meat, for many uses. While chilled beef and pork imports arrive in large volumes, the shorter shelf life of poultry meat has protected domestic broiler production. Recently, imports of chilled poultry meat have arrived by ship from China. If this trade increases, broiler production in Japan will face new competition. Korea's livestock cooperatives, meat producers, and supermarkets are transforming the delivery of meat to consumers. Chilled meat, wrapped, graded, and differentiated by cut is replacing the old system of retail sales of frozen, undifferentiated meat.

- **Trade barriers :** Japan lowered its poultry meat and beef trade barriers in the 1980s. Broiler production has been protected only by tariffs since 1985, with tariffs falling to 8.5 or 11.9 percent, depending on the cut. Beef imports have faced only tariffs since 1991. The tariff rate cut on beef (to 38.5 percent) and the gate price reduction for pork (to 524 yen, or about \$4.65, per kg) in 2000 represent the final implementation of the Uruguay Round Agreement. After 2000, no further reductions are scheduled under existing agreements.

In contrast, South Korea's trade is likely to change significantly because of recent policy changes. After July 1997, when South Korea gave up nontariff barriers against pork and poultry meat imports, significant import growth was expected. But the economic crisis that hit South Korea in late 1997 caused imports to fall, rather than to grow. Domestic demand dropped, affected by the loss of income and consumer confidence. Domestic meat output benefited from the lower value of the won, which made imported meat more expensive within South Korea. The global decline of feed prices counteracted the effects of the fall of the won on feed imports. However, given the strong economic recovery in 1999, meat imports have resumed their growth. Even though meat producers benefit from the depreciated won, some imported cuts are still attractively priced and trade is expected to rise. The end of the beef quota on December 31, 2000, provides an important opportunity to expand beef trade with South Korea. The current projections assume only tariff protection, declining to 40 percent by 2004.

World pork trade is projected to continue to expand, induced particularly by the resumption of strong growth in Asian demand. Income growth in developing countries where consumers demonstrate a preference for pork--such as Mexico--contribute to trade growth, as well. Declining domestic production will continue to drive imports in both Japan and Hong Kong.

The U.S. role as a major pork exporting country is expected to continue to develop over the next decade, with U.S. exports rising almost 5 percent per year between 2000 and 2009. Factors contributing to robust U.S. growth include competitive prices and an increasingly export-oriented pork production industry. The seven largest exporters (the United States, Canada, China, the EU, Central and Eastern Europe, South Korea, and Brazil) together account for over 90 percent of world pork exports. Canadian exports are projected to expand rapidly, with growing sales to the United States, and an increasing share of Asian markets.

Poultry

During the 2000-2009 period, poultry meat production, consumption, and trade are all expected to continue to expand on a worldwide basis. The expansion will be driven by poultry's ability to efficiently convert feed to meat, its low cost relative to both beef and pork, increasingly western diets in developing countries, rising populations, and the opportunity for poultry processors to take advantage of differing regional preferences for specific poultry parts.

Higher global poultry output is expected to be marked by producers moving towards similar levels of production technology. With relatively standard technology, large-scale poultry production will increase in countries that have low-cost labor for production and processing, good access to low-cost feed components, and a domestic market sufficiently large to support an efficient poultry industry without sole dependence on exports.

Rising poultry consumption will reflect the cost advantage that poultry products have over beef and pork in most regions. Increasing incomes and the encroachment of western lifestyles are expected to raise per capita meat consumption. However, incomes in many developing economies will still be at levels where the lowest cost meat products are likely to garner the bulk of the increase. Much of this growth is expected to come from the expanding economies of Asia, especially China. Poultry consumption in Russia and the rest of the FSU is expected increase slowly over the 2000 to 2009 period, as economic conditions gradually improve. While domestic poultry production is forecast to gradually expand in Russia and other FSU countries, this area is expected to be a large market for imported poultry products throughout the baseline.

Differing consumer preferences for the various white and dark meat poultry products is expected to be a prime factor in the growth of international poultry trade during the beginning years of the 21st century. Large-production regions can export their surpluses of less desired poultry products to areas with a stronger preference for those products. This trend is expected to be aided by developing countries following the western example and marketing more poultry in the form of parts rather than whole birds.

Even with expectation of increased global trade in poultry meat and parts over the next decade, there are a number of possible issues that may adversely affect the growth in poultry trade.

Restructuring Drives Expansion of Canadian Pork Sector

Canada's pork industry is expanding rapidly due to significant restructuring of production, marketing and processing. The most important long-term impact of the expansion will likely be increased exports of Canadian pork compared with previous projections. Industry restructuring has been driven largely by a series of federal and provincial policy changes that have improved price incentives for producers and processors, and increased sector competitiveness.

- **Changes in hog pricing:** Prior to 1989, hog prices were negotiated between individual producers and processors, and concentration in the processing sector caused price distortions among large and small hog producers. Since 1989, marketing policies have changed. In the largest producing province of Quebec, for example, the government created a marketing board with an electronic auction to facilitate live hog marketing. Hogs are now marketed through a combination of negotiated contracts and auction.
- **Removal of grain transport subsidy:** Perhaps the key factor that ignited restructuring was the abolition, in August 1995, of the Crow Rate Pass program under the Western Grain Transportation Act. The Crow Rate Pass program subsidized the movement of grain and oilseeds from primary production points in western Canada to major ports in the west, and to major consumption and export points in eastern Canada. The loss of the transport subsidy pushed down grain prices in western and central Canada, lowering costs and boosting profitability for livestock enterprises in those regions.
- **Lower U.S. hog import duties:** Lower government support for Canadian agriculture led to a reduction in the countervailing duty (CVD) imposed by the United States on imported Canadian hogs. The CVD was imposed in 1985 to offset the cost advantage accorded to Canadian hog producers by Canadian government support measures. The CVD was reduced to zero in 1997, and revoked altogether in November 1999 after U.S. government review determined that Canadian subsidies were unlikely to reoccur. The lower CVD increased the competitiveness of Canadian hogs in the U.S. market, precipitating significant flows of Canadian hogs into the U.S. market since 1995. In the last several years, the lower value of the Canadian dollar relative to the U.S. dollar has also boosted Canadian competitiveness in the U.S. market.
- **Cost reduction in the processing sector:** Live sales to U.S. packers provided a valuable marketing option for Canadian hog producers, but presented Canadian packers with narrowing slaughter margins. The deterioration of slaughter margins in Canada became particularly acute in 1994/95, necessitating aggressive efforts to lower slaughter costs. Labor costs were an obvious target for cost reduction efforts because wages in Canadian facilities tended to exceed those in U.S. operations by almost 30 percent. Although labor unions resisted efforts to lower wages and labor stoppages have troubled the sector since 1997, most renegotiated compensation packages have included 30 to 40 percent wage reductions.

Lower costs and a larger supply of hogs, increasingly produced under contract, in very large, newly constructed facilities in western Canada, have induced expansion by the Canadian slaughter industry. A new, large facility opened in Manitoba in 1999. Expansions of existing facilities are scheduled to go on-line in 2000. With further expansion of the slaughter industry anticipated, Canada is expected to export more high-quality pork cuts to the United States and to challenge U.S. and European market shares in Asian markets as well.

Safety issues, either in the area of animal health or food safety, are key areas of concern. While governments and consumers can have legitimate concerns, countries may also establish import regulations that impede trade. The presence of multinational trade agreements is expected to lower the number of these disagreements. The baseline assumes an overall trend towards freer trade, although the lack of a common set of health regulations and procedures could restrict market opening and trade growth.

Table 39. Coarse grains trade baseline projections

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
	<i>Million metric tons</i>											
Importers												
Former Soviet Union 1/	1.6	1.6	1.8	1.8	1.9	2.3	2.6	3.0	3.4	3.8	4.2	4.6
Eastern Europe	1.6	1.3	1.7	1.7	1.7	1.8	1.8	1.9	2.0	2.1	2.2	2.3
Japan	20.6	20.3	20.7	20.7	20.6	20.6	20.6	20.5	20.4	20.3	20.2	20.1
South Korea	7.7	8.7	8.8	9.0	9.5	9.4	9.4	9.4	9.3	9.3	9.4	9.5
Taiwan	4.7	4.4	4.8	5.0	5.2	5.4	5.6	5.8	6.0	6.2	6.3	6.4
China	2.9	3.1	3.2	3.2	3.3	3.5	3.8	4.2	4.3	4.6	5.1	5.8
Mexico	8.9	8.2	8.8	9.3	9.7	10.5	10.5	10.4	10.6	11.0	11.4	11.6
European Union 2/	3.5	2.6	2.5	2.8	2.7	2.8	2.7	2.8	2.8	2.8	2.8	2.8
Latin America 3/	9.5	9.3	10.2	10.6	10.8	11.1	11.4	11.7	12.0	12.2	12.4	12.7
N. Africa & Middle East	22.2	22.7	22.8	23.2	23.8	24.4	25.1	25.9	26.3	27.1	27.8	28.7
Other Asia & Oceania	3.7	3.8	4.9	5.2	5.7	6.0	6.4	6.8	7.3	7.7	8.0	8.2
Sub-Saharan Africa 4/	2.5	1.4	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2
Other foreign 5/	2.4	6.3	3.6	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.9
United States	3.1	2.7	2.9	3.1	3.3	3.5	3.5	3.5	3.5	3.6	3.6	3.6
Total trade	95.0	96.4	98.8	100.3	103.0	106.1	108.3	110.7	112.9	115.8	118.6	121.5
Exporters												
European Union 2/	10.7	11.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
China	3.4	5.1	6.3	6.5	6.0	5.5	5.0	4.5	4.0	3.5	3.5	3.2
Argentina	8.7	9.9	11.4	12.0	12.8	13.6	14.1	14.7	15.4	16.3	16.9	17.5
Australia	4.7	3.1	3.5	3.7	3.8	4.0	4.1	4.3	4.5	4.7	4.9	5.1
Canada	3.2	3.5	3.9	4.3	4.4	4.6	4.7	5.0	5.1	5.3	5.6	5.6
Rep. of South Africa	0.7	1.1	1.3	1.3	1.5	1.6	1.7	1.7	1.8	1.8	1.9	1.9
Eastern Europe	3.0	3.3	2.7	2.6	2.4	2.4	2.4	2.3	2.4	2.9	3.0	3.1
Former Soviet Union 1/	1.9	2.3	2.9	2.7	2.8	3.3	3.3	3.4	3.6	3.8	3.9	4.2
Other foreign	2.8	2.1	1.8	1.7	1.7	1.7	1.6	1.6	1.5	1.4	1.4	1.3
United States	55.9	54.7	55.9	56.5	58.5	60.5	62.4	64.3	65.7	67.1	68.5	70.5
	<i>Percent</i>											
U.S. trade share	58.9	56.7	56.6	56.4	56.8	57.0	57.6	58.1	58.2	57.9	57.7	58.1

1/ Includes intra-FSU trade.

2/ Excludes intra-EU trade, covers EU-15.

3/ Excludes Mexico.

4/ Includes South Africa.

5/ Includes unaccounted.

The projections were completed in November 1999 based on policy decisions and other information known at that time.

Table 40. Corn trade baseline projections

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
	<i>Million metric tons</i>											
Importers												
Former Soviet Union 1/	0.8	0.6	0.3	0.3	0.4	0.6	0.7	0.8	0.9	1.0	1.1	1.2
Japan	16.3	16.3	16.6	16.7	16.7	16.7	16.7	16.6	16.6	16.5	16.5	16.4
South Korea	7.5	8.3	8.6	8.8	9.0	9.1	9.0	9.0	9.0	9.0	9.1	9.2
Taiwan	4.5	4.2	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.0	6.1
China	0.3	0.3	0.3	0.3	0.3	0.5	0.8	1.0	1.1	1.4	1.8	2.4
Mexico	5.5	4.7	5.4	5.8	6.2	6.6	6.7	6.6	6.8	7.1	7.3	7.5
European Union 2/	2.9	2.1	2.0	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Latin America 3/	9.0	8.8	9.7	10.0	10.2	10.5	10.8	11.1	11.3	11.6	11.8	12.1
North Africa & Middle East	12.0	12.7	12.9	13.3	13.8	14.3	14.9	15.5	15.8	16.4	17.0	17.7
Other Asia & Oceania	3.7	3.8	4.8	5.2	5.6	5.9	6.3	6.7	7.2	7.6	7.9	8.1
Sub-Saharan Africa 4/	2.3	1.1	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9
Other 5/	2.0	6.2	3.8	2.9	3.0	3.1	3.2	3.3	3.4	3.4	3.5	3.6
United States	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total trade	67.2	69.1	71.0	72.3	74.4	76.7	78.6	80.5	82.1	84.3	86.4	88.7
Exporters												
European Union 2/	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
China	3.3	5.0	6.3	6.5	6.0	5.5	5.0	4.5	4.0	3.5	3.5	3.2
Argentina	8.0	9.0	10.4	11.0	11.8	12.5	13.0	13.7	14.5	15.3	16.0	16.6
Republic of South Africa	0.7	1.1	1.3	1.3	1.5	1.6	1.7	1.7	1.8	1.8	1.9	1.9
Eastern Europe	2.5	2.9	2.4	2.2	2.0	2.0	2.0	1.8	1.8	2.3	2.4	2.4
Former Soviet Union 1/	0.4	0.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Other foreign	1.6	1.3	0.7	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7
United States	50.3	48.9	48.9	49.5	51.4	53.3	55.2	57.2	58.4	59.7	61.0	62.9
	<i>Percent</i>											
U.S. trade share	74.9	70.8	68.9	68.5	69.1	69.6	70.3	71.0	71.2	70.8	70.6	70.9

1/ Includes intra-FSU trade.

2/ Excludes intra-EU trade, covers EU-15.

3/ Excludes Mexico.

4/ Includes South Africa.

5/ Includes unaccounted.

The projections were completed in November 1999 based on policy decisions and other information known at that time.

Table 41. Sorghum trade baseline projections

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
	<i>Million metric tons</i>											
Importers												
Japan	2.5	2.2	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Mexico	3.2	3.3	3.3	3.4	3.3	3.7	3.7	3.6	3.6	3.7	3.9	3.9
Other N. Africa & M. East	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other S. America	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
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	0.1
Taiwan	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other 1/	0.4	0.5	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.6	0.6
Total trade	6.5	6.4	6.7	6.7	6.8	7.0	7.0	6.9	6.9	7.0	7.1	7.1
Exporters												
Argentina	0.6	0.8	0.8	0.8	0.8	0.9	0.9	0.8	0.7	0.6	0.6	0.6
Australia	0.5	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
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	0.1
Other foreign	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
United States	5.0	5.1	5.5	5.5	5.5	5.6	5.6	5.6	5.7	5.8	6.0	6.1
	<i>Percent</i>											
U.S. trade share	77.0	79.4	81.3	81.2	80.6	79.9	80.0	81.5	83.4	83.9	84.4	85.5

1/ Includes unaccounted.

The projections were completed in November 1999 based on policy decisions and other information known at that time.

Table 42. Barley trade baseline projections

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
<i>Million metric tons</i>												
Importers												
Former Soviet Union 1/	0.5	0.3	0.9	1.1	1.3	1.5	1.7	1.9	2.1	2.2	2.4	2.6
Japan	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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	2.1	2.3	2.4	2.4	2.4	2.5	2.6	2.6	2.7	2.7	2.8	2.8
European Union 2/	0.1	0.2	0.2	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3
Latin America 3/	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5
Algeria	0.6	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
Saudi Arabia	4.8	4.5	4.8	4.8	4.9	4.9	5.0	5.1	5.1	5.2	5.3	5.4
Morocco	1.0	0.9	0.7	0.7	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9
Tunisia	0.4	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Iran	0.6	1.0	0.8	0.8	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.0
Iraq	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Turkey	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other N. Africa/M. East	2.3	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4
Other foreign 4/	1.7	1.7	1.8	1.7	1.6	1.6	1.6	1.6	1.6	1.7	1.6	1.6
United States	0.6	0.7	0.8	1.0	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Total trade	17.0	16.9	17.7	18.0	18.4	19.0	19.3	19.7	20.1	20.5	20.9	21.3
Exporters												
European Union 2/	7.9	9.0	7.3	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
Australia	4.0	2.7	3.3	3.4	3.5	3.6	3.8	3.9	4.1	4.3	4.4	4.7
Canada	1.1	1.7	2.4	2.7	2.8	2.9	2.9	3.1	3.1	3.2	3.4	3.3
Former Soviet Union 1/	1.4	1.7	1.9	1.7	1.7	2.1	2.2	2.3	2.5	2.7	2.7	3.0
Eastern Europe	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6
Turkey	1.2	0.5	0.7	0.6	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3
Other foreign	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
United States	0.6	0.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<i>Percent</i>												
U.S. trade share	3.7	3.9	8.6	8.4	8.3	8.0	7.9	7.8	7.6	7.4	7.3	7.1

1/ Includes intra-FSU trade.

2/ Excludes intra-EU trade, covers EU-15.

3/ Includes Mexico.

4/ Includes unaccounted.

The projections were completed in November 1999 based on policy decisions and other information known at that time.

Table 43. Wheat trade baseline projections

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
	<i>Million metric tons</i>											
Importers												
Former Soviet Union 1/	6.2	6.5	5.0	4.9	4.9	4.8	4.8	4.8	5.1	5.5	5.6	6.1
China	1.0	1.0	1.3	1.5	1.6	1.7	1.8	2.0	2.2	2.5	2.6	3.0
Egypt	7.3	6.7	7.2	7.4	7.6	7.8	8.0	8.2	8.3	8.5	8.6	8.7
Other North Africa	19.7	19.5	19.8	20.4	20.9	21.5	22.0	22.6	23.1	23.6	24.0	24.5
Sub-Saharan Africa 2/	6.5	6.2	6.5	6.6	6.6	6.7	6.8	6.9	6.9	7.0	7.1	7.1
Japan	5.9	5.9	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	5.9	5.9
South Korea	4.7	4.5	4.1	4.1	4.1	4.1	4.2	4.4	4.5	4.7	4.7	4.7
Iran	2.1	6.5	5.8	6.0	6.3	6.6	6.9	7.2	7.4	7.6	7.7	7.9
Brazil	7.0	7.0	6.8	6.7	6.8	6.9	7.0	7.1	7.3	7.4	7.4	7.5
Indonesia	3.0	2.5	3.0	3.3	3.5	3.7	3.8	4.0	4.1	4.3	4.5	4.7
Pakistan	3.2	3.0	3.3	3.6	4.2	4.4	4.6	4.8	5.0	5.3	5.5	5.7
Mexico	2.5	2.5	2.6	2.7	2.7	2.8	2.9	2.9	3.0	3.1	3.2	3.2
Other	29.7	30.3	31.1	30.7	31.2	31.5	32.0	32.4	33.2	33.6	34.1	34.7
Total trade	98.7	102.1	102.4	103.8	106.4	108.3	110.7	113.3	116.3	119.0	120.8	123.7
Exporters												
European Union 3/	16.2	16.0	16.5	16.4	16.6	16.6	17.0	18.7	19.2	19.5	16.7	17.6
Canada	14.7	17.5	17.5	17.2	17.5	17.6	17.6	17.6	17.7	17.8	17.8	17.9
Australia	16.0	18.0	17.5	17.4	17.7	18.0	18.2	18.3	18.5	18.7	19.2	19.3
Argentina	7.5	9.5	8.8	8.9	9.5	9.8	10.0	10.1	10.4	10.6	11.1	11.2
Former Soviet Union 1/	6.7	5.6	6.1	6.3	6.4	6.0	6.0	5.9	6.2	6.7	8.0	8.4
Eastern Europe	3.9	1.5	2.0	2.1	2.5	2.7	3.0	3.3	3.5	3.7	4.4	4.5
Other foreign	5.4	4.0	3.4	4.1	3.4	3.5	3.4	3.4	3.4	3.4	3.4	3.4
United States	28.4	29.9	30.6	31.3	32.7	34.0	35.4	36.1	37.4	38.8	40.1	41.5
	<i>Percent</i>											
U.S. trade share	28.7	29.3	29.9	30.2	30.7	31.4	32.0	31.8	32.2	32.6	33.2	33.5

1/ Includes intra-FSU trade.

2/ Includes South Africa.

3/ Excludes intra-EU trade, covers EU-15.

The projections were completed in November 1999 based on policy decisions and other information known at that time.

Table 44. Rice trade baseline projections

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
	<i>Million metric tons</i>											
Importers												
Canada	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Mexico	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4
Central America/Caribbean	1.0	1.1	1.1	1.1	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.5
Brazil	0.9	1.2	1.1	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.4	1.4
Other South America	0.6	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
European Union 1/	0.8	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Former Soviet Union 2/	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4
Other Europe 3/	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4
China	0.2	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Japan	0.8	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	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Indonesia	3.9	3.0	3.8	4.0	4.2	4.3	4.4	4.4	4.5	4.6	4.6	4.7
Malaysia	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.9
Philippines	2.0	1.1	1.1	1.2	1.3	1.4	1.4	1.5	1.5	1.6	1.7	1.8
Other Asia & Oceania	4.0	2.9	2.8	2.9	2.9	3.0	3.0	3.0	3.1	3.1	3.2	3.2
Iraq	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.0
Iran	0.7	0.9	1.1	1.1	1.2	1.3	1.3	1.3	1.4	1.4	1.5	1.5
Saudia Arabia	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.1
Turkey	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Other N. Africa & M. East	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.3	1.4
Sub-Saharan Africa	3.8	3.7	3.5	3.5	3.5	3.6	3.6	3.7	3.7	3.8	3.8	3.9
Republic of South Africa	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6
Unaccounted	0.8	0.9	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
United States	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5
Total imports	24.9	22.9	24.2	25.0	25.7	26.3	26.9	27.4	27.9	28.5	29.1	29.7
Exporters												
Australia	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8
Argentina	0.6	0.5	0.6	0.6	0.7	0.8	0.9	0.9	1.0	1.1	1.2	1.2
Other South America	1.4	1.4	1.3	1.4	1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.6
European Union 1/	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
China	2.5	2.8	2.2	2.2	2.4	2.5	2.7	2.8	2.9	3.1	3.2	3.4
India	3.4	1.5	2.9	3.1	3.2	3.2	3.2	3.3	3.3	3.3	3.4	3.4
Pakistan	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2
Thailand	6.1	5.8	6.6	6.9	7.2	7.4	7.6	7.8	8.0	8.2	8.5	8.7
Vietnam	4.2	4.1	4.2	4.3	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.3
Other foreign	1.0	1.2	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6
United States	2.7	2.7	2.8	2.8	2.9	2.8	2.8	2.7	2.6	2.5	2.4	2.3
Total exports	24.9	22.9	24.2	25.0	25.7	26.3	26.9	27.4	27.9	28.5	29.1	29.7
	<i>Percent</i>											
U.S. trade share	11.0	11.7	11.7	11.3	11.1	10.8	10.3	9.8	9.2	8.7	8.2	7.8

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 November 1999 based on policy decisions and other information known at that time.

Table 45. All cotton trade baseline projections

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
	<i>Million bales</i>											
Importers												
European Union 1/	4.3	4.3	4.8	4.8	4.6	4.6	4.5	4.6	4.5	4.5	4.5	4.4
Former Soviet Union 2/	1.5	1.6	1.8	1.9	1.9	2.0	2.1	2.3	2.3	2.4	2.5	2.5
Indonesia	2.2	2.4	2.4	2.5	2.6	2.7	2.7	2.8	2.9	3.0	3.1	3.2
Thailand	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2
Brazil	1.4	1.6	1.9	2.0	2.1	2.1	2.2	2.3	2.4	2.5	2.7	2.8
Eastern Europe	1.2	1.1	1.2	1.3	1.4	1.4	1.5	1.6	1.6	1.7	1.7	1.7
Other Asia & Oceania	5.0	4.4	4.5	4.6	4.7	4.7	4.8	5.0	5.0	5.2	5.3	5.5
Japan	1.3	1.2	1.3	1.3	1.2	1.2	1.1	1.1	1.0	1.0	1.0	0.9
South Korea	1.5	1.6	1.3	1.2	1.2	1.1	1.1	1.0	1.0	0.9	0.9	0.9
China	0.4	0.2	0.5	0.5	1.0	1.5	1.8	1.8	2.0	2.0	2.0	2.0
Mexico	1.5	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.4	2.5	2.6	2.6
Other foreign	2.0	3.7	3.6	3.6	3.7	3.7	3.7	3.8	3.8	3.8	3.8	3.8
United States	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total imports	23.6	25.8	26.7	27.1	27.8	28.6	29.1	29.8	30.2	30.6	31.2	31.5
Exporters												
Former Soviet Union 2/	5.7	6.1	5.9	5.8	6.0	6.0	6.1	6.1	6.2	6.2	6.3	6.3
Australia	2.9	2.8	2.8	2.9	3.2	3.5	3.6	3.7	3.7	3.8	3.9	4.0
Argentina	0.7	0.6	0.6	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Pakistan	0.0	0.5	0.2	0.2	0.3	0.4	0.5	0.5	0.5	0.4	0.4	0.3
India	0.2	0.3	0.4	0.6	0.7	0.9	1.0	1.1	1.1	1.2	1.2	1.2
China	0.7	1.2	0.8	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Turkey	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Egypt	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4
Other Latin America	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5
Other Sub-Saharan Africa 3/	4.6	4.8	5.0	5.0	5.4	5.8	5.9	6.1	6.1	6.1	6.2	6.3
Other foreign	3.1	2.7	2.8	2.7	2.9	3.0	2.9	2.9	2.9	2.9	2.9	2.8
United States	4.3	5.7	7.4	7.8	7.5	7.0	7.0	7.3	7.6	7.9	8.2	8.5
Total exports	23.7	25.7	26.7	27.1	27.8	28.6	29.1	29.8	30.2	30.6	31.2	31.5
	<i>Percent</i>											
U.S. trade share	18.4	22.2	27.5	28.6	26.9	24.4	24.1	24.5	25.2	25.8	26.4	27.0

1/ Includes intra-EU trade, covers EU-15.

2/ Includes intra-FSU trade.

3/ Includes Republic of South Africa.

Note: The projections were completed in November 1999 based on policy decisions and other information known at that time.

Table 46. Soybean trade baseline projections

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
	<i>Million metric tons</i>											
Importers												
European Union 1/	16.1	16.0	15.6	15.6	15.5	15.5	14.8	14.0	13.1	12.8	12.9	13.5
Japan	4.7	4.6	4.5	4.5	4.5	4.5	4.4	4.4	4.4	4.3	4.3	4.3
South Korea	1.5	1.5	1.4	1.3	1.3	1.3	1.3	1.2	1.2	1.1	1.0	1.0
Taiwan	2.2	2.3	2.5	2.5	2.6	2.6	2.7	2.8	2.8	2.9	2.9	3.0
Mexico	3.6	3.7	3.9	4.0	4.1	4.2	4.3	4.5	4.6	4.7	4.8	5.0
Former Soviet Union 2/	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7
Eastern Europe	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
China	3.9	4.3	4.5	4.7	5.0	5.3	5.7	6.0	6.4	6.7	7.0	7.3
Malaysia	0.5	0.6	0.7	0.7	0.8	0.8	0.8	0.9	0.9	1.0	1.0	1.0
Indonesia	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1
Other	5.6	6.1	6.7	7.0	7.2	7.4	7.6	7.6	7.8	8.1	8.2	8.2
Total imports	39.6	40.9	41.6	42.3	42.9	43.6	43.5	43.3	43.1	43.5	44.2	45.2
Exporters												
Argentina	3.3	2.8	1.0	1.0	1.0	0.9	0.9	0.9	0.9	1.1	1.1	1.2
Brazil	9.3	9.3	8.4	8.7	8.8	9.2	9.0	9.0	8.9	9.6	10.3	11.0
China	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other foreign	5.0	5.2	4.7	4.6	4.7	4.8	4.8	4.9	5.0	5.1	5.2	5.3
United States	21.8	23.5	27.4	27.9	28.3	28.6	28.6	28.3	28.0	27.6	27.4	27.6
Total exports	39.6	40.9	41.6	42.3	42.9	43.6	43.5	43.3	43.1	43.5	44.2	45.2
	<i>Percent</i>											
U.S. trade share	55.1	57.5	65.8	65.9	66.0	65.6	65.7	65.4	65.1	63.4	61.9	61.1

1/ Includes intra-EU trade, covers EU-15.

2/ Includes intra-FSU trade.

The projections were completed in November 1999 based on policy decisions and other information known at that time.

Table 47. Soybean meal trade baseline projections

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
	<i>Million metric tons</i>											
Importers												
European Union 1/	20.2	20.0	19.3	19.3	19.2	18.8	18.7	18.4	18.3	18.4	19.1	18.6
Former Soviet Union 2/	0.7	0.8	0.7	0.8	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5
Eastern Europe	2.1	2.2	2.2	2.3	2.4	2.5	2.6	2.6	2.7	2.8	2.9	3.0
Canada	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Japan	1.0	1.0	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0
China	1.4	1.1	1.3	1.3	1.3	1.3	1.3	1.4	1.5	1.7	1.8	2.0
Southeast Asia	3.8	3.7	3.8	4.0	4.2	4.5	4.7	5.0	5.2	5.5	5.8	6.0
Latin America	3.6	3.7	3.9	4.0	4.0	4.0	4.1	4.1	4.2	4.3	4.3	4.4
North Africa & Middle East	3.6	3.7	3.9	4.0	4.1	4.2	4.4	4.5	4.7	4.8	5.0	5.1
Other	1.4	1.2	3.1	3.1	3.2	3.3	3.4	3.5	3.6	3.8	3.9	4.0
Total imports	38.6	38.1	39.8	40.4	40.9	41.2	42.0	42.5	43.1	44.2	45.9	46.5
Exporters												
Argentina	13.2	12.4	13.7	13.3	13.3	13.7	13.8	13.9	14.4	15.3	16.4	16.7
Brazil	9.8	9.9	9.6	9.8	9.9	9.4	10.0	10.3	10.5	10.6	11.2	11.5
India	2.8	2.6	2.9	3.0	3.0	3.1	3.2	3.2	3.3	3.4	3.4	3.5
European Union 1/	5.0	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Other foreign	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.6
United States	6.5	6.7	7.2	7.9	8.3	8.6	8.5	8.4	8.3	8.3	8.2	8.2
Total exports	38.6	38.1	39.8	40.4	40.9	41.2	42.0	42.5	43.1	44.2	45.9	46.5
	<i>Percent</i>											
U.S. trade share	16.9	17.6	18.0	19.6	20.2	20.9	20.3	19.9	19.3	18.7	17.9	17.6

1/ Includes intra-EU trade, covers EU-15.

2/ Includes intra-FSU trade.

The projections were completed in November 1999 based on policy decisions and other information known at that time.

Table 48. Soybean oil trade baseline projections

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
	<i>Million metric tons</i>											
Importers												
European Union 1/	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	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1
Other Asia	2.3	2.1	2.0	2.1	2.2	2.2	2.3	2.4	2.4	2.5	2.6	2.7
Latin America	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.6
North Africa & Middle East	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.8	1.8	1.9	1.9	1.9
Former Soviet Union & Eastern Europe 2/	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Other	0.4	0.4	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7
Total imports	7.5	7.0	7.3	7.4	7.6	7.7	7.8	7.9	8.1	8.2	8.4	8.6
Exporters												
Argentina	2.8	2.6	2.9	2.8	2.8	2.9	2.9	2.9	3.0	3.2	3.4	3.6
Brazil	1.4	1.4	1.3	1.4	1.5	1.4	1.5	1.8	1.9	2.1	2.1	1.9
European Union 1/	1.5	1.5	1.4	1.4	1.4	1.4	1.3	1.2	1.0	0.9	0.9	1.0
Other foreign	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8
United States	1.1	0.8	1.0	1.1	1.2	1.3	1.4	1.4	1.4	1.3	1.3	1.3
Total exports	7.5	7.0	7.3	7.4	7.6	7.7	7.8	7.9	8.1	8.2	8.4	8.6
	<i>Percent</i>											
U.S. trade share	14.7	11.7	14.4	15.1	15.9	16.7	17.4	17.2	16.9	16.1	15.5	14.7

1/ Includes intra-EU trade, covers EU-15.

2/ Includes intra-FSU trade.

The projections were completed in November 1999 based on policy decisions and other information known at that time.

Table 49. Beef trade baseline projections

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
<i>Thousand metric tons, carcass weight</i>												
Importers												
United States	1,198	1,279	1,368	1,372	1,338	1,315	1,293	1,270	1,247	1,225	1,202	1,179
Japan	951	972	985	1,029	1,061	1,088	1,114	1,137	1,156	1,173	1,188	1,199
South Korea	107	180	240	214	230	246	263	280	297	313	328	343
Taiwan	82	88	88	88	94	100	106	113	120	128	135	143
European Union 1/	313	306	270	350	350	350	350	350	350	350	350	350
Russia	485	500	500	344	361	382	409	438	470	500	529	559
Easten Europe	64	55	51	87	80	78	77	75	71	66	60	53
Mexico	202	228	237	249	253	259	271	284	298	310	321	330
Canada	240	250	275	223	219	214	210	206	202	198	194	190
Major importers	3,642	3,858	4,014	3,957	3,986	4,033	4,093	4,153	4,211	4,262	4,307	4,346
Exporters												
United States	985	1,078	1,048	1,021	1,055	1,089	1,123	1,157	1,191	1,236	1,259	1,304
Australia	1,262	1,220	1,235	1,177	1,125	1,107	1,089	1,102	1,126	1,146	1,164	1,184
New Zealand	519	420	450	465	462	463	466	470	474	476	477	478
European Union 1/	681	666	771	822	822	822	822	822	822	822	822	822
Eastern Europe	162	100	96	157	154	151	146	140	134	131	128	126
Ukraine	96	80	60	121	128	134	139	145	150	157	165	173
Argentina	291	340	350	344	369	383	400	413	429	446	466	486
Brazil	375	485	525	482	472	475	482	497	519	543	570	600
Canada	416	465	480	459	473	486	497	508	517	531	546	560
Major exporters	4,787	4,854	5,015	5,047	5,061	5,110	5,163	5,254	5,363	5,489	5,597	5,733

1/ Excludes intra-EU trade, covers EU-15

The projections were completed in November 1999 based on policy decisions and other information known at that time.

Table 50. Pork trade baseline projections

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
<i>Thousand metric tons, carcass weight</i>												
Importers												
United States	319	375	363	345	333	333	340	340	345	347	349	349
Japan	721	814	814	865	887	909	931	952	973	993	1,012	1,029
Hong Kong	252	221	235	283	295	308	320	332	344	356	367	378
South Korea	66	124	130	88	85	88	93	98	102	106	109	114
Russia	375	350	350	308	315	325	338	351	365	380	394	410
Mexico	97	110	120	129	135	142	151	161	170	179	186	193
Canada	63	45	40	57	58	59	59	59	60	60	60	60
Major importers	1,893	2,039	2,052	2,074	2,109	2,163	2,232	2,294	2,357	2,419	2,477	2,533
Exporters												
Canada	432	550	610	395	429	451	458	467	475	482	492	494
European Union 1/	1,095	1,096	1,118	894	896	896	896	896	896	895	895	893
Eastern Europe	344	221	256	426	448	454	457	465	475	479	482	477
Taiwan	3	5	5	5	5	5	25	50	75	100	125	150
China	164	100	100	148	149	148	146	143	140	137	135	132
United States	557	586	544	578	601	646	692	737	782	828	862	907
Major exporters	2,595	2,558	2,633	2,447	2,528	2,599	2,672	2,758	2,843	2,922	2,991	3,054

1/ Excludes intra-EU trade, covers EU-15.

The projections were completed in November 1999 based on policy decisions and other information known at that time.

Table 51. Poultry trade baseline projections

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
<i>Thousand metric tons, ready to cook</i>												
Importers												
Russia	820	600	600	572	603	631	660	688	717	748	780	813
European Union 1/	276	273	258	300	300	300	300	300	300	300	300	300
Japan	509	543	545	643	672	698	723	746	768	790	810	828
Hong Kong	915	1,150	1,260	1,032	1,081	1,132	1,183	1,237	1,292	1,351	1,412	1,475
China	804	850	870	1,065	1,123	1,162	1,197	1,228	1,257	1,291	1,325	1,359
South Korea	19	49	57	45	48	50	53	56	58	60	62	64
Saudi Arabia	279	265	260	292	300	306	311	316	320	323	327	330
Egypt	2	2	2	10	20	27	38	45	55	62	69	77
Mexico	231	238	242	243	246	252	259	266	275	277	279	282
Canada	136	130	131	161	165	168	171	175	178	181	185	188
Major importers	3,991	4,100	4,225	4,362	4,557	4,727	4,895	5,056	5,220	5,383	5,548	5,716
Exporters												
Brazil	631	724	840	794	812	837	860	879	897	914	936	961
European Union 1/	973	937	779	929	928	918	919	917	916	911	902	889
Hungary	125	130	130	70	62	59	59	59	59	58	58	56
China	355	400	410	269	270	280	292	307	324	340	356	374
Hong Kong	609	823	926	715	754	796	840	886	935	986	1,040	1,098
Thailand	285	285	290	274	276	277	278	280	282	284	286	288
Saudi Arabia	20	20	20	20	20	21	21	22	22	23	24	24
United States	2,515	2,444	2,486	2,595	2,713	2,830	2,948	3,055	3,150	3,234	3,318	3,402
Major exporters	5,513	5,763	5,881	5,666	5,835	6,017	6,216	6,405	6,585	6,750	6,920	7,092

1/ Excludes intra-EU trade, covers EU-15.

The projections were completed in November 1999 based on policy decisions and other information known at that time.