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USDA Agricultural Baseline Projections to 2007

Interagency Agricultural Projections Committee

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Abstract

This report provides long-run baseline projections for the agricultural sector through 2007. Projections cover agricultural commodities, agricultural trade, and aggregate indicators of the sector, such as farm income and food prices. The baseline assumes no shocks and is based on specific assumptions regarding macroeconomic conditions, policy, weather, and international developments. The projections assume that current agricultural law of the 1996 Farm Act remains in effect throughout the baseline. Also, the baseline assumes that the Southeast Asian currency devaluations and related economic slowdowns are confined to that region, affecting growth through 2000, with policy reforms and international financial support leading to a recovery of economic growth in subsequent years. Despite the near-term slowdown in Southeast Asian economies, generally favorable global economic growth is projected in the baseline which, combined with liberalized trade associated with both the GATT agreement and unilateral policy reforms, supports strong growth in global trade and U.S. agricultural exports. Greater market orientation in the domestic agricultural sector under the 1996 Farm Act puts U.S. farmers in a favorable position for competing in the global marketplace. A tightening of the balance between productive capacity and projected demands results in rising nominal market prices, increasing farm income, and stability in the financial condition of the agricultural sector. Management of risk will be important for farmers, reflecting the reduced role of the Government in the sector under the 1996 Farm Act. Consumer food prices are projected to continue a long-term trend of rising less than the general inflation rate. The baseline projections presented are one representative scenario for the agricultural sector for the next decade. As such, the baseline provides a point of departure for discussion of alternative farm sector outcomes that could result under different assumptions. The projections in this report were prepared in October through December 1997, reflecting a composite of model results and judgmental analysis.

Keywords: Projections, baseline, crops, livestock, trade, farm income, food prices.

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A Note to Users of USDA Baseline Projections

USDA long-term agricultural baseline projections presented in this report are a Departmental consensus on a long-run scenario for the agricultural sector. These projections provide a starting point for discussion of alternative outcomes for the sector. Baseline projections are typically developed in conjunction with the analysis for the President's Budget. The next annual projections report is planned for the winter of 1999, following release of the President's Budget for fiscal 2000.

The scenario presented in this report is not a USDA forecast about the future. Instead, it is a conditional, long-run scenario about what would be expected to happen under the 1996 Farm Act and specific assumptions about external conditions. Trade projections in this report for 1998/99 incorporate long-term assumptions concerning weather, foreign trend yields, and foreign consumption and do not reflect short-term conditions which may impact trade that year.

Critical long-term assumptions include:

- U.S. and international macroeconomic conditions;
- U.S. and foreign agricultural and trade policies;
- Funding for U.S. agricultural export programs;
- Growth rates of agricultural productivity, both in the United States and abroad; and
- Normal (average) weather.

Changes in any of the assumptions can significantly affect the baseline projections, and actual conditions that emerge will alter the outcomes.

The baseline projections analysis was conducted by interagency committees in USDA and reflects a composite of model results and judgmental analysis. The Economic Research Service has the lead role in preparing the Departmental baseline report. The projections and the report were reviewed and cleared by the Interagency Agricultural Projections Committee, chaired by the World Agricultural Outlook Board. USDA participants in the baseline projections analysis and review include the World Agricultural Outlook Board, the Economic Research Service, the Farm Service Agency, the Foreign Agricultural Service, the Office of the Chief Economist, the Office of Budget and Program Analysis, the Agricultural Marketing Service, the Natural Resources Conservation Service, and the Cooperative State Research, Education, and Extension Service.

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A Note to Users of USDA Baseline Projections--continued

These new USDA baseline projections will be available electronically on the Internet, updating last year's files, at http://www.mannlib.cornell.edu/data-sets/baseline/94005/. Also, an ERS briefing room for agricultural baseline projections has been set up at:

http://www.econ.ag.gov/Briefing/baseline/.

Questions regarding these projections may be directed to Paul Westcott, Economic Research Service, Room 5188, 1800 M Street, N.W., Washington, D.C. 20036-5831, phone: (202) 694-5335, e-mail: westcott@econ.ag.gov; Rip Landes, Economic Research Service, Room 5026, 1800 M Street, N.W., Washington, D.C. 20036-5831, phone: (202) 694-5275, e-mail: mlandes@econ.ag.gov; or David Stallings, World Agricultural Outlook Board, Room 5143, 1400 Independence Ave., S.W., Washington, D.C. 20250-3812, phone: (202) 720-5715, e-mail: dstallings@oce.usda.gov.

USDA Agricultural Baseline Projections to 2007

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Introduction

This report provides long-run baseline projections for the agricultural sector through 2007. Projections cover agricultural commodities, agricultural trade, and aggregate indicators of the sector, such as farm income and food prices.

The projections are a conditional scenario with no shocks and are based on specific assumptions regarding the macroeconomy, agricultural policy, the weather, and international developments. In particular, the baseline incorporate provisions of the Federal Agriculture Improvement and Reform Act of 1996 (1996 Farm Act) and assumes that farm legislation remains in effect through 2007. The projections are not intended to be a Departmental forecast of what the future will be, but instead a description of what would be expected to happen under the 1996 Farm Act, with very specific external circumstances. Thus, the baseline provides a point of departure for discussion of alternative farm sector outcomes that could result under different assumptions.

The projections in this report were prepared in October through December 1997, in conjunction with the analysis for the fiscal 1999 President's Budget. Projections reflect a composite of model results and judgmental analysis. Normal weather is assumed. The baseline reflects major agricultural policy decisions made through mid-November 1997 and includes short-term projections from the November 1997 World Agricultural Supply and Demand Estimates report.

Summary of Projections

The 1996 Farm Act changed most agricultural commodity programs, particularly income support and supply management programs for major field crops and the dairy program. These changes accelerated trends toward greater market orientation in agricultural sector. Producers now respond to signals from the marketplace rather than to government commodity programs, making agricultural production economically more efficient.

Generally favorable global economic growth is projected in the baseline which, combined with liberalized trade associated with both the GATT agreement and unilateral policy reforms, supports strong growth in global trade and U.S. agricultural exports. Greater market orientation in the domestic agricultural sector under the 1996 Farm Act puts U.S. farmers in a favorable position for competing in the global marketplace.

A tightening of the balance between productive capacity and projected demands results in rising nominal market prices, increasing farm income, and stability in the financial condition of the

agricultural sector. The trend toward fewer but larger farms continues. The sector will be highly competitive, with successful producers having strong technical and managerial skills.

Management of risk will be important for farmers, reflecting the reduced role of the Government in the sector under the 1996 Farm Act. Alternative marketing arrangements, such as marketing contracts and integrated ownership, are likely to be used more to manage risks. Producers use of crop insurance and revenue insurance also help to manage risks.

Consumer food prices are projected to continue a long-term trend of rising less than the general inflation rate. Trends in consumer food expenditures towards a larger share for meals eaten away from home are expected to continue.

Macroeconomic Assumptions

Macroeconomic assumptions used for these baseline projections provide a setting for strong growth in agricultural demand, both domestically and in international markets. Domestic macroeconomic assumptions include deficit reduction which results in balancing the Federal budget. This results in lower interest rates, rising investment, higher productivity, and stronger growth in gross domestic product (GDP) than in the last decade. Real GDP growth averages about 2.5 percent from 1998 to 2007, with consumer price inflation averaging about 3 percent.

Global economic growth averages over 3 percent annually over the next decade, well above growth during 1990-1996. Macroeconomic growth in developed countries averages about 2.5 percent through 2007 as low inflation and low interest rates lead to an improvement from the 2.0-percent growth in the first half of the 1990s.

Growth for transition economies of the former Soviet Union (FSU) and countries in Eastern Europe improves over the next few years following years of economic decline during the transition from centrally planned economies. Countries that are further along in the transformation to market economies and integration into the global economy have higher growth earlier in the projections.

Aggregate growth for developing countries over the next 10 years is projected to average near 5.5 percent, compared to 5 percent growth in 1990-96. The developing Asian economies are expected to remain growth leaders, despite 1997's currency devaluations and related economic slowdowns in Southeast Asia. The baseline assumes that policy reforms and international financial support allow the Southeast Asian economies to recover in the next 2 to 3 years. Additionally, the near-term slowdowns in economic growth are assumed for these projections to be largely confined to Southeast Asia, not affecting East Asia, South Asia, or China (see Asia crisis box, page 17).

Importantly, the projected growth for many developing countries occurs at income levels that can generate significant gains in demand for agricultural products as diets diversify and include more meats and other higher valued products. Thus, this global macroeconomic growth environment,

combined with more open and less regulated international markets, support strong gains in global trade and U.S. agricultural exports.

Agricultural Policy Assumptions

The Federal Agriculture Improvement and Reform Act of 1996 (1996 Farm Act) was enacted April 4, 1996, providing new U.S. agricultural law for 1996 to 2002. The baseline projections incorporate provisions of the 1996 Farm Act and assume the new law is extended through the end of the baseline. The baseline also includes policy decisions as of mid-November 1997.

The 1996 Farm Act redesigned income support programs and discontinued supply management programs for major field crops. New production flexibility contract payments are largely decoupled because they generally are not related to current plantings or to market prices. Planting flexibility was expanded, permitting producers to base cropping choices more fully on signals from the marketplace.

Dairy policy changed with the phaseout of price supports and the consolidation and reform of milk marketing orders. The 1996 Farm Act also altered the sugar and peanut programs, eliminated the rye loan program, and repealed the honey program.

The 1996 Farm Act addressed a wide range of environmental and conservation programs. The Conservation Reserve Program (CRP) was reauthorized with a maximum set at 36.4 million acres for CRP enrollment. Over 20 million acres of CRP contracts expired in 1997, but new enrollments are assumed to return the CRP to more than 32 million acres for 1998. Enrollments in subsequent years are assumed in the baseline to increase the CRP to 36.4 million acres by 2001. A competitive selection process is used for CRP enrollments. CRP enrollment selection is based on an environmental benefits index that takes government costs into consideration.

The baseline assumes full compliance with all bilateral and multilateral agreements affecting agriculture and agricultural trade. Projections assume full compliance with the internal support, market access, and export subsidy provisions of the General Agreement on Tariffs and Trade (GATT) Uruguay Round Agreement. The baseline assumes no accession to the World Trade Organization (WTO) by the FSU, China, or Taiwan; no enlargement of the European Union beyond its current 15 members; no implementation of more liberalized trade among the countries of the Asia-Pacific Economic Cooperation; and no expansion of the North American Free Trade Agreement. Agricultural and trade policies in individual foreign countries are assumed to continue to evolve along their current paths.

Annual quantity and expenditure levels for the Export Enhancement Program (EEP) are assumed to be in compliance with GATT reductions, which require that by 2000 subsidized exports be reduced by 21 percent in volume and 36 percent in budget outlays from 1986-1990 levels. However, there were no EEP expenditures in fiscal year (FY) 1997 and the baseline assumes that no EEP expenditures occur in fiscal 1998. EEP expenditures are then assumed to resume within a budget limitation of $320 million for FY 1999 and a 5-year total budget limitation of nearly $1.2 billion for fiscal years 1999 through 2003. During these years, EEP funding not used in one year

could be used in a later year, although annual EEP expenditures would still be limited by the Uruguay Round Agreement maximums.

P.L. 480 program levels for Title I and Title I Ocean Freight Differential decline for fiscal 1999 and then are assumed constant for the rest of the baseline. Title II and Title III program levels are held flat for fiscal 1999, and then grow about 2 percent a year. Program levels for the Market Access Program and the GSM-102 and GSM-103 credit guarantee programs are assumed constant in the baseline from fiscal 1999.

Crops

Productive capacity for crops in the United States is projected to rise due to increases in land use and productivity. Yields for most crops are projected to rise at or near their long-term trends. These gains reflect, in part, the acquisition of some agricultural land by larger, generally more-efficient farms, continuing a long-term trend. Planted acreage for major crops rises about 20 million acres above average plantings in the early 1990s, with area gains drawn into production based on market incentives. Increased planting flexibility under the 1996 Farm Act also facilitates these acreage gains. With the CRP remaining above 32 million acres in the baseline, however, the land base comes under pressure and the balance between productive capacity and projected demands for crops tightens significantly.

Export markets are the largest source of demand growth for most U.S. crops. Reduced trade barriers under the Uruguay Round agreement combined with strong global economic growth raise world agricultural trade and U.S. crop exports. U.S. exports of feed grains and wheat expand the fastest. Increasing coarse grain exports largely reflect stronger economic growth in developing regions, where higher incomes result in diet diversification and rising demand for meat. This leads to expanding livestock sectors and demand for feed. U.S. wheat export growth slows somewhat after 2000 as global wheat prices rise high enough to allow unsubsidized competition from the European Union. Rising global import demand increases U.S. soybean exports during the baseline, although tightening domestic supplies and rising prices allow U.S. competitors to capture a greater share of world soybean trade. U.S. cotton exports maintain a 25-26 percent share of a growing global market.

Domestic demand for most crops is projected to grow slightly faster than population. Notably stronger domestic growth for rice reflects a greater emphasis on dietary concerns and increasing numbers of Americans of Asian and Latin American origins. Gains in corn sweetener use and corn used for ethanol production also exceed population growth rates. Increases in domestic soybean crush reflect continued strong growth in poultry production and demand for soybean meal. Domestic wheat use, however, is nearly flat as declining feed use offsets food use gains. Greater U.S. exports of cotton yarn, fabric, and semi-finished products will promote growth in domestic mill use of cotton, although increases in textile imports, mostly apparel, and competition from man-made fibers limit domestic gains.

Long-term trends in supply/demand balances for the major field crops imply tightening stocks-to-use ratios and strengthening nominal prices from 1999 to 2007.

Livestock

The livestock sector continues adjustments over the next few years following the high feed costs of 1995/96. As grain prices have fallen, pork and poultry production have rebounded, but with tight forage supplies and longer biological production lags for cattle, beef production contracts through 2000. For the rest of the baseline, lower feed prices than in 1995/96, replenishment of forage supplies, low inflation, and domestic and export demand strength result in returns to producers that encourage increases in red meat and poultry production.

Cattle herds rebuild from a cyclical low in 2000 to a level near 102 million head by 2007. Shifts toward a breeding herd of larger cattle and heavy slaughter weights partially offset the need for expanding cattle inventories to previous levels. The beef production mix continues to shift toward a larger proportion of fed beef, with almost all steers and heifers being feedlot fed. The United States remains the primary source of high quality, fed beef for export. Pork production becomes more vertically coordinated, with larger size operations that are generally more efficient.

The United States becomes an increasingly important net pork exporter, in part reflecting environmental constraints for a number of competitors that limit their production gains. Continued technological advances and improved production management practices are expected in the broiler and turkey industries, although gains are not anticipated to hold down production costs as significantly as in the past 10 years. Competition in global poultry markets holds U.S. poultry exports to moderate gains, although export gains are expected for broiler parts, especially for dark meat.

Record total meat supplies are projected through the baseline, with a larger proportion of poultry. Per capita consumption of red meats declines and by 2004, per capita poultry consumption exceeds per capita red meat consumption on a retail weight basis. Declining real prices for meats along with increasing real disposable income allow consumers to buy more total meat with a smaller proportion of disposable income. Per capita consumption of eggs rises in the baseline as greater use of eggs in processed foods offsets declining shell egg use.

Dairy productivity gains offset declining cow numbers over the next 10 years, allowing milk production to grow. Real milk prices fall, pushing weaker operations out of dairying. However, milk production continues to expand in the West as well as on large, dairy operations in the North. Expansion in commercial use of dairy products is led by sales of cheese and dairy ingredients for processed foods, while fluid milk sales are stagnant.

Farm Income and Farm Financial Conditions

Net farm income gradually rises through the baseline as strong agricultural demand leads to increased output and strengthening prices. Gains are slightly less than inflation, so real net farm income is down somewhat through 2007. The agriculture sector increasingly relies on the marketplace for its income as direct Government payments fall through the baseline and represent less than 3 percent of gross cash income beyond 2000. Both crop and livestock receipts are up in nominal terms due to larger production and higher prices. Production expenses increase in the

baseline, with expenses for non-farm origin inputs rising faster than expenses for farm-origin inputs. Cash operating margins stabilize, with cash expenses representing about 75 percent of gross cash income.

Higher nominal farm incomes and relatively low interest rates assist in asset accumulation and debt management, thus leading to an improved balance sheet for the farm sector. Farm asset values increase through the baseline, led by gains in agricultural land values. Increases in farm debt rise less rapidly and are not beyond the ability of farmers to service the debt. As a result, debt-to-asset ratios continue the downward trend of the last decade from the high levels of over 20 percent in the mid-1980s, declining to less than 13 percent by the end of the baseline. With asset values increasing more than debt, farm equity rises significantly. Increasing nominal farm income in the baseline, combined with rising farm equity, means relative stability in the financial condition of the farm sector. The sector will be highly competitive. The trend toward fewer but larger farms continues, as producers who are more efficient and better managers acquire the production resources of exiting farmers.

The 1996 Farm Act transferred income variability risk from the Government to farmers. Net farm income is potentially more variable from year to year in response to supply and demand variations because production flexibility contract payments are fixed regardless of market prices. Marketing alternatives to manage risk and buffer a portion of this potentially greater income volatility will become more important for many farmers.

Food Prices and Expenditures

Retail food prices in the baseline are projected to rise less than the general inflation rate, continuing a long-term trend. The largest price increases generally occur among the more highly processed foods, such as cereals and bakery products and other prepared foods, foods whose prices are related more to the costs of processing and marketing than to the costs of farm commodities. Expenditures for meals eaten away from home account for a growing share of food spending, reaching almost half of total food spending by 2007.

Agricultural Trade

Generally favorable global economic growth and freer trade associated with the GATT agreement and unilateral policy reforms support strong growth in world agricultural trade and U.S. exports. Relatively strong growth in the volume of global trade in bulk agricultural commodities is projected in the baseline. Trade gains reflect strong economic gains in most developing regions, including China, South and Southeast Asia, Latin America, North Africa, and the Middle East, despite prospects for slowed demand in Southeast Asia over the next several years. Income growth enhances demand for agricultural goods, both through increases in direct food use and through derived demand for livestock feeds to meet increases in meat demand.

World trade in grains, led by coarse grains, is projected to grow the fastest among bulk commodities, particularly during 2000-2007. These gains reflect strong economic growth in developing regions where higher incomes result in diet diversification and rising meat demand,

leading to expanding livestock sectors and demand for feed. Wheat trade also increases in response to rising incomes in developing countries. Combined trade in soybeans and meal benefits from the same expansion of developing country feed-livestock sectors that push up coarse grain trade. Growth in soybean oil trade also is projected to be higher than in the 1980s, but will be slower than for some competing oils because of its high relative price. Raw cotton demand and trade beyond 2000 are projected to be stronger than in the 1990s, but slower than in the 1980s when there was increased substitution of cotton for synthetic fibers.

U.S. export growth is projected to strengthen for most bulk commodities. U.S. exports of wheat and coarse grains are projected to expand the fastest. After 2000, U.S. wheat export growth is projected to slow because of anticipated unsubsidized competition from the European Union (EU) as world wheat prices rise. U.S. rice exports stay nearly flat as domestic demand captures nearly all the gains in U.S. production. Exports of U.S. soybeans and products are projected to rise faster than in the 1980s, aided by improving U.S. yields. However, foreign competition and slowing U.S. acreage gains are likely to constrain export growth relative to that of competitors after 2000. U.S. raw cotton exports are projected to strengthen through most of the baseline, benefiting from rising demand and reduced competition in some countries.

Despite a near-term slowdown in growth in Asia, generally favorable global economic growth is expected to spur growth in meat demand and trade over the longer term. Already negotiated reductions in trade barriers, primarily in East Asia, also help meat trade growth. The Pacific Rim provides the most growth in both consumption and import demand, with rising meat demand also projected in several countries in Latin America. The United States is well positioned to provide a variety of meat products to these markets.

Growth in meat import demand in the Former Soviet Union (FSU) is projected to slow. Although meat demand will turn upward after 2000, domestic FSU production of meat also is projected to increase slowly. This could reduce the region's dependence on imported meat, although the United States is expected to continue to supply low-priced parts and trimmings to that market.

The value of U.S. meat exports is projected to grow somewhat more slowly than the rapid ascent of the past several years. Although export volume will rise, the increasing share of low-valued meat products may slow the growth in total value.

The total value of U.S. agricultural exports rises steadily from $57.3 billion in fiscal 1997 to nearly $85 billion in 2007 (see box, page 17, for impacts of the Asia crisis). U.S. agricultural import values also rise, but with exports increasing more, the net agricultural trade balance rises about $12 billion from 1997 to 2007. High-value product (HVP) exports grow more rapidly than bulk commodity exports and are projected to account for about 63 percent of total U.S. agricultural exports by 2007. HVP export gains are led by exports of horticultural products and animal products. Although bulk exports are projected to grow more slowly than HVP exports, faster growth in bulk exports compared with the 1980s is expected to be a key source of export strength during 2000-2007.

Macroeconomic Assumptions

This section presents the macroeconomic projections underlying the USDA baseline. Domestic macroeconomic projections are presented first, followed by a discussion of the international projections. The open U.S. economy is increasingly affected by international macroeconomic conditions, trade policies, and exchange rate movements which in turn affect the demand for U.S. farm products, costs of production, farm income, farm asset values, and food prices.

Domestic Macroeconomic Projections

Domestic macroeconomic forecasts through 1998 were developed in September 1997 and are based on data available through August 1997. The long-term projections for 1999-2007 assume trend growth of major macroeconomic indicators. Shocks, such as large unexpected oil price hikes, cannot be anticipated, and the use of trend projections focuses on the long-term economic and demographic forces driving the economy. In particular, growth in the labor force and labor productivity determines projected GDP growth.

Short-term U.S. Outlook: Low Inflation, Good Growth

The U.S. economy is in the mature phase of the economic recovery that began in 1991. Nevertheless, gross domestic product (GDP) growth was a moderately strong 2.8 percent in 1996, despite a sharp rise in the price of crude oil. Imported crude oil prices rose from $17 per barrel in 1995 to more than $22 by early November 1996. In 1997, GDP expanded about 3.5 percent, with unemployment averaging 5.0 percent, down 0.4 percentage points from 1996's rate. Low unemployment rates of the last two years indicate a tight labor market. At this stage of the business cycle, tightening labor markets would ordinarily mean rising wage-induced inflation. However, prices in 1997, as measured by the consumer price index (CPI), rose only 2.5 percent, less than in 1996.

Strong labor productivity growth and modest growth in total compensation in 1996 and 1997 combined to produce increases in unit labor costs only modestly above inflation. As a result, cost pressures and producer price inflation were low in 1997. The small rise in producer prices, falling energy prices, and falling import prices combined to keep CPI growth in 1997 below 1996's modest rate.

The rise in GDP in 1997 was led by very strong growth in business investment in computers, strong growth in consumer durable spending for furniture and appliances, and good growth in consumer spending on services. The spectacular growth in demand for computers was driven by sharply falling computer prices, record high business profits, and readily available business credit. Real computer prices drop because rapid technological innovation results in declining average production cost. In 1997, U.S. computer prices fell more than normal since the stronger dollar meant lower prices for imported components. Furniture and appliance sales growth was strong as household income growth was good and consumer credit rose to record levels relative to income. Service spending grew in response to very good disposable income growth.

In 1998, GDP and employment growth will slow from the rapid pace of 1997, largely because of slowing investment growth, particularly in computer equipment, and moderating growth in consumer durable spending. Since labor markets will remain tight, wages and compensation will rise relative to profits. Slowed profit growth in 1998, with modest increases in interest rates and tighter credit conditions, will curtail the rapid growth in business equipment spending. The dollar is expected to be relatively stable in 1998, so price cuts for computer equipment will not be as sharp as in 1997.

Tighter credit conditions and good disposable income growth will result in moderating consumer durable sales in 1998. Ready access to credit allowed a record high consumer debt burden in 1997, and resulted in record high personal bankruptcy rates and rising credit card delinquency rates. In response to increased bankruptcies and loan delinquencies, banks will apply tighter credit standards to consumer loans made in 1998 than they did in 1997. Still, the expected strong growth in disposable income and strong consumer confidence will more than offset tighter credit conditions, allowing for moderate growth in consumer durable spending in 1998. Continued strong consumer confidence and growth in personal income from higher wages will keep consumer spending on nondurable goods and services quite strong.

Despite improved economic prospects in Europe in 1998, the strong dollar will restrain U.S. export growth. Stronger local government spending will offset slower growth in Federal spending. Slowing growth in consumer and investment spending, a bigger trade deficit, and sluggish Government spending will result in GDP growth of about 2.3 percent for the year.

Moderating GDP growth will prevent severe labor market and production bottlenecks and thus limit inflation in 1998. Consumer prices are forecast to rise by 2.9 percent, faster than in 1997 and about at 1996's pace. Import prices are expected to increase only modestly. Faster growth in the developed economies will keep oil prices up and mean somewhat higher producer price inflation. A continued tight labor market makes modest real compensation increases all but certain for the year. Given moderating growth and low inflation, U.S. interest rates will be relatively stable through 1998, although slightly higher than in 1997.

Long-term U.S. Outlook

Major assumptions underlying the long-term U.S. macroeconomic projections are:

- Fiscal policy is tight, consistent with a balanced federal budget in 2002. Even with higher local government spending picking up some of the federal spending slowdown, overall government spending growth averages only 0.3 percent per year from 1999 through 2002. By 2002, government purchases of goods and services slip from second to third place among the components of GDP, behind consumption and investment. It is likely that 2002 will see a modest Federal budget surplus for the first time since 1969. In 2003 to 2007, Government spending grows at the rate of population growth.

Unemployment, Inflationary Pressures, and Federal Reserve Board Monetary Policy

The non-accelerating inflation, rate of unemployment--known as the NAIRU--is the unemployment rate consistent with stable inflation. Sustained levels of unemployment that depart from the NAIRU can be an indication of potential effects on the inflation rate stemming from the labor market.

A recent survey conducted by the National Association of Business Economists indicated that more than 70 percent of surveyed business economists view the NAIRU as a band of unemployment rates as opposed to a single number.

The Council of Economic Advisers estimated an historical band for the NAIRU of 5 to 7 percent. Based on the last fifty years, if unemployment is between 5 and 7 percent, inflation showed no systematic tendency to accelerate or decelerate. When unemployment is above 7 percent, inflation drops. Conversely, when unemployment is below 5 percent, inflation rises.

The Federal Reserve Board (Fed) uses a narrower range. Testimony by Federal Reserve Board Chairman Alan Greenspan in the spring of 1997 indicated that the consensus NAIRU estimate of the Fed's Open Market Operations Committee at that time was 5.3 to 5.7 percent.

The complexity of the economy makes the unemployment rate an incomplete measure of the degree of utilization of resources. As a result, the Fed considers a wide range of indicators such as industrial production, capacity utilization, labor compensation, labor productivity, and wage rates to judge if the economy is running above or below its potential. Further, the Fed looks at labor force quit rates, length of unemployment, regional wage increases, and other indicators to assess labor market tightness.

Nevertheless, the NAIRU is a useful summary benchmark of an economy's annual labor market growth limits. An unemployment rate consistently above the NAIRU reflects an easing of inflationary pressure. A year spent above the NAIRU will likely lead to a lowering of short-term interest rates in the following year due to Fed intervention.

The average point estimate for NAIRU in the most recent Survey of Professional Forecasters was 5.25 percent. Over the 1996-2007 period, baseline projections indicate the annual unemployment rate to average between 5.0 and 5.5 percent with a central tendency of 5.2 percent--in line with the forecasting community's judgment. A trend GDP growth rate of 2.5 percent is consistent with that NAIRU. The long-term macroeconomic baseline projections assume that the Fed will raise short-term interest rates when unemployment falls below 5.2 percent to keep CPI inflation at about 3 percent. Conversely, when unemployment goes to 5.3 percent, the Fed will lower interest rates to keep GDP growth at the maximum sustainable rate.

- The Federal Reserve remains committed to containing inflation even as the government deficits shrink. Money supply expands 5.3 percent annually between 1998 and 2007, reflecting moderately tight monetary policy and trend GDP growth of 2.5 percent.

- Real crude oil prices rise 1.1 percent per year from 1999 to 2007, consistent with medium-term Department of Energy projections made in January 1997.

- Labor productivity growth will be in the 1.1 to 1.2 percent range from 1998 to 2007. This is modestly faster than growth in the previous 15 years. Productivity improvement comes primarily from a rising investment share in GDP, low real oil and material price increases, and real interest rates lower than they would have been without deficit reduction. Trade liberalization from the NAFTA and GATT agreements also aids productivity growth throughout this period.

- Employment grows about 1.3 to 1.4 percent a year until 2005, which is broadly consistent with Bureau of Labor Statistics projections, the tightened welfare and disability qualifications now in place, and expected immigration. For 2006 and 2007, growth in employment slows as the first wave of baby boomers retires in significant numbers.

- Real GDP in OECD countries, minus the United States, grows about 2.4 percent through 2001 and averages 2.2 percent from 2002 to 2007.

- Federal deficit reduction and lower inflation expectations mean smaller interest rate differentials relative to U.S. trading partners. U.S. inflation will remain higher than in Canada and Japan, but close to that of Germany, France, Italy, and the United Kingdom. The inflation differential drives the modest decline in the value of the dollar from 2000 to 2007.

Baseline U.S. macroeconomic projections show a long-term recovery from the below-trend growth of the late 1980s and early 1990s. From 1998 to 2007, the economy grows by 2.5 percent annually. Real compensation lags productivity growth, mainly because of a more open economy. Business and dividend income increases relative to wages, which supports personal income growth. Disposable income grows as fast as GDP.

Without commodity price shocks or abrupt changes in macroeconomic policy, stable growth generally implies stable inflation. Consumer price inflation is projected to average 3 percent over the next decade. This moderate inflation outlook assumes monetary policy focuses on containing inflation. Real short-term Treasury-bill rates average slightly less than 3 percent, reflecting relatively tight Federal Reserve policy as well as the beneficial effects of fiscal deficit reduction. Real long-term Treasury-bond rates of about 4 percent reflect lower Government demand for credit as Federal deficits are eliminated.

The stable domestic financial environment, global trade liberalization induced by the Uruguay Round GATT and the NAFTA accords, low oil prices, and moderate growth in OECD countries

will mean that U.S. exports grow faster than imports. Thus, the real U.S. trade deficit falls to about half the current level by 2007.

Strong export growth, combined with gains in domestic consumer demand, provide impetus for strong growth in capital investment, similar to that seen in the 1960s. A high depreciation rate will further enhance gross investment as more capital spending is devoted to short-lived equipment and less to long-lived plant construction. Low real interest rates and less competition from the federal government in credit markets will provide major support for strong investment growth.

Eliminating the budget deficit and reducing the real trade deficit will lead to only small adjustments in private domestic consumption. Thus, consumer spending grows about as fast as GDP and the consumption share of GDP is about the same in 2007 as in 1997. However, because of slow Government spending growth, the investment and export shares of GDP increase.

International Macroeconomic Assumptions

The international macroeconomic assumptions used in the baseline were completed in October 1997. The outlook for the world economy over the next 10 years shows stronger growth than during 1990-96. Real GDP is projected to grow by 3.2 percent annually through 2007, compared with 2.3 percent during 1990-96. The developing Asian economies are expected to remain growth leaders, despite 1997's currency devaluations and related slowdowns in Southeast Asia (see Asia Crisis box, page 17). Asia's output will grow at a more sustainable 6.6-percent pace over the next decade, down from 7.8 percent during 1990-96. Significantly stronger growth than during 1990-96 is expected in Latin America, North Africa, Eastern Europe, and the former Soviet Union. The developed economies, including the United States, will grow at potential GDP expansion rates of 2.4 to 2.5 percent. Inflation is expected to be low in the developed economies and moderate in the developing countries. The real price of oil is expected to increase 1.1 percent annually.

Developed Economies

In the coming decade, the developed economies will improve GDP growth from the low rates of the first half of the 1990s. Low inflation and, thus, low interest rates will help countries produce output close to potential levels. Government budgets, except in Japan, will be largely balanced. However, external imbalances may persist, particularly the large U.S. trade deficits with Japan and China. Among the major economies, only the United States will continue to carry a large current account deficit, which means comparatively higher U.S. interest rates to finance the deficit.

European Union

The coming monetary union between qualified members of the European Union (EU) and introduction of a single currency will enhance the efficiency of cross-border trade and investment within Western Europe. More uniform fiscal policies, as well as disciplined monetary policy guided by the German-based central bank, should lead to more stable growth prospects early in

the next century. The European economy is projected to expand by 2.2 percent on average from 2002 to 2007, while population growth reaches record lows.

Unemployment will remain high relative to the United States., but should gradually fall as less regulated labor markets and more flexible wages are adopted. Inflation should be well controlled as a strong unified currency--the Euro--acts as an anchor for price stability. Fiscal consolidation by member countries will reduce inflationary expectations and lower long-term interest rates. The Euro is projected to appreciate in real terms as the currency becomes widely used for world trade and for international reserves. Because of monetary union, national differences in real interest rates will disappear--financial markets will encompass the whole region, and thus investment opportunities will depend less on the relative availability of capital in each country.

Greater intra-European trade should encourage price arbitrage of homogeneous products and services, providing comparable prices across countries for both producers and consumers. As capital freely moves across borders, investors and producers would be able compete on more equal terms across countries of the EU, despite the lack of transnational mobility of workers. Even without formal eastward enlargement, closer integration with Eastern Europe also opens more trade and investment opportunities in the transition economies, particularly the former Soviet Union. As the transition economies gain higher per capita incomes, imports from the EU should rise accordingly.

Japan

The Japanese economy should eventually climb out of the anemic growth that prevailed during most of the 1990s. Domestic demand will revive as Japanese banks slowly strengthen their capital base after writing off remaining bad loans and as the property and stock markets rebound. Manufacturing production should lead the way toward more vigorous economic activity, led prominently by exports of high-value products. In the longer run, recovery of Southeast Asian economies will provide additional demand for Japan's capital exports and manufactured goods.

The yen is expected to appreciate as the Japanese economy revives and as interest rates finally rise, but the current account surplus will remain large. The deregulation of Japan's financial market also is likely to boost the yen as foreign capital funds are attracted. Opening Japan's retail and insurance markets to foreign competition will lower prices of goods and services. Opening the air transport market to more U.S. carriers will help boost Japanese tourism in the United States as air fares fall.

A structural problem of Japan's economy is the excess of savings over investment, as manifested in its sizable current account surplus. This fundamental imbalance, together with non-tariff barriers that restrict imports and foreign investment, keep the domestic economy isolated from global competition. High internal costs in the non-manufacturing industries such as farming, house construction, and power generation have held back investors as well as consumers. More deregulation, not unlike that in the financial sector, will help sustain domestic demand, specifically private consumption and investment, as well as boost imports.

Canada

Canada's growth pattern in the 1990s has roughly tracked the U.S. GDP path because of the close integration of trade and investment between the neighbors. Each country is the other's largest trading partner and NAFTA has reinforced that relationship. Canada has consistently had a trade surplus with the United States in the 1990s, the destination for 82 percent of its exports. A competitive Canadian dollar significantly influenced this pattern. A steady depreciation against the U.S. dollar since 1990, plus a lower inflation rate relative to the United States, has helped boost the Canadian currency's real exchange rate competitiveness.

The future growth path for Canada depends to a large extent on the pace of U.S. economic activity, augmented by growing trade with Asia and Mexico. Already considerable, Canadian trade with Asia should further expand as APEC relationships become closer. Trade with Mexico is already on the rise as stimulated by NAFTA. The country's trade surplus is projected to continue growing beyond 2000.

The overhaul of Canada's welfare structure from large deficit to surplus is principally responsible for the country's bright growth prospects. Less government spending and more funds available for private investment and consumption allowed market forces to revive previously anemic growth as interest rates significantly fell. Low inflation and interest rates are expected to carry healthy GDP expansion through the next decade. Also, foreign debt (as a percentage of GDP) will fall by 35 percent over the next 10 years. Domestic demand in the short and long term is to be led by fixed capital formation. National savings (as a share of GDP) will increase to around 22 percent as compared to only 13.5 percent for the United States.

Transition Economies

Countries that are ahead in the transformation to market economies are experiencing higher growth than those who have only recently carried out reforms. The first group includes Poland, the Baltic countries, the Czech Republic, Hungary, the Slovak Republic, Croatia, and Slovenia. The second group includes Bulgaria, Romania, and the former Soviet Union. The principal measure of the success of reform, which also coincides with higher GDP growth, is the degree of integration into the global economy--trade flows, investment flows, and currency convertibility. More liberalized trade arrangements with more countries and the amount of foreign direct investment and portfolio inflows indicate the linkage level and relative competitiveness with the world at large, particularly Europe and the other advanced economies.

Central and Eastern Europe

Transition economies in this region, except Bulgaria, posted relatively fast growth between 1994 and 1996 after severe contractions in the early 1990s associated with the switch from central planning. Poland, Hungary, and the Czech Republic are expected to register nearly 5 percent growth on average in the second half of the 1990s after undertaking market reforms and increasing openness to trade and competition. A reorientation of trade from the former Soviet Union to the West has contributed to their strong performance. But in some countries, like

Bulgaria, reforms have only recently begun. Romania, which recently shed heavy state intervention in the economy, should soon expand in pace with its more advanced neighbors. The growth outlook for this region is relatively optimistic at over 4 percent in the next 10 years. A crucial advantage over the former Soviet Union is proximity and closer integration with the European Union. Foreign direct investment, particularly from high-cost countries like Germany, will increase the region's capacity to export. As the cross roads between the East and the West, the region should benefit as trade increasingly flows through its countries.

The Former Soviet Union

After almost a decade of economic retrenchments and setbacks, the countries of the former Soviet Union are poised for positive but slow growth over the next decade. In Russia, GDP is projected to expand by 1.5 percent in 1999 and reach 3 percent by 2001. The smaller countries of the region have been growing since 1996, with growth projected to be 3 percent in 1998. Overall GDP for the region is anticipated to average between 3 and 3.5 percent from 2002 to 2007. The fruits of privatization and market-based pricing are finally contributing to production gains and more widespread consumption. Foreign direct investment appears to be gathering speed now that inflation is increasingly contained and the ruble is stabilizing. Capital flight is also less of a problem. Monetary policy by Russia's central bank, if not yet in full supervision of the banking system, has at least controlled credit creation and largely demonetized government spending.

Prospects for mid-term growth in Ukraine are modest but should also improve after its longer period of restructuring and weaning of government subsidies. Significantly increased trade with Russia and the other former Soviet republics is critical in the Ukraine's transition to a higher income country. The smaller countries of the FSU are expected to average higher growth rates because of increasing trade and production of agricultural products and natural resources, particularly crude oil and natural gas. Nevertheless, only large inflows of foreign investments can lift their relatively slow growth prospects.

Developing Countries

Overall, the developing countries will maintain close to 5.5 percent average growth over the next decade, compared to around 5 percent during 1990-96. Emerging markets in Latin America will continue to attract investment funds as long as the developed economies maintain their healthy growth or recovery and if real interest rates in the United States, Europe, or Japan do not rise significantly. The currency devaluations in Southeast Asia will encourage more flexible exchange rates, which prevent overvalued currencies and act to discourage inflows of speculative funds or excessive borrowing of foreign money. Stronger financial systems and stricter banking regulation, reinforced by timely and transparent statistics, will reduce the risks of excessive lending and promote more stable growth paths in the longer run.

Mexico

The Mexican economy has almost fully recovered from its deep recession in 1995 that was precipitated by the peso's devaluation in late 1994. While the domestic sector has not fully

bounced back in terms of real wages and former consumption levels, business investment and export growth are healthy again. Mid-term growth prospects are in line with potential GDP of 5.5 percent. The inflow of foreign capital and expanded trade with the United States because of NAFTA have boosted Mexico's production and export capacity. The devaluation of the peso by about 50 percent in 1994-95 made Mexican exports more price competitive.

Starting in 1996, however, the peso has appreciated in real terms against the U.S. dollar, largely because of Mexico's success in attracting foreign investment funds. That is, despite a floating exchange rate and inflation higher than in the United States, confidence in holding pesos, and in the Mexican economy in general, is strong. But these gains in purchasing power have fueled Mexican imports, generating a trade deficit and a higher current account deficit. The long-term growth outlook falls slightly to 4.6 percent because Mexico needs to continue modernizing its infrastructure and build up competitive export industries. These measures entail imports of capital and intermediate inputs that would raise the current account deficit beyond 2000.

China

While China's growth has been consistently the strongest in Asia for a number of years, it is expected to slow from the double-digit pace of the early 1990s to a more sustainable pace of around 8 percent in the next decade. With population growth of less than 1 percent per year, per capita GDP gains will remain impressive at above 7 percent annually. These gains will penetrate China's poor inner provinces and likely improve productivity in the agricultural sector as more capital-intensive farming and food processing are undertaken. Inflation has now subsided to single digits, but real output gains are expected to be slowed by adjustment problems of unemployment, as privatization of state-owned enterprises accelerates, and by competition from foreign firms. Credit supply will be directed less by the government and more by independent banks, and thus access to credit will increasingly be market-based. The eventual convertibility of the yuan in the capital account, which should attract more foreign equity funds, also permits the outflow of domestic funds for foreign investments. Real wages will rise as worker productivity grows. The country's high savings rate will keep interest rates relatively low in spite of increasing demand for capital, especially to finance infrastructure projects. Competition for lower-value export markets should intensify as other developing countries, including Vietnam and India, increasingly enter those markets.

East and Southeast Asia

Output growth in East and Southeast Asia is projected in the baseline to remain strong over the next 10 years, despite 1997's currency devaluations and related slowdowns in the region. Growth is projected at 6.8 percent over the next decade, down from 8.6 percent during 1990-96. In the near term, growth is slowed somewhat by currency devaluation and deflation of asset prices, especially in Thailand, Indonesia, and Malaysia. Economic growth in these countries is assumed

The Asia Crisis: Baseline Assumptions and Impacts

The wave of exchange rate devaluations, stock market declines, and severe credit shortages now affecting many East and Southeast Asian economies was underway as the macroeconomic assumptions for this baseline were developed in October 1997. At that time, the number of countries affected, as well as the depth and duration of impacts on the region's economies, was uncertain. Based on information available in October 1997, the baseline assumed impacts on economic growth and real exchange rates in Thailand, Indonesia, Malaysia, and the Philippines, but not on other countries, either in East Asia or outside Asia.

For the four Southeast Asian countries, a significant slowdown in economic growth, along with continued exchange rate instability, is assumed during 1998-2000. By 2001, however, economic growth rates are assumed to return to previously projected growth paths, and exchange rates to either stop depreciating or show a significantly slower loss of purchasing power. No impacts on long-term growth are forecast because of basically sound economic fundamentals, and the increased export competitiveness resulting from the currency devaluations. Reforms of banking practices, including opening of financial sectors to foreign investment and competition and liberalization of capital controls, as well as maintenance of more flexible exchange rates, will be needed to return to historic growth paths. If these reforms are not made, longer-term growth prospects could be reduced in Southeast Asia, as well as in other parts of Asia.

For 1998-2000, Thailand's economy is assumed to be the most affected by the crisis, with real GDP growth dipping to 1 percent in 1998/99. Indonesia, with a relatively small current account deficit is assumed to experience a less severe downward adjustment in growth. Malaysia's near-term growth prospects are also assumed to be less dire than Thailand's because of more balanced economic fundamentals, while the Philippines is expected to be the least affected of the four countries.

Figure 1. Southeast Asia: Real GDP growth rates

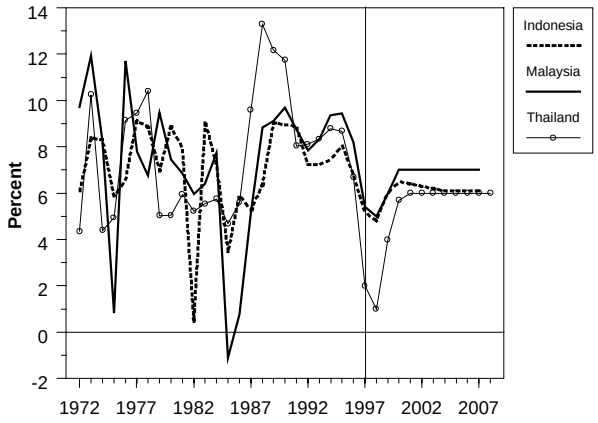
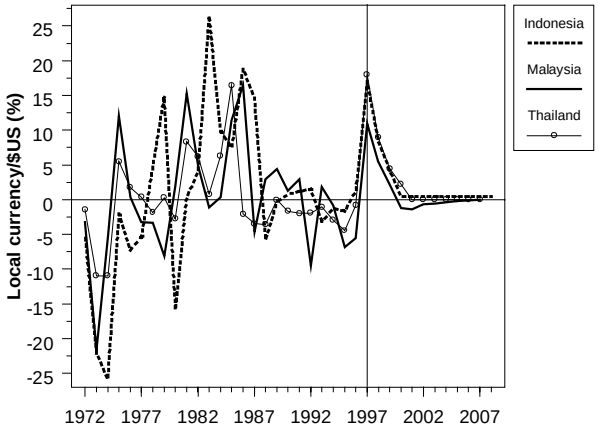


Figure 2. Southeast Asia: Change in real exchange rate



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The Asia Crisis: Baseline Assumptions and Impacts -- Continued

Agricultural Trade Impacts. The surge in Southeast Asian imports of feed grains, feed protein, and wheat during the 1990s has been driven largely by rising incomes and import capacity, increasing urbanization, and population growth. The financial crisis will affect agricultural imports by slowing income growth and, due to devaluation, by sharply increasing local currency prices faced by domestic consumers and producers. Declines in import demand will be most significant in cases where consumption is most sensitive to changes in income or prices, or where domestic production can respond to higher prices and substitute for imports.

Based on these factors, and with the baseline assumption of growth and exchange rate impacts only in Thailand, Indonesia, Malaysia, and the Philippines, Southeast Asian imports of feeds, particularly corn, are likely to be most affected by the crisis. Rising meat consumption in the region has been met almost entirely by domestic production that is increasingly dependent on imported corn and soy protein. Slowed growth in meat demand and production and, particularly in the case of Thailand, higher local feed production, will slow demand for feed imports. Wheat import demand is expected to be less significantly affected because of its important role in urban diets and the lack of local production capacity. Rice imports by Indonesia and, to a lesser extent, the Philippines, are projected lower due to the crisis, primarily because of supply response to higher local currency prices. Cotton import demand is expected to be down slightly, as lower domestic textile demand is significantly offset by the increased competitiveness of the region's textile-based exports.

The region's agricultural exports are expected to be more competitive following devaluation. Significant gains are expected in Thailand's export supplies of rice and poultry. And, although palm oil production should not respond to higher prices in the near term, higher consumer prices are expected to release more supplies of Malaysian and Indonesian palm oil into world markets following the crisis.

Other Scenarios. The macroeconomic assumptions used for the baseline were made at a time when the outcome of the Asian financial crisis was highly uncertain. Deeper or longer term disruption of the Southeast Asian economies would have more significant impacts than included in the baseline, as would a spread to the major East Asian markets, to China, or to economies outside Asia. Although agricultural imports by Japan, Korea, and Taiwan are not highly responsive to changes in income and prices, even small percentage impacts on these large markets for both bulk and high-value commodities could have significant impacts on world markets. China's imports appear to be both income responsive and price responsive. Significantly slower economic growth in China, or devaluation of the yuan, would have significant impacts on prospects for global trade in wheat, corn, and soybeans and products.

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The Asia Crisis: Baseline Assumptions and Impacts – Continued

After this baseline was completed, an analysis of the impacts of the Asia financial crisis was conducted by USDA in late-December 1997 to assess the evolving Asian situation which had worsened from the assumptions used in this report. For this analysis, growth and exchange rate impacts in the 4 major Southeast Asian economies were deepened from those assumed in this baseline, and impacts were extended to Japan, Korea, Taiwan, Australia, Argentina, Brazil, and Mexico. Growth and exchange rate impacts were assumed for 1997-2000, with the crisis resolved in 3 to 4 years. In addition, income growth was slowed for China, but no devaluation was assumed.

In addition to the moderate impacts of the Asia crisis on U.S. agricultural exports of about 1 percent annually already included in the baseline projections, the late-December assessment estimated that U.S. agricultural exports would be further reduced by 3 percent in 1998, 5 percent in 1999 and 4 percent in 2000. Annual export losses in later years would reflect the degree of economic recovery in affected countries. These reductions reflect only the effects of the Asia crisis and do not include other changes in the trade outlook that have occurred since November. For updates of the fiscal 1998 trade forecasts, see USDA's "Outlook for U.S. Agricultural Exports" published in February, May, August, and December. The August and December issues will also contain forecasts for fiscal 1999.

to slow through 2000 from rates of recent years, but is then expected to recover. Exports, buoyed by increased exchange rate competitiveness, and domestic demand, cushioned by high domestic savings, are expected to lead the recovery. The near-term slowdown in economic growth is assumed in the baseline to be largely confined to Southeast Asia and is assumed to not affect East Asia, South Asia, or China.

While the baseline assumption is that policy reforms and international financial support will allow the Southeast Asian economies to recover relatively quickly from the current crisis, several factors may prevent as rapid a recovery as occurred in Mexico following the December 1994 devaluation of the peso. First, Japan provides a market for about 13 percent of developing Asia's imports, and Japan's economy is expected to show only sluggish near-term growth. Thus, there is no large neighboring market to drive a rapid recovery of the region's exports, as the United States did for Mexico. Second, about 40 percent of developing Asia's exports are typically destined for Asian markets other than Japan. Thus, the region-wide slowdown will be a significant drag on recovery. Recovery will also be affected by the fact that intra-regional investment, particularly from Japan, accounts for a large share of trans-border investment in the region. As a result, domestic savings performance and expansion of extra-regional trade will be important factors in the pace of recovery.

Growth in East Asia (Korea and Taiwan) is projected to continue to be strong, but will gradually decline to more sustainable rates over the long term as these economies mature. As in Southeast

Asia, East Asian growth depends largely on strong import demand from inside and outside Asia. Healthy expansion in North America and Europe over the mid-term will help buoy growth in East Asia. China's continued growth of over 8 percent will remain a source of strong import demand for other East Asian exports.

South Asia

While growth rates in South Asia are not expected to match East and Southeast Asia's, even over the long-term, per capita gains of about 3.6 percent per year are expected nonetheless. India, which produces 82 percent of the area's output, will grow on average by 5.5 percent annually, followed closely by Pakistan. Like China, India's large and increasingly liberalized domestic market will provide the bulk of the impetus for growth. India should also be capable of producing a more diversified set of export products, both manufactured and agricultural. Investment policy is increasingly liberalized and the inflow of foreign capital will boost the region's production capacity.

Promising export markets include the neighboring regions of the Middle East and the former Soviet Union, especially for lower-value products. The proximity to energy sources in the Middle East and, in the future, to energy from Central Asia, should likewise be a boon. Potentially in the long run, exports of higher-technology products, especially from India, will generate currency reserves needed to help improve the region's infrastructure and industrial capacity. Competitive gains will depend on the region's low-cost labor, more open trade and investment policies, and real exchange rates that are not distorted by restrictions on capital flows.

Africa and the Middle East

The plentiful supply of fossil fuel, particularly oil, that will be produced in Central Asia after the turn of the century is projected to hold world energy prices to only modest growth over the long run. This expectation, as well as the region's continued fast population growth, will hamper the real per capita output gains, especially in the oil-exporting countries of the Middle East. Despite uncertainty in Iraq and Iran, future growth in these countries is assumed at over 4 percent. Combined with similar GDP expansion in Turkey, growth in the Middle East region is projected at a steady rate near 4 percent.

In Africa, potential growth hinges on the performance of Egypt, Nigeria, and South Africa, the continent's largest countries. Whereas GDP growth in Egypt is projected to be relatively strong, Nigeria and South Africa are not expected to grow as fast. Nigeria, because of continued political instability, corruption, and largely unskilled labor, will be unable to attract enough foreign investment and take advantage of its abundant oil resources. In South Africa, a large labor force of unskilled workers, high interest rates because of budget problems, and general social discontent will pose risks for investors and limit growth. The politically troubled countries of Algeria, Sudan, and Congo will drag overall growth down in North Africa and in Sub-Saharan Africa. Nevertheless, increased North African trade with Europe and market reforms in some East and West African countries are generating relatively faster growth. The multilateral proposal by

developed countries to partially forgive foreign debts of the poorest countries that have initiated reforms should help sustain early gains and may encourage further reforms.

South America

Strong growth is projected for the area, led by the MERCOSUR core countries of Brazil and Argentina. Freer trade will further integrate these countries' economies as they gear up for eventual hemispheric free trade with NAFTA countries. Behind the strong growth are reduced debt, less government intervention in the private sector, growing intra-regional trade, and heavier foreign direct investment. The past environment of overvalued currencies, large trade deficits, fiscal deficits, and low internal investment due to low savings are not expected to return. New economic policies now generate less inflation and more competitive industries as import barriers fall. Still, double-digit inflation in many countries (except Argentina and Chile) will carry through the next decade. Savings as a share of GDP are projected to rise only slowly and levels will remain substantially lower than in East and Southeast Asia. Because of this, the region's general dependence on foreign capital introduces the risk of capital flight in response to external shocks such as higher U.S. interest rates or another Mexican-type financial crisis.

World Population Growth

Africa and the Middle East will continue to have the fastest growing population over the next decade, averaging 2.4 to 2.5 percent per year. The next fastest regions are Asia and Latin America, each averaging 1.3 percent per year. These assumptions indicate that per capita GDP gains in Asia and Latin America will outpace those of Africa and the Middle East by a bigger margin than their GDP growth differentials.

The populations of the developed and transition economies are projected to grow by only 0.5 percent per year or less, with the slowest rates in Russia, Eastern Europe, Japan, and the European Union. Overall, the number of people in the world will increase at a declining rate, and per capita GDP will rise by an average 2 percent per year. By 2007, when the world's population will total 6.5 billion, and with 80 percent living in developing countries, GDP per person will average $4,900 (1990 dollars), up from $4,100 in 1997. The population assumptions, last updated in August 1997, were obtained from the U.S. Bureau of the Census and the United Nations.

Table 1. U.S. macroeconomic baseline assumptions

Item	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
GDP, billion dollars												
Nominal	7,636	8,070	8,456	8,908	9,427	9,997	10,569	11,175	11,814	12,490	13,183	13,897
Real 1992 chained dollars	6,928	7,168	7,336	7,506	7,701	7,904	8,099	8,303	8,510	8,721	8,924	9,124
percent change	2.8	3.5	2.3	2.3	2.6	2.6	2.5	2.5	2.5	2.5	2.3	2.2
Disposable personal income												
Nominal	5,608	5,893	6,217	6,561	6,958	7,389	7,839	8,294	8,756	9,251	9,753	10,319
percent change	4.7	5.1	5.5	5.5	6.0	6.2	6.1	5.8	5.6	5.7	5.4	5.8
Nominal per capita, dol	21,112	22,005	23,002	24,057	25,285	26,621	27,998	29,372	30,750	32,219	33,689	35,352
percent change	3.7	4.2	4.5	4.6	5.1	5.3	5.2	4.9	4.7	4.8	4.6	4.9
Real 1992 chained dollars	5,077	5,218	5,371	5,502	5,649	5,806	5,964	6,119	6,269	6,426	6,577	6,742
percent change	2.3	2.8	2.9	2.4	2.7	2.8	2.7	2.6	2.5	2.5	2.4	2.5
Real per capita, 92 dollars	19,115	19,485	19,870	20,173	20,528	20,919	21,303	21,669	22,015	22,380	22,719	23,097
percent change	1.3	1.9	2.0	1.5	1.8	1.9	1.8	1.7	1.6	1.7	1.5	1.7
Inflation Measures												
GDP price index, chained	110.3	112.6	115.3	118.7	122.4	126.5	130.5	134.6	138.8	143.2	147.7	152.3
percent change	2.3	2.1	2.5	2.9	3.1	3.3	3.2	3.1	3.1	3.2	3.1	3.1
CPI-U, 82-84=100	157.0	160.8	165.4	170.4	176.0	181.8	187.8	193.7	199.6	205.7	211.9	218.7
percent change	2.9	2.5	2.9	3.0	3.3	3.3	3.3	3.1	3.0	3.1	3.0	3.2
PPI, finished goods 82=100	131.3	131.8	134.0	137.2	140.7	144.4	148.1	151.9	155.7	159.7	163.8	167.9
percent change	2.6	0.4	2.5	2.4	2.5	2.6	2.6	2.5	2.5	2.5	2.5	2.5
PPI, crude goods 82=100	113.7	114.5	116.8	120.0	123.0	126.1	129.2	132.4	135.7	139.1	142.6	146.2
percent change	10.7	0.7	2.0	2.7	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Crude oil price, $/barrel												
Refiner acq. cost, imports	20.6	19.5	20.2	21.0	21.9	22.8	23.8	24.8	25.9	27.0	28.2	29.4
percent change	20.0	-5.2	3.3	4.0	4.3	4.5	4.3	4.3	4.3	4.3	4.3	4.2
Real cost, 92 chained	18.7	17.3	17.5	17.7	17.9	18.1	18.3	18.5	18.7	18.9	19.1	19.3
percent change	17.3	-7.2	0.9	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Labor compensation per hour												
nonfarm business, 92=100	110.2	113.2	117.2	121.6	126.2	131.5	136.9	142.5	148.7	155.1	161.8	168.7
percent change	3.2	2.7	3.6	3.7	3.8	4.2	4.1	4.1	4.3	4.3	4.3	4.3
Interest rates, percent												
3 month T-bills	5.0	5.2	5.5	5.6	5.5	5.3	5.5	5.5	5.7	5.8	6.3	5.8
6 month comm. paper	5.4	5.6	6.0	6.1	6.0	5.8	6.0	6.0	6.1	6.4	6.6	6.4
Bank prime rate	8.3	8.5	8.8	8.8	8.6	8.3	8.3	8.3	8.4	8.6	8.9	8.5
Treasury bonds	6.4	6.6	6.8	7.0	7.2	7.1	7.3	7.3	7.4	7.5	7.3	7.2
Moody's Aaa bonds	7.4	7.5	7.7	7.8	8.0	7.9	7.9	8.0	8.1	8.2	8.2	8.0
Civilian unemployment												
rate, percent	5.4	5.0	5.0	5.2	5.3	5.3	5.3	5.0	5.1	5.1	5.1	5.3
Nonfarm payroll emp., mil	119.5	121.3	122.0	123.1	124.5	126.2	127.8	129.2	130.5	131.8	132.7	133.6
percent change	2.0	1.5	0.6	0.9	1.2	1.4	1.3	1.1	1.0	1.0	0.7	0.6
Total population, mil	265.6	267.8	270.3	272.7	275.2	277.6	280.0	282.4	284.7	287.1	289.5	291.9

Note: All real variables measured in billions of chained 1992 dollars; nominal variables in billions of current dollars. The macroeconomic assumptions were completed in September 1997.

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Table 1. U.S. macroeconomic baseline assumptions, continued

Item	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
International indicators												
Real GDP growth in OECD countries less U.S.												
Percent change	1.7	2.4	2.4	2.3	2.5	2.4	2.3	2.2	2.2	2.2	2.2	2.2
Private consumption deflator OECD less U.S.												
Percent change	1.7	1.8	2.2	2.3	2.4	2.5	2.6	2.6	2.6	2.7	2.7	2.8
Exchange rates, Federal Reserve index												
Nominal (March 1973=100)	87.1	96.9	97.3	98.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
Real (March 1973=100)	83.1	92.8	93.5	94.8	87.9	88.7	89.3	89.7	90.1	90.4	90.4	90.4
U.S. National Accounts												
Final sales												
Real	6,903	7,147	7,327	7,476	7,675	7,872	8,069	8,271	8,478	8,688	8,892	9,097
percent change	2.8	3.5	2.5	2.0	2.7	2.6	2.5	2.5	2.5	2.5	2.3	2.3
Consumer spending												
Nominal	5,207	5,480	5,763	6,040	6,393	6,783	7,186	7,597	8,022	8,475	8,916	9,406
Real	4,714	4,852	4,978	5,065	5,191	5,330	5,468	5,605	5,743	5,887	6,013	6,145
percent change	2.6	2.9	2.6	1.7	2.5	2.7	2.6	2.5	2.5	2.5	2.1	2.2
Real per capita, 1992 dollars	17,749	18,116	18,417	18,570	18,862	19,201	19,530	19,849	20,170	20,503	20,769	21,052
percent change	1.6	2.1	1.7	0.8	1.6	1.8	1.7	1.6	1.6	1.7	1.3	1.4
Investment, real	1,069	1,189	1,229	1,292	1,327	1,375	1,421	1,469	1,521	1,571	1,626	1,676
Fixed	1,042	1,168	1,220	1,262	1,301	1,343	1,391	1,437	1,488	1,538	1,594	1,649
percent change	8.3	12.1	4.5	3.5	3.0	3.2	3.6	3.3	3.6	3.3	3.7	3.4
Business inventory change	26	21	9	30	26	32	30	32	32	33	32	27
Exports												
Nominal	871	982	1,056	1,123	1,233	1,334	1,432	1,533	1,649	1,778	1,918	2,065
Real	857	958	1,026	1,080	1,171	1,250	1,325	1,400	1,481	1,569	1,662	1,758
percent change	8.3	2.1	4.7	5.3	8.5	6.7	6.0	5.7	5.8	5.9	6.0	5.8
Imports												
Nominal	966	1,115	1,215	1,275	1,364	1,462	1,571	1,680	1,799	1,929	2,066	2,221
Real	971	1,109	1,190	1,227	1,287	1,351	1,422	1,491	1,567	1,649	1,733	1,824
percent change	9.1	14.1	7.3	3.1	4.9	5.0	5.2	4.9	5.1	5.2	5.1	5.2
Net exports												
Nominal	-95	-133	-159	-152	-131	-128	-139	-147	-149	-151	-148	-155
Real	-114	-151	-164	-147	-116	-101	-98	-92	-86	-80	-71	-66
Government spending, real	1,258	1,273	1,290	1,296	1,299	1,300	1,307	1,321	1,332	1,344	1,356	1,368
percent change	0.5	1.2	1.3	0.5	0.2	0.1	0.5	1.0	0.9	0.9	0.9	0.9
Federal	464	459	453	440	426	409	391	375	372	369	366	364
State and local	794	814	836	856	872	891	916	945	960	974	989	1,005
Other Variables												
Money supply, M2, billion dollars	3,811	4,002	4,201	4,424	4,654	4,901	5,160	5,434	5,722	6,025	6,344	6,681
percent change	4.7	5.0	4.7	5.3	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Chained Price indices, 92=100												
GDP	110.0	112.9	115.3	118.7	122.4	126.5	130.5	134.6	138.8	143.2	147.7	152.3
PCE	110.5	112.9	115.8	119.3	123.2	127.3	131.4	135.5	139.7	144.0	148.3	153.1
Exports	101.6	102.5	103.0	104.0	105.3	106.8	108.1	109.5	111.4	113.4	115.4	117.4
percent change	-1.8	0.8	0.5	1.0	1.2	1.4	1.3	1.3	1.7	1.8	1.8	1.8
Imports	99.4	100.5	102.1	103.9	106.0	108.2	110.5	112.6	114.8	117.0	119.2	121.7
percent change	-2.2	1.0	1.6	1.7	2.0	2.1	2.1	2.0	1.9	1.9	1.9	2.1

Note: All real variables measured in billions of chained 1992 dollars; nominal variables in billions of current dollars. The macroeconomic assumptions were completed in September 1997.

Table 2. Foreign real GDP baseline growth assumptions

Region/country	1995	1996	1997	1998	1999	2000	2001	Average 1990-1996	Average 1997-2001	Average 2002-2007
					Percent change					
World	2.4	3.0	3.2	3.0	3.0	3.3	3.3	2.3	3.2	3.2
less U.S.	2.5	3.0	3.1	3.4	3.4	3.6	3.6	2.4	3.4	3.6
Developed economies	2.0	2.4	2.7	2.5	2.4	2.6	2.5	2.0	2.5	2.4
United States	2.0	2.8	3.5	2.3	2.3	2.6	2.6	1.9	2.7	2.4
Canada	2.2	2.2	2.5	3.0	3.1	3.1	3.1	1.4	3.0	2.9
Japan	0.9	3.4	1.4	2.6	2.3	2.4	2.5	2.1	2.2	2.3
Australia	3.3	4.3	3.0	2.9	2.6	2.6	2.5	2.8	2.7	2.5
European Union-15	2.5	1.3	2.5	2.5	2.4	2.6	2.4	1.9	2.5	2.2
Transition economies	-3.1	-3.7	0.2	1.2	2.1	2.8	3.3	-6.9	1.9	3.5
Eastern Europe	5.2	4.6	4.9	5.1	4.0	4.2	4.2	-0.4	4.5	4.2
Czech Republic	5.0	4.2	4.9	5.1	3.6	3.6	3.6	-1.6	4.1	3.6
Hungary	1.5	1.4	3.9	5.1	4.1	4.1	4.1	-1.0	4.3	4.1
Poland	6.6	6.1	5.3	5.1	4.0	4.5	4.5	0.8	4.7	4.5
Former Soviet Union	-5.2	-6.1	-1.3	-0.1	1.4	2.3	2.9	-8.4	1.0	3.2
Russia	-4.0	-6.0	-1.0	0.0	1.5	2.5	3.0	-7.8	1.2	3.2
Ukraine	-11.8	-10.0	-5.0	-2.0	0.0	1.0	2.0	-11.6	-0.8	3.2
Other	-3.6	1.8	2.5	3.0	3.0	3.2	3.7	-7.4	3.1	3.4
Developing countries	4.4	5.6	5.4	5.0	5.2	5.5	5.6	5.1	5.3	5.5
Asia	8.2	7.3	6.5	6.5	6.4	6.6	6.7	7.8	6.5	6.6
East & Southeast Asia	8.8	7.7	6.9	6.7	6.6	6.9	7.0	8.6	6.8	6.8
China	10.7	10.0	9.0	8.9	8.8	8.7	8.6	10.8	8.8	8.2
Hong Kong	4.6	4.2	4.8	5.0	4.9	4.9	4.8	5.0	4.9	4.7
Korea	9.0	6.8	6.4	6.1	6.0	6.0	5.9	7.7	6.1	5.6
Taiwan	6.1	5.5	6.4	6.1	6.1	5.8	5.6	8.6	6.0	5.6
Indonesia	8.1	6.8	5.5	5.2	4.8	6.0	6.3	7.8	5.6	6.2
Malaysia	9.4	8.2	5.5	5.4	5.0	6.0	7.0	8.8	5.8	7.0
Philippines	4.8	5.5	5.0	5.0	5.0	5.0	5.0	2.8	5.0	5.0
Thailand	8.7	6.7	2.7	2.0	1.0	4.0	6.0	8.6	3.1	6.0
Vietnam	9.5	9.7	9.7	9.7	9.5	9.5	9.5	7.9	9.6	9.2
South Asia	5.8	5.5	4.9	5.5	5.6	5.5	5.5	4.7	5.4	5.4
India	6.1	5.7	5.0	5.7	5.7	5.6	5.6	4.8	5.5	5.5
Pakistan	4.4	4.4	4.4	4.8	5.3	5.3	5.3	4.6	5.0	5.3
Bangladesh	4.4	5.0	5.0	4.3	4.3	4.3	4.3	4.6	4.4	4.3
Latin America	-1.3	3.7	4.5	4.4	5.1	5.0	5.1	2.1	4.8	4.7
Caribbean & Central America	3.1	3.0	3.0	3.4	3.6	3.7	3.7	2.9	3.5	3.4
Mexico	-7.2	5.1	4.9	4.1	5.4	5.4	5.5	1.9	5.0	4.6
South America	1.0	3.3	4.3	4.6	5.1	4.9	4.9	2.2	4.8	4.8
Argentina	-4.6	4.4	5.2	4.9	4.8	4.6	4.9	4.4	4.9	4.9
Brazil	3.0	2.9	4.0	4.4	5.2	5.0	5.0	1.5	4.7	4.8
Other	4.1	1.4	3.8	4.3	4.7	4.8	4.8	3.5	4.5	4.4
Middle East	2.9	4.7	4.7	3.3	3.6	4.1	4.4	4.4	4.0	4.3
Iran	2.7	4.9	4.6	2.6	3.2	4.3	4.8	5.5	3.9	4.6
Iraq	1.5	42.0	16.7	4.3	4.4	4.4	4.4	-2.7	6.8	4.4
Saudi Arabia	-2.4	-0.1	4.6	3.8	3.5	3.2	3.2	2.6	3.7	3.2
Turkey	6.8	3.0	3.8	4.8	4.8	4.5	4.5	4.1	4.5	4.4
Other	3.7	3.7	3.7	3.7	3.7	3.7	3.7	6.4	3.7	3.7
Africa	3.0	3.5	3.2	3.3	3.6	3.6	3.6	1.9	3.5	3.6
North Africa	2.2	5.0	4.1	4.2	4.2	4.2	4.2	2.0	4.2	4.1
Algeria	4.3	4.6	2.8	2.8	2.8	2.8	2.8	0.9	2.8	2.8
Egypt	4.2	5.2	5.0	5.3	5.0	5.1	4.9	2.6	5.1	4.4
Morocco	-5.0	5.0	4.8	5.0	5.1	5.1	5.1	2.3	5.0	5.1
Tunisia	3.2	6.1	5.6	5.6	5.6	5.6	5.6	5.1	5.6	5.6
Sub-Saharan Africa	3.5	2.0	2.9	2.7	3.0	3.0	3.0	2.9	2.9	3.0
South Africa	3.4	3.2	2.3	2.8	3.5	3.5	3.5	0.8	3.1	3.5

Sources: DRI; Project LINK; Economic Research Service, U.S. Department of Agriculture. The macroeconomic assumptions were completed in September 1997.

Table 3. Baseline population growth assumptions

Region/country	1995	1996	1997	1998	1999	2000	2001	Average 1990-1996	Average 1997-2001	Average 2002-2007
					Percent change					
World	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.5	1.4	1.2
less U.S.	1.5	1.4	1.4	1.4	1.4	1.4	1.3	1.5	1.4	1.3
Developed Economies	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5
United States	1.0	0.9	0.8	0.9	0.9	0.9	0.9	1.0	0.9	0.8
Canada	1.2	1.1	1.0	1.0	1.0	0.9	0.9	1.3	1.0	0.8
Japan	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.1
Australia	1.0	1.0	1.0	0.9	0.9	0.9	0.9	1.2	0.9	0.8
European Union-15	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.2
Transition Economies	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.1	0.2	0.3
Eastern Europe	-0.2	-0.2	-0.1	0.0	0.1	0.2	0.3	-0.2	0.1	0.2
Czech Republic	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.0	0.1	0.1
Hungary	-0.7	-0.7	-0.7	-0.6	-0.5	-0.4	-0.3	-0.6	-0.5	-0.3
Poland	0.2	0.1	0.1	0.2	0.3	0.3	0.4	0.3	0.3	0.4
Former Soviet Union	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.3	0.2	0.4
Russia	0.0	-0.1	-0.1	-0.1	0.0	0.1	0.1	0.1	0.0	0.1
Ukraine	-0.5	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	-0.2	-0.2	-0.1
Other	0.5	0.5	0.6	0.7	0.8	0.9	1.0	0.9	0.8	1.0
Developing countries	1.7	1.7	1.7	1.6	1.6	1.6	1.5	1.8	1.6	1.5
Asia	1.5	1.5	1.4	1.4	1.4	1.3	1.3	1.6	1.4	1.2
East & Southeast Asia	1.2	1.2	1.1	1.1	1.1	1.0	1.0	1.3	1.1	0.9
China	1.0	1.0	1.0	0.9	0.9	0.8	0.8	1.1	0.9	0.7
Hong Kong	2.1	1.9	1.7	1.5	1.4	1.2	1.2	1.6	1.4	1.0
Korea	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	1.0	0.8
Taiwan	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.9	0.9	0.8
Indonesia	1.6	1.5	1.5	1.5	1.5	1.5	1.4	1.6	1.5	1.3
Malaysia	2.2	2.1	2.1	2.0	2.0	1.9	1.9	2.2	2.0	1.8
Philippines	2.3	2.2	2.2	2.1	2.1	2.0	2.0	2.3	2.1	1.9
Thailand	1.1	1.0	1.0	1.0	1.0	0.9	0.9	1.2	1.0	0.8
Vietnam	1.7	1.6	1.6	1.5	1.4	1.3	1.3	1.9	1.4	1.2
South Asia	1.8	1.8	1.8	1.7	1.7	1.7	1.6	1.9	1.7	1.5
India	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.8	1.5	1.4
Pakistan	2.7	2.7	2.8	2.8	2.8	2.7	2.7	2.8	2.7	2.6
Bangladesh	1.9	1.9	1.9	1.8	1.8	1.7	1.7	1.9	1.8	1.5
Latin America	1.6	1.5	1.5	1.5	1.4	1.4	1.3	1.7	1.4	1.2
Caribbean & Central America	1.7	1.7	1.6	1.6	1.6	1.5	1.5	1.8	1.6	1.5
Mexico	1.9	1.9	1.9	1.8	1.8	1.8	1.7	2.0	1.8	1.6
South America	1.5	1.4	1.4	1.3	1.3	1.2	1.2	1.6	1.3	1.1
Argentina	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.1	1.0
Brazil	1.3	1.2	1.1	1.1	1.0	0.9	0.9	1.4	1.0	0.8
Other	1.9	1.8	1.8	1.7	1.7	1.6	1.6	2.0	1.7	1.5
Middle East	2.4	2.5	2.5	2.5	2.4	2.4	2.4	2.6	2.4	2.3
Iran	2.4	2.3	2.2	2.1	2.0	2.2	2.3	2.7	2.2	2.1
Iraq	2.3	2.5	2.8	2.9	3.0	3.0	2.9	2.3	2.9	2.8
Saudi Arabia	2.8	3.2	3.5	3.7	3.6	3.5	3.3	2.9	3.5	3.1
Turkey	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.7	1.5	1.3
Other	3.5	3.4	3.3	3.3	3.2	3.2	3.1	3.7	3.2	2.9
Africa	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.7	2.6	2.5
North Africa	2.1	2.0	2.0	2.0	1.9	1.9	1.9	2.2	1.9	1.8
Algeria	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.4	2.1	2.0
Egypt	2.0	1.9	1.9	1.9	1.8	1.8	1.8	2.2	1.8	1.7
Morocco	2.1	2.1	2.1	2.0	2.0	1.9	1.9	2.2	2.0	1.8
Tunisia	1.9	1.8	1.8	1.8	1.7	1.7	1.7	1.9	1.7	1.6
Sub-Saharan Africa	2.9	2.9	2.8	2.8	2.8	2.8	2.8	2.9	2.8	2.8
South Africa	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.1

Sources: U.S. Department of Commerce, Bureau of the Census; United Nations. The population assumptions were completed in August 1997.

Agricultural Policy Assumptions

Baseline projections assume a continuation of agricultural legislation and policy decisions as of November 1997. The baseline reflects provisions of the Federal Agriculture Improvement and Reform Act of 1996 (1996 Farm Act), which was signed into law on April 4, 1996. The baseline also reflects applicable provisions of the Agricultural Adjustment Act of 1938, the Agricultural Act of 1949, the Omnibus Budget Reconciliation Act of 1990, the Omnibus Budget Reconciliation Act of 1993, the 1997 Agriculture Appropriations Act, the FY 1997 Emergency Supplemental Appropriations Act, and the FY 1998 Agriculture Appropriations Act.

The 1996 Farm Act fundamentally redesigned income support programs and discontinued supply management programs for producers of major field crops. The new law replaced a system of deficiency payments for wheat, corn, grain sorghum, barley, oats, rice, and upland cotton with a system of fixed production flexibility contract payments that are largely decoupled, since there is virtually no link between payments and current plantings. The 1996 Farm Act expanded planting flexibility and let authority expire for Acreage Reduction Programs (ARPs) and 0,50/85-92 provisions.

Dairy policy changes include the phaseout of price supports and the consolidation and reform of milk marketing orders. The 1996 Farm Act altered the sugar and peanut programs, eliminated the rye loan program, and repealed the honey program. It also reauthorized the Conservation Reserve Program and reduced Export Enhancement Program (EEP) funding.

Programs for Contract Crops and Oilseeds

The 1996 Farm Act fundamentally changed U.S. agricultural programs by eliminating supply management, increasing planting flexibility, and changing income supports for "contract crops" (wheat, corn, grain sorghum, barley, oats, rice, and upland cotton).

Planting Flexibility

Planting flexibility increased under the 1996 Farm Act. Participating producers are permitted to plant 100 percent of their contract acreage plus any other cropland acreage on the farm to any crop (with limitations on fruits and vegetables) with no loss in payments, as long as the producer does not violate conservation and wetland provisions. Haying and grazing restrictions and minimum planting requirements of previous legislation have been eliminated on contract acres.

Planting for harvest of fruits and vegetables (other than lentils, mung beans, and dry peas) is prohibited on contract acreage, except in the following situations:

- Harvesting double-cropped fruits and vegetables on contract acreage is permitted, without loss of payments, in any region which has a history of double-cropping contract commodities with fruits and vegetables. An individual farm need not have a double-cropping history, only the region.

- Harvesting of any fruits or vegetables on contract acreage is permitted, with an acre-for-acre loss of contract payments for each contract acre planted to fruits and vegetables, if the Secretary determines that there is a history of planting fruits or vegetables on the farm.

- Harvesting a specific fruit or vegetable on contract acreage is permitted, with an acre-for-acre loss of contract payments for each contract acre planted to the specific fruit or vegetable, if the Secretary determines that the producer has an established planting history of the specific fruit or vegetable. In such a case, the quantity harvested cannot exceed the producer's average annual planting history of the specific fruit or vegetable during the 1991-1995 crop years, excluding any crop year with 0 acres planted.

Production Flexibility Contracts

The 1996 Farm Act changed income supports by replacing the annual target price/deficiency payment program with 7-year program of decoupled payments that are not related to most farm-level production decisions or market prices. To receive payments and be eligible for loans on contract commodities, a producer had to enter into a production flexibility contract (PFC) for 1996-2002 during the one-time enrollment period held in 1996. With exceptions for land exiting the Conservation Reserve Program (CRP), producers who did not enroll in the production flexibility contract program in 1996 are not eligible for program benefits. Eligible land leaving the CRP may be added to an existing PFC or enrolled in a new PFC at the beginning of a fiscal year.

The production flexibility contract requires the participating producer to comply with conservation, wetland, and planting flexibility provisions, as well as to keep the land in agricultural or related uses. A farm was eligible for a production flexibility contract only if it had at least one crop acreage base established for contract commodities that would have been in effect for the 1996 crop under previous farm law. Land eligible to enter into a contract included land enrolled in acreage reduction programs for any of the crop years 1991 through 1995, land considered planted under program rules (certified acreage), or land that had been enrolled in the CRP that had a crop acreage base associated with it. Farmers receive production flexibility contract payments for 7 years, 1996-2002. Payments are based on enrolled contract acreage and generally are not related to current plantings.

Cumulative outlays for contract payments for fiscal 1996-2002 are capped at slightly over $36 billion. Total contract payments will be lower, reflecting payment limitations. Production flexibility contracts are assumed to continue beyond 2002 in the baseline. The fiscal 2002 funding level for production flexibility contracts of $4.008 billion is assumed for subsequent years, as well.

Payment levels are allocated among contract commodities according to percentages specified in the 1996 Farm Act (see table 4). Adjustments were made in 1996 and 1997 for payments of previous years' deficiency payments that occur in those years and repayments of unearned deficiency payments that are due in those years. An additional adjustment is made to add $8.5 million annually to rice payments starting in fiscal 1997. This rice payment adjustment is also assumed in the baseline to continue beyond 2002.

Payment rates for each commodity are derived by dividing the commodity's total annual contract payments (before payment limitation reductions) by the corresponding total payment quantity on all enrolled acreage for the commodity (see table 5). Production flexibility contract payments to individual farmers are then based on the derived payment rate times the payment quantity on the farm.

Annual production flexibility contract payments are made no later than September 30 of each fiscal year. Starting in fiscal 1997, a 50-percent advance payment is made on either December 15 or January 15 of the fiscal year, at the option of the owner or producer. Owners and producers must give advance notice as to which date they prefer for the advance payment, and the date selected may change from year to year.

Annual contract payments under the 1996 Farm Act are limited to $40,000 per person (except for additional payments that result from repayment of prior-year advanced deficiency payments), a $10,000 reduction from the previous $50,000 limit on deficiency payments. Limits on marketing loan gains and loan deficiency payments are unchanged at $75,000 per person, per crop year, and the three-entity rule is retained.

Marketing Assistance Loans

The 1996 Farm Act retained nonrecourse commodity loans, in a modified form (see table 5). Loan rates for corn, wheat, and oilseeds continue to be based on 85 percent of the preceding 5-year average of farm prices, excluding the highest-price and lowest-price years. Upland cotton loan rates are based on the lower of 85 percent of the 5-year average price, excluding the highest-price and lowest-price years, of base quality cotton in designated U.S. spot markets, or 90 percent of the average price for the 5 lowest priced growths of Middling 1-3/32" cotton C.I.F. Northern Europe during a 15 week period starting July 1 each year, adjusted to a U.S. spot market equivalent.

Maximum loan rates are specified in the 1996 Farm Act for wheat, corn, upland cotton, soybeans, and minor oilseeds. Corn and wheat loan rates are capped at their 1995 levels, while loan rates for soybeans can vary between $4.92 (the 1995 level) and $5.26 per bushel, loan rates for minor oilseeds can vary between $8.70 and $9.30 per hundredweight, and loan rates for upland cotton can vary between $0.50 and $0.5192 a pound (the 1995 level). Corn and wheat loan rates may be adjusted downward based on estimated stocks-to-use ratios. Loan rates for sorghum, barley, and oats are set in relation to the corn loan rate, taking into account their feed values relative to corn as measured by ratios of 5-year lagged moving average prices relative to corn prices. The rice loan rate is frozen for the 1996-2002 crop years at its 1995 level of $6.50 per hundredweight.

Marketing loan provisions are retained, allowing the repayment of commodity loans at less than the loan rate when posted county prices (wheat, feed grains, and oilseeds) or world prices (upland cotton and rice) are below the loan rate. Also, loan deficiency payments may instead be made to eligible producers of wheat, feed grains, upland cotton, rice, and oilseeds who agree to forgo obtaining a loan, and thus the benefit of the lower marketing loan repayment, in return for an equivalent loan deficiency payment.

Cotton User Marketing Payments

Until October 1, 1998, if the lowest-priced U.S. growth of upland cotton quoted for delivery in northern Europe has exceeded the Northern Europe price by more than 1.25 cents per pound for 4 consecutive weeks, and if during the same 4-week period the Adjusted World Price (AWP) has not exceeded 130 percent of the base U.S. loan rate, and if the U.S. Northern Europe price has not exceeded the Northern Europe price by 1.25 cents in any of the prior 10 consecutive weeks, the Secretary shall make cash or certificate payments to domestic users and exporters on documented consumption or shipments during the fifth week at a payment rate equal to the difference between the U.S. Northern Europe price and the Northern Europe price, minus 1.25 cents, during the fourth week of the period. After September 30, 1998, such payments may be made as long as the AWP does not exceed 134 percent of the base loan rate and even though 10 consecutive weeks have passed in which the U.S. Northern Europe price exceeds the Northern Europe price by 1.25 cents. The 1996 Farm Act capped total expenditures for cotton user marketing certificates during fiscal years 1996-2002 at $701 million.

Programs for Price-Supported Commodities

The 1996 Farm Act also made program changes for dairy, sugar, and peanuts. The tobacco program was not included in the 1996 Farm Act. Benefits for producers of these commodities historically have been through price supports rather than through direct payments.

Dairy Program

Under the 1996 Farm Act, dairy price supports are phased down from $10.35 per hundredweight in 1996 to $9.90 in 1999, and the program ends on December 31, 1999. Starting January 1, 2000, a recourse loan program, in which loans must be repaid with interest, is implemented for butter, nonfat dry milk, and cheddar cheese at loan rates equivalent to $9.90 per hundredweight for milk to assist processors in the management of dairy product inventories. Also under the 1996 Farm Act, Federal milk marketing orders must be reformed and consolidated from the current 32 orders into 10-14 orders, reserving one order for California.

Sugar Program

The 1996 Farm Act froze the raw cane sugar loan rate at 18 cents per pound, the level in effect since the 1985 crop. The refined beet sugar loan rate was also fixed, at its 1995 level of 22.9 cents per pound. These levels are assumed in the baseline to continue through 2007.

Nonrecourse loans are available when the tariff-rate quota for sugar imports exceeds 1.5 million short tons. Sugar program loans are recourse in years when the tariff-rate quota is at or below 1.5 million short tons, but such loans convert to nonrecourse loans if the tariff-rate quota is increased above 1.5 million short tons. Processors must pay a 1-cent fee on each pound of raw cane sugar and 1.07 cents on each pound of refined beet sugar forfeited to the CCC under a nonrecourse loan.

Sugar marketing assessments, paid on all processed, domestically-grown, sugar, were increased by 25 percent under the 1996 Farm Act. Assessments on raw cane sugar marketings are equal to 1.375 percent of the 18 cent loan rate, 0.2475 cents per pound. Assessments on refined beet sugar marketings are equal to 1.47425 percent of 18 cents, 0.2654 cents per pound.

Peanut Program

The 1996 Farm Act revised the peanut program. The minimum national poundage quota was eliminated, requiring the quota to be set equal to projected domestic edible and related uses. Producers are allocated an additional yearly quota equal to the number of pounds of seed planted on a farm. Carryover to subsequent years of undermarketings of quota from earlier years was eliminated in the 1996 Farm Act. Starting with the 1998 crop, public entities such as city governments and schools, will be ineligible for peanut quotas. The sale, lease, and transfer of quota is permitted across county lines within a state up specified amounts of quota annually. However, nonproducers may not hold a peanut farm poundage quota in a State if they reside in another State.

Marketing assessments for peanuts are set at 1.2 percent of the loan rate starting for the 1997 crop, shared by producers and purchasers. Marketing assessments must be increased to offset any program losses to the CCC.

The loan rate for quota peanuts is set at $610 per short ton in the 1996 Farm Act, down from $678 in 1995. At the farm level, quota marketings plus a seed peanut allocation are eligible for the quota price support loan rate. Above-quota "additionals" to be used for the crush and export markets receive a lower loan rate, $132 per ton for 1996 and 1997 crops, set by the Secretary to ensure no losses to the CCC.

Tobacco

The major provisions of the tobacco program are included in the Agricultural Adjustment Act of 1938, as amended; the No-Net-Cost Tobacco Program Act of 1982; and the Omnibus Budget Reconciliation Act of 1993. The tobacco program was not included in the 1996 Farm Act.

Tobacco marketing quotas and allotments continue, in accordance with the Agricultural Adjustment Act of 1938. Support for flue-cured and burley tobacco are based on statutory formulas that include a 5-year moving average of market prices and a cost-of-production index.

Imports of flue-cured, burley, and certain other tobaccos are covered by a tariff rate quota as authorized by GATT implementing legislation. A tobacco marketing assessment equal to 0.5 percent of the national price support level is assumed to be collected from both the producers and purchasers. Additionally, assessments on tobacco imports are assumed.

Major Conservation Provisions

The 1996 Farm Act addressed a wide range of environmental and conservation programs. Many conservation programs were simplified to make them more consistent and workable. The Environmental Conservation Acreage Reserve Program (ECARP) was established to include the Conservation Reserve Program (CRP), the Wetland Reserve Program (WRP), and the Environmental Quality Incentives Program (EQIP).

Conservation Reserve Program

The Conservation Reserve Program (CRP) was reauthorized in the 1996 Farm Act. Maximum CRP enrollment is set at 36.4 million acres. Over 20 million acres of CRP contracts expired in 1997. For 1998, the CRP is assumed to have more than 32 million acres enrolled. About 28 million acres were in the CRP in October 1997 as enrollments from Signup 15 and the CRP continuous signup offset part of the reduction from contract expirations. Additional CRP acreage assumed for 1998 reflects continuous signup and some of the acreage accepted for the program from Signup 16. For Signup 16, held from October 14 through November 14, 1997, new CRP contracts for acreage previously under contracts that expired on September 30, 1997 may become effective the month following the date of contract approval, thus allowing some CRP entry for 1998.

Enrollments in subsequent years are assumed in the baseline to increase the CRP to 36.4 million acres by 2001 (see table 6). Authority to sign up and enroll acreage in the CRP is assumed to be extended after 2002 to maintain CRP acreage at 36.4 million acres. Two allocations of the CRP to specific crops are provided in table 6. The cropping history allocation reflects crops grown in 1996 on farms with CRP acreage. This CRP allocation is useful for assessing the general effects of the CRP on land availability for plantings. The second crop-specific allocation of the CRP shown in table 6 indicates potential production flexibility contract acreage for crops eligible for those contracts. Land leaving the CRP is eligible to be enrolled in production flexibility contracts if that land previously had an acreage base. This second allocation of CRP acreage is used in adjusting production flexibility contract acreage for year-to-year changes in the CRP and, therefore, affects production flexibility contract payment rates.

New enrollments in the CRP reflect periodic regular signups, continuous signup for certain highly valued environmental practices, and State Conservation Reserve Enhancement Programs, such as recently announced for Maryland. The Conservation Reserve Enhancement Program coordinates the CRP with conservation goals and funding commitments of individual State governments. States accepted for participation in the program provide resources to supplement the financial incentives and/or technical assistance for the establishment of conservation practices or the purchase of permanent easements. Acreage enrolled under the Conservation Reserve Enhancement Program is assumed to be included within the continuous and regular signup acres. CRP acreage also contributes to the USDA Conservation Buffer Initiative, which is estimated to enroll 4 million acres.

Enrollment of new and expiring CRP acreage is assumed in the baseline to continue to be guided by the eligibility and selection criteria process in the final rule announced February 12, 1997. CRP enrollment selection is based on an environmental benefits index that takes government costs into consideration. The environmental benefits index includes soil erosion, water quality, wildlife habitat, enduring environmental benefits beyond the CRP contract period, air quality, conservation priority areas, and costs.

A competitive selection process is used for CRP enrollments. Producers submit rental rate bids for land they would like to enroll (or re-enroll) in the CRP that compete with all other CRP enrollment bids for acceptance into the program. Maximum allowable CRP rental rates that the Government would consider for acceptance (bid caps) are determined based on local average dryland rental rates, adjusted for site-specific, soil-based productivity factors. These bid caps are available to producers in advance of their bid submissions. By submitting a bid lower than the land's bid cap, a producer can improve the chance of acceptance of the CRP bid submission.

Other Conservation Programs

The Environmental Quality Incentives Program (EQIP) is authorized at $1.33 billion over 1996-2002 to provide technical, educational, and cost-share assistance and incentive payments to crop and livestock producers in implementing structural and management practices to protect soil and water resources. At least half of the fund must be allocated to livestock practices. EQIP is to be operated to maximize the environmental benefits per dollar spent.

The Wetlands Reserve Program (WRP) will have an enrollment cap of 975,000 acres. Program changes provide more flexibility and help landowners work toward a goal of no net loss of wetlands. One-third of total program acres are to be enrolled in permanent easements, one-third in 30-year easements, and one-third in restoration only, cost-share agreements. Individuals may choose the category for their eligible land. Effective October 1, 1996, no new permanent easements may be enrolled until at least 75,000 acres of temporary easements have entered the program. The FY 1997 Agriculture Appropriations Act revised this requirement for enrollment of temporary easements to 43,333 acres. That Act also limited new enrollment to 130,000 acres in fiscal year 1997, but allowed additional acreage to be enrolled in the program to the extent non-Federal funds available to the Secretary are used to fully compensate for the cost of additional enrollments.

Major Trade Programs

Trade and food aid programs in the 1996 Farm Act are focused more heavily on market development, including an emphasis in some programs on emerging markets with high potential for U.S. export growth.

Total EEP funding during fiscal 1996-99 was reduced in the 1996 Farm Act by more than $1.6 billion below the maximum levels permitted under the Uruguay Round agreement. However, there were no EEP expenditures in FY 1997 and, since the EEP program is not currently being used, the baseline assumes that no EEP expenditures occur in fiscal 1998. Starting in FY 1999,

EEP expenditures are assumed to resume in the baseline. EEP funding is assumed at a 5-year total of almost $1.2 billion for FY 1999 through FY 2003. Annual funding during those years is assumed to be determined by USDA administrative discretion, subject to a $320 million limitation in FY 1999. Funding not used in one year is assumed to remain available for use in a subsequent year, although annual EEP expenditures would still be limited by the maximum yearly levels permitted under the Uruguay Round agreement.

The Dairy Export Incentive Program (DEIP) was extended in the 1996 Farm Act and its program objective was expanded to emphasize market development. DEIP estimates of the quantity of dairy products exported and associated expenditures are formulated in the baseline within the maximum allowable expenditure and quantity levels of the Uruguay Round agreement.

The 1996 Farm Act mandates annual program levels of $5.5 billion for GSM-102 and GSM-103 credit guarantee programs, but allows flexibility in determining how much is available for each program. Under the 1996 Farm Act, an additional $1 billion for fiscal 1996-2002 is provided for emerging market countries, assumed in the baseline at $200 million a year over 1998-2002, bringing total available annual funding to $5.7 billion. However, fiscal 1997 obligations were $2.9 billion. New obligations for subsequent years are assumed to also be lower than available annual funding, with $5.0 billion assumed for fiscal 1998 and $4.615 billion assumed annually for fiscal 1999 and later years. These assumptions for new obligations are based on forecast economic and market conditions and the expected supply/demand conditions of the countries to which GSM credit guarantees will be made available.

The Market Promotion Program was renamed the Market Access Program in the 1996 Farm Act. Funding authority was capped at $90 million annually for fiscal 1996-2002, and is assumed to remain at that level in later years.

The 1996 Farm Act authorizes P.L. 480, Title I agreements with private entities in addition to foreign governments. Other changes broaden the range of commodities available for P.L. 480 programs, provide greater program flexibility, and improve the operation and administration of the program. P.L. 480 program levels assumed in the baseline for fiscal 1998 are $226.9 million for Title I Credit, $17.608 million for Title I Ocean Freight Differential, $837 million for Title II, and $30 million for Title III. For fiscal 1999 and subsequent years, P.L. 480 program levels for Title I Credit and Title I Ocean Freight Differential are assumed to be constant in nominal dollars at $102.163 million and $9.395 million, respectively. Title II and Title III program levels are held constant at $837 million and $30 million, respectively, for fiscal 1999, but then are assumed to grow about 2.1 percent annually for the rest of the baseline.

The Food Security Commodity Reserve, formerly the Food Security Wheat Reserve, is authorized for up to 4 million metric tons of grain to meet humanitarian food aid needs and was expanded to include rice, corn, and sorghum in addition to wheat. The 1996 Farm Act authorizes replenishment of the reserve, but does not set a specific time for replenishment. Also, funds for any commodity purchases for replenishment must be authorized in an appropriations Act. The baseline assumes that funds for replenishment of the reserve through commodity purchases will not be appropriated. The 1996 Farm Act raised the existing 300,000-ton release authority for

urgent humanitarian relief in disasters to 500,000 metric tons in the case of unanticipated need and allows for the release of an additional 500,000 metric tons of eligible commodities that could have been released but were not released in previous years. The Secretary is authorized to release eligible commodities from the reserve when supplies are so limited that eligible commodities cannot be made available for programming under P.L. 480.

Other Agricultural Policy Assumptions

- *Ethanol tax credit.* The federal tax credit for ethanol use is assumed to be extended beyond 2000 in the baseline. However, uncertainty in the passage of this extension is assumed to delay long-term investment into expansion in the industry.

- *Bilateral and Multilateral Agreements*. The baseline assumes full compliance with all bilateral and multilateral agreements affecting agriculture and agricultural trade. Examples include full compliance with internal support, market access, and export subsidy provisions of the Uruguay Round Agreement.

- *World Trade Organization*. The baseline assumes no accession to the WTO by the former Soviet Union, China, or Taiwan.

- *EU Enlargement*. The baseline assumes no enlargement of the EU-15.

- *Asia-Pacific Economic Cooperation*. No implementation of more liberalized trade among the APEC countries is assumed.

- *North American Free Trade Agreement*. No expansion of NAFTA to include additional countries is assumed.

- *Export Subsidy Carryover Credit*. The baseline assumes no carryover of unused, GATT-permitted export subsidies to later years.

- *Other Agricultural Policy Trends*. Agricultural and trade policies in individual foreign countries are assumed to continue to evolve along their current paths. In particular, the process of liberalizing economic and trade policies underway in many developing countries is assumed to continue.

Table 4. Production flexibility contract payments under the 1996 Farm Act

Commodity	Commodity share	1996	1997	1998	1999	2000	2001	2002
	Percent				*Million dollars*			
1996 Farm Act gross contract payments								
Wheat	26.26	1,463	1,414	1,523	1,471	1,347	1,085	1,053
Corn	46.22	2,574	2,489	2,681	2,590	2,371	1,909	1,852
Sorghum	5.11	285	275	296	286	262	211	205
Barley	2.16	120	116	125	121	111	89	87
Oats	0.15	8	8	9	8	8	6	6
Upland cotton	11.63	648	626	675	652	597	480	466
Rice	8.47	472	456	491	475	435	350	339
Total payments, unadjusted		5,570	5,385	5,800	5,603	5,130	4,130	4,008
Adjusted contract payments, before payment limitations 1/								
Wheat		1,976	1,426	1,523	1,471	1,347	1,085	1,053
Corn		1,771	3,434	2,681	2,590	2,371	1,909	1,852
Sorghum		206	347	296	286	262	211	205
Barley		140	117	125	121	111	89	87
Oats		9	8	9	8	8	6	6
Upland cotton		746	639	675	652	597	480	466
Rice 2/		472	461	500	483	443	358	348
Total adjusted payments		5,321	6,433	5,809	5,612	5,139	4,139	4,017
Projected contract payments after payment limitations and other adjustments								
Wheat		1,941	1,397	1,503	1,452	1,329	1,070	1,038
Corn		1,745	3,385	2,651	2,561	2,345	1,888	1,832
Sorghum		201	338	290	280	257	207	200
Barley		137	113	122	118	108	87	84
Oats		9	8	9	8	8	6	6
Upland cotton		699	598	646	624	571	460	446
Rice		455	448	485	469	430	348	338
Total payments		5,187	6,288	5,705	5,512	5,047	4,065	3,945

1/ Adjusted for prior-year earned deficiency payments paid in these years, repayments of unearned 1995 deficiency payments, and repayments of prior-year PFC payments. These adjusted contract payments are used for payment rate calculations.
2/ 1996 Farm Act includes additional rice payments of $8.5 million annually, FY 1997 through FY 2002.

Table 5. Summary baseline policy variables

	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Marketing assistance loan rates (Dollars per unit)												
Corn	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89
Sorghum	1.81	1.76	1.74	1.73	1.71	1.67	1.68	1.68	1.70	1.72	1.74	1.76
Barley	1.55	1.57	1.56	1.59	1.59	1.59	1.55	1.56	1.56	1.55	1.56	1.56
Oats	1.03	1.11	1.10	1.13	1.16	1.21	1.17	1.17	1.16	1.15	1.15	1.14
Wheat	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58
Rice	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Upland cotton	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192
Soybeans	4.97	5.26	5.26	5.26	5.26	5.13	5.10	5.10	5.26	5.26	5.26	5.26
Production flexibility contract payment rates (Dollars per unit)												
Corn	0.25	0.49	0.37	0.36	0.33	0.27	0.26	0.26	0.26	0.26	0.26	0.26
Sorghum	0.32	0.54	0.45	0.43	0.40	0.32	0.31	0.31	0.31	0.31	0.31	0.31
Barley	0.33	0.28	0.28	0.27	0.25	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Oats	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Wheat	0.87	0.63	0.66	0.64	0.58	0.47	0.46	0.46	0.46	0.46	0.46	0.46
Rice	2.77	2.71	2.94	2.84	2.60	2.10	2.04	2.04	2.04	2.04	2.04	2.04
Upland cotton	0.089	0.076	0.079	0.077	0.070	0.057	0.055	0.055	0.055	0.055	0.055	0.055
Production flexibility contract payments (Dollars per PFC acre, average)												
Corn	21.94	42.44	32.63	31.45	28.74	23.12	22.40	22.35	22.35	22.35	22.33	22.32
Sorghum	15.76	26.48	21.43	20.87	19.18	15.47	15.02	15.03	15.03	15.03	15.03	15.04
Barley	13.34	11.09	11.25	10.88	9.91	8.00	7.77	7.79	7.79	7.79	7.79	7.79
Oats	1.42	1.33	1.35	1.30	1.18	0.95	0.92	0.92	0.92	0.92	0.91	0.91
Wheat	25.77	18.61	19.42	18.84	17.24	13.90	13.49	13.50	13.50	13.50	13.50	13.50
Rice	113.46	110.97	120.19	116.18	106.52	86.15	83.67	83.67	83.67	83.67	83.67	83.67
Upland cotton	46.06	39.42	40.81	39.60	36.41	29.32	28.44	28.39	28.39	28.39	28.37	28.37

Note: Units for marketing assistance loan rates and production flexibility payment rates are dollars per bushel except for upland cotton (per pound) and rice (per hundredweight).

Table 6. Conservation Reserve Program acreage assumptions

	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
						Million acres						
Cropping History 1/												
Corn	4.8	4.6	4.1	4.4	4.6	4.6	4.5	4.4	4.4	4.4	4.4	4.4
Sorghum	1.1	1.0	1.2	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Barley	0.8	0.7	0.8	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Oats	0.3	0.3	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Wheat	9.5	9.1	9.7	10.9	11.3	11.5	11.6	11.8	11.8	11.8	11.8	11.8
Upland cotton	1.1	1.0	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Soybeans	4.0	3.8	3.4	3.4	3.5	3.4	3.3	3.2	3.2	3.2	3.2	3.2
Subtotal	21.4	20.7	20.7	22.8	23.7	24.0	23.9	23.8	23.8	23.8	23.8	23.8
Fallow	3.0	2.8	3.5	3.7	4.2	4.3	4.4	4.4	4.4	4.4	4.4	4.4
Other	9.9	9.3	8.0	7.5	8.0	8.2	8.2	8.2	8.2	8.2	8.2	8.2
Total	34.3	32.8	32.2	34.0	35.9	36.4	36.4	36.4	36.4	36.4	36.4	36.4
Production Flexibility Contract Eligible Acreage 2/												
Corn	3.9	3.5	2.2	2.0	1.9	1.8	1.7	1.5	1.5	1.5	1.4	1.4
Sorghum	2.2	2.3	1.6	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Barley	2.6	2.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Oats	1.3	1.3	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Wheat	10.1	10.2	8.4	8.7	8.7	8.8	8.8	8.9	8.9	8.9	8.9	8.9
Upland cotton	1.4	1.4	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Total, PFC crops	21.5	21.2	16.3	16.6	16.4	16.6	16.4	16.2	16.2	16.2	16.2	16.2

1/ The cropping history allocation is based on 1996 plantings on farms with CRP acreage, and is used as a general indicator influencing land available for plantings.
2/ Acreage in the CRP eligible for production flexibility contracts when leaving the CRP. Yearly changes in this allocation affect acreage in production flexibility contracts and, therefore, are used in the determination of PFC payment rates.

Crops

The baseline assumes a continuation of the 1996 Farm Act through the entire projection period. The 1996 Farm Act accelerates trends of the 1985 Act and 1990 farm legislation toward greater market orientation. Income support was changed for wheat, corn, grain sorghum, barley, oats, rice, and upland cotton by replacing the target price/deficiency payment provisions of the previous legislation with production flexibility contract payments. Production flexibility contract payments decline over the next 5 years and then are assumed in the baseline to stay constant beyond 2002. Because these payments are unrelated to current production levels or prices, market returns play the primary role in determining what crops are planted. Planting flexibility is increased under the 1996 Farm Act since any crop may be planted on contract acreage, except for fruits and vegetables. Annual Acreage Reduction Programs (ARPs) were eliminated, further enhancing farmer flexibility in responding to market prices in cropping decisions. This increased planting flexibility facilitated the gain in total plantings and the shifts among crops seen in 1996 and 1997, the first 2 years under the new Act (see box, page 39).

Land Use

Total acreage planted to the eight major field crops (corn, soybeans, sorghum, barley, oats, wheat, rice, and upland cotton) rises from about 261 million acres in 1997 to over 270 million acres in 2007, with most of the change accounted for by corn and wheat (table 7). Harvested acreage for these eight crops is up from 242.5 million to 249.5 million acres over the same period. These increases in land use reflect the response of producers to higher prices and market returns, and the 1996 changes in farm policy which eliminated ARPs and the 0,50/85-92 programs. Total plantings of feed grains stay high due to continued large plantings of corn. Acreage planted to wheat increases by 4.5 million acres. Soybean planted acreage remains significantly higher than in the early 1990s. Rice plantings grow slowly from 3.1 million to 3.2 million acres by 2007. Upland cotton plantings increase marginally to 14 million acres by the end of the projection period.

The Conservation Reserve Program (CRP) is assumed to decline to about 32 million acres before rebuilding to over 36 million acres by 2001 (see CRP discussion, page 31, and table 6). Most land enrolled in the CRP is in areas traditionally planted to major field crops, thus limiting the response of planted acreage to rising prices and net returns.

Crop Supply and Demand Overview

The growth in total usage (domestic and exports) for the major field crops outstrips production increases, causing tighter stocks-to-use ratios with prices rising for all of the major field crops from 1999 to 2007. Although there is higher domestic utilization for the major field crops during the projection period, the biggest driver in demand growth is exports, especially for wheat and corn. Also, a substantial amount of acreage remains in the CRP, which tightens supplies.

U.S. Acreage Shifts Facilitated by 1996 Farm Act Planting Flexibility

In the first two seasons under 1996 Farm Act, U.S. farmers adjusted their planting decisions to take advantage of strong crop prices. In 1996, total acreage planted to principal crops rose more than 16 million acres to 334.4 million, with acreage in 1997 remaining nearly unchanged from the 1996 level.

The new farm law allows farmers more flexibility to respond to market price signals in their planting decisions. The eight major crops most affected by the change in policy are wheat, corn, sorghum, barley, oats, upland cotton, rice--all previously covered by supply management programs--and soybeans. Total plantings for these eight crops rose from 245.3 million acres in 1995 to 261.5 million in 1996, falling only slightly in 1997. These crops accounted for virtually all of the change in principal crop acreage during the past 2 years.

Farm legislation enacted in 1996 made important changes in the nature of government commodity programs, including supply management for major field crops. The 1996 Farm Act increased farmers' planting flexibility by eliminating acreage reduction programs (ARPs), base acreage planting requirements to maintain eligibility for program payments, and limits on flex acreage that farmers could plant to other crops.

This increased planting flexibility has facilitated producers' ability to adjust both total land use and the cropping mix over the past two years. Increased total acreage reflects the supply response to higher absolute prices. In addition, a change in the mix of planted crops is a response to changes in relative prices among the crops, combined with some year-specific weather-related events.

Under a continuation of previous farm law, higher prices in 1996 and 1997 would have brought additional land into production from previously idled acres, and 25-percent planting flexibility would have allowed switching among crops (15 percent "normal" flex acres and 10 percent optional). However, base acreage considerations, limited flexibility, and ARPs would likely have constrained acreage adjustments farmers could have made in response to the large runup in prices and to the price relationships among crops.

By removing the base acreage planting constraints and flexibility limitations of previous farm law, the 1996 Farm Act permits a faster supply response to the economic incentives provided by absolute and relative price movements. Greater ability of producers to respond to signals from the marketplace results in agricultural production being economically more efficient.

The significant gain in the 1996 aggregate acreage planted to major field crops was largely due to higher prices for most major field crops, combined with commodity program changes that

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U.S. Acreage Shifts Facilitated by 1996 Farm Act Planting Flexibility, Continued

increased planting flexibility. Some of the 1996 acreage increase resulted from double counting of failed winter wheat land that was replanted to alternative spring-planted crops. In 1997, total plantings remained near the 1996 level, but a new set of relative prices led to a different mix of crops planted.

Land idled in 1995 likely provided much of the acreage gains during the past 2 years, brought into use in response to high price incentives. In 1995, the last year under the previous farm law, nearly 5 million acres had been idled under corn and rice ARP requirements. Flex acreage voluntarily left idle by farmers accounted for an additional 5 million acres. Another 13.6 million acres had been idled under voluntary 0,50/85-92 programs.

Within the higher acreage total of the last 2 years, changes in the mix of crops planted have resulted from relative price shifts among various crops combined with year-specific weather-related events. Large acreage shifts to corn and spring wheat in 1996 and to soybeans in 1997 reflected price incentives that favored planting those crops rather than competing crops, as well as some weather-induced planting adjustments. Nearly complete planting flexibility of the 1996 Farm Act helped in attaining these cropping shifts.

Feed grain production rises through 2007, primarily reflecting increasing acreage and yields for corn. Larger livestock and poultry inventories boost feed use, while food, seed, and industrial (FSI) use increases mainly due to higher corn sweetener and ethanol use. Feed grain exports, primarily corn, show the strongest growth. Higher global incomes, diet diversification, and trade liberalization resulting from both the GATT agreement and ongoing unilateral policy reforms in developing countries raise feed grain exports.

Competition with corn for cropland limits soybean acreage in the baseline with area gains largely occurring because of greater double-cropping with wheat. However, soybean production is enhanced by higher projected yield growth because of increased narrow-row planting and greater use of herbicide-tolerant soybeans. Rising global import demand increases soybean exports during the baseline but greater domestic crushings and a relatively fixed resource base constrain exportable supplies, allowing U.S. competitors to capture a greater share of world soybean exports.

Greater flexibility in planting choices permitted under the 1996 Farm Act permits wheat production to expand in order to meet increases in wheat demand, particularly in domestic and international food markets. Beginning in 2000, increasing wheat prices and producer returns draw more land into wheat. However, the large amount of land enrolled in the CRP from areas that have traditionally been planted to wheat, combined with relatively stronger prices for other crops, limits the response of planted acreage to rising wheat prices. Growth in per capita food consumption of wheat in the United States continues but at a slower rate than recent years. U.S. wheat exports rise steadily over the projection period but face greater EU competition after 2001

because strong international wheat prices allow the EU to export wheat without subsidies, thus resulting in EU wheat exports higher than its quantity limits on subsidized wheat exports in the GATT agreement.

Unlike feed grains and wheat, domestic use of rice increases more than exports over the baseline. Domestic food use of rice continues to grow because of greater emphasis on healthier life styles and increasing Asian and Latin American populations in the Unites States, keeping demand strong. Continued strong U.S. and world rice prices are expected to result in a small, but steady, expansion in U.S. rice acreage through 2007. However, competition from other crops for land as well as the provisions of the 1996 Farm Act that allow producers almost total planting flexibility are responsible for preventing rice acreage rising to higher levels. The combination of modest increases in U.S. rice production matched by strong growth in domestic demand for high quality U.S. rice results in an increasing differential between domestic rice prices and those of key competitors. This makes U.S. rice exports less competitive in some international markets, limiting the expansion in exports in the baseline.

Upland cotton production rises in response to increases in domestic mill use and exports as the Uruguay Round agreement improves market access and expands global trade. Domestic mill use rises slightly over 1 percent annually despite the easing of restrictions on textile quotas and greater competition from man-made fibers. Although significant increases in textile imports are expected, largely in the form of apparel, greater U.S. exports of cotton yarn, fabric, and semi-finished products will promote growth in mill use. U.S. exports of upland cotton increase 15 percent by the end of the baseline, maintaining a 25-26 percent share of a growing global market.

Sugar production rises in the baseline, led by gains in beet sugar production. Beet sugar rises from 56 percent of domestic sugar production in 1998 to 58 percent in 2007. Per capita sugar use rises about 2.5 pounds per person in the baseline, with growth slowing from recent years due to continued substitution of other sweeteners. Grower prices for sugar beets and sugarcane show little change in the baseline. Sugar imports are projected to remain above the level of 1.5 million tons necessary to assure nonrecourse loan price support. However, normal production variations could lead to a Tariff Rate Quota on sugar imports at or below 1.5 million tons in some years, with the sugar loan program offering recourse loans.

Tobacco production generally declines after 1997 due to reduced domestic disappearance and declining leaf exports. Domestic use falls as cigarette exports stabilize and domestic consumption continues its long-term decline due to higher taxes, increased regulation limiting smoking and sales, and heightened awareness of links between smoking and various diseases. Leaf exports decline due to the price and quality competitiveness of foreign producers.

The farm value of U.S. horticultural crop production increases about 6 percent in 1998, followed by 3 to 4 percent annual gains for the rest of the baseline. Production of fresh vegetables is up about 1 percent annually from 1998 to 2007, which, combined with higher imports, allows per capita fresh vegetable consumption to increase. Per capita consumption of fresh noncitrus fruits,

New Crop Technology and Implications for the Baseline

Many new developments in crop technology are beginning to reach the marketplace that could have significant impacts on agriculture, both in the United States and overseas. The recent brisk pace of innovation is expected to continue and possibly accelerate over the next decade, reflecting sizable research investments and breakthroughs facilitated by biotechnology[1].

New technology could lead to many changes over time, but it is still too early to be able to quantify them for these projections. However, there is potential for a wide range of economic effects on the crop and livestock sectors. Impacts on productivity and input use could alter unit production costs and producer returns. If substantial enough, these economic impacts could alter the cropping mix as well as the supply, demand, and price outcomes from those projected in this baseline. Additionally, a growing emphasis on end-use characteristics implies changes in the traditional marketing system in the field crop sector, including more identity preservation and more contracting. New technologies may also have environmental benefits, such as reduced chemical use and more efficient animal feeding.

New technology can be broadly characterized in two categories. First, there are those that generally reduce input use. The major products to date are insect resistant Bt corn and Bt cotton, derived from the soil bacterium Bacillus thuringiensis (Bt), and herbicide resistant soybeans (Roundup Ready™), all developed through biotechnology. Second, there are crops with enhanced value traits designed for specific end uses, that have mainly been developed through conventional breeding and research. These include products such as high oil corn, hard endosperm corn, food grade soybeans, and soybeans with a lower fatty acid profile. The distinction between these technology categories is expected to become blurred over time due to gene stacking and the use of biotechnology in conjunction with high-value traits.

Production Issues

Adoption. U.S. farmers are expected to be highly receptive to new technology, particularly given their widespread interest in gaining more value for their products and mitigating risk. Farmers overseas will also use much of this technology, although the products and adoption rates may be different. Adoption of some of the first new varieties, such as Roundup Ready™ soybeans, has been quick despite the extra cost of the seed. Farmers will readily pay premiums for the technology if the benefits are perceived to outweigh the costs.

Early indications of the effects of many of the new technologies are favorable, although their adoption is not without risk. Performance of the new technologies under stress conditions, such as a drought, is an unknown that could influence future adoption rates along with the sustained performance over time. In addition, changing market conditions could be a factor, if higher production were to lead to a lower price premium for some end traits, for example.

Yield Effects. Most new technologies introduced so far have not been explicitly aimed at increasing yields. However, technology may have yield effects, both positive and negative, not just from developments in genetics, but from associated changes in management demands. Some of the new products will effectively boost yields by cutting losses to pests or weeds, protecting yield potential already present in the crop. Benefits will vary from year to year and over different locations depending on environmental factors such as the amount of pest infestation.

[1]Products from biotechnology are also referred to as transgenic and genetically modified organisms (GMO's) .

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New Crop Technology and Implications for the Baseline, continued

The focus of most enhanced value crops is an attribute for end use, where, in some cases, yields may be compromised. Over time, gene stacking and more research may be able to overcome any yield penalties. Biotechnology increases the tools available to scientists, and its use is likely to speed the pace of research, with positive implications for yields. This does not necessarily mean that there will be revolutionary jumps in productivity, but it should provide for continued "evolutionary" gains.

Resistance. There are concerns that insects or weeds may develop resistance to the technology intended to suppress them. To address this issue, the industry is taking preventive measures. For example, farmers using Bt corn and Bt cotton are not allowed to plant 100 percent of their fields in the Bt variety. This provides a refuge for the survival of non-resistant insects, and thus prevents or slows the development of resistant insects. Additionally, biotechnology products introduced to date have been based on single genes, and the seed industry is prepared to offer new generations of products if resistance does occur. The effectiveness of these measures will need to be evaluated over time.

Marketing and Price Issues

Crops developed through biotechnology are basically indistinguishable from conventional crops at present. Thus, there should be little or no impact on prices received by farmers or marketing arrangements for these crops, assuming the varieties are approved under the regulatory process and are accepted by consumers, and assuming no major shifts in productivity. For a relatively small group of consumers, a niche market for non-GMO products may develop, similar to the present market for organic foods. Such a market would involve separate marketing channels and would result in premium prices.

The rise of enhanced-value products does imply changes, however. Identity preservation will be required at all points in the marketing chain, starting at the farm. Product prices will be higher to cover the higher costs involved in storing and transporting the crops separately. More contracting is expected as a means to assure a guaranteed market for farmers and reduce risk, similar to the way many specialty crops are currently contracted, such as popcorn or white corn.

Evaluating the economic effects on overall prices and returns from more value enhanced crops will hinge on the extent these products are grown. If the products remain only as specialty crops, there will be a fairly small impact, but if the products become very popular, larger changes will occur. As more farmers grow enhanced value crops, the size of the premium needed as an incentive to farmers could change. Economies of scale could also reduce marketing costs if adoption is widespread. If taken far enough, this trend to more emphasis on end use traits will reduce the traditional bulk focus of the commodity markets, which emphasize large volumes and blending. The existing system of grades and standards, which do not identify the inherent traits of the crops, will become less useful.

Trade. There is currently some trade friction about acceptance of some GMO products in certain overseas markets. These are expected to be resolved with trade proceeding on the basis of sound science. Labeling requirements are not expected to develop into significant trade barriers. Thus, wider use of GMOs or other products will not disrupt trade. On the other hand, there is potential for expansion of identity preserved trade if users in foreign markets are prepared to pay more for value enhanced products. Recent growth in U.S. exports of high oil corn indicates this is a realistic possibility.

excluding bananas, increases less than 1 percent annually. Fresh citrus consumption remains flat as increases in production are used for processing or exports. The United States remains a netimporter of fresh fruits (in terms of value) into the next century. The use of fruits and vegetables for processing is projected to increase during 1998 to 2007, due to increases in both domestic and export demand.

Feed Grains

The feed grains baseline is initially marked by a modest easing of tight supplies as supply gains outpace increases in use. This is short lived, however, and demand growth is projected to outstrip increases in production by 2000. Robust growth in exports accounts for more than half the gains in use over the projection period. After small increases in feed grain stocks at the onset, ending stocks progressively decline through 2007. Farm prices for feed grains begin to increase from 2000, reflecting the tightening supply and demand balance.

Corn's dominance of the feed grain sector continues to increase over the baseline. Only corn acreage increases significantly, while acreage of the other feed grains stays flat or increases only slightly. Corn production rises the most, but increasing yields account for growth in production of each grain. Total feed grain output increases steadily and matches the previous record high (set in 1994) in 2000. Total feed grain use is projected to surpass the previous record early in the projections, with corn's share of domestic disappearance and exports expanding through the baseline. Imports, basically consisting of oats and barley, are expected to be steady.

Strong demand prospects and fairly tight supplies result in favorable market opportunities for corn producers, and corn acreage increases from an already high starting point. Corn will compete primarily with soybeans for land, as well as being used extensively in rotations with soybeans. The combined area planted to corn and soybeans is expected to remain large and even expand over the next few years. This reflects the impact of the 1996 Farm Act that eliminated most land idling programs and allowed more flexibility in selection of crops. Both corn and soybeans have been expanding into more "fringe" areas outside the main Corn Belt, such as the South and Plains States. This pattern is expected to continue.

Corn production grows steadily, hitting new records after 2002, and surpassing 11 billion bushels by 2005. Planted acreage climbs throughout the baseline, reaching 84.5 million acres by 2007, slightly higher than the peak levels planted during the export boom of the mid-1970s and early 1980s. Harvested corn acres are projected to exceed previous peak levels by even more, as less corn acreage is now cut for silage. Corn yields are projected to increase 1.7 bushels per acre per year, a long-term trend. Variability based on weather is expected to remain a concern, and yields could swing substantially above or below the trend in any given year.

Total corn demand grows sharply throughout the baseline. Feed and residual use of corn increases 550 million bushels between 1997 and 2007, with the largest gains in the earlier years. Animal inventories are projected to show the largest increases at the start and then grow more moderately. Feed use of the other feed grains and wheat is expected to decline in the next few years and then grow only moderately, also contributing to higher feed use of corn. Food, seed,

and industrial (FSI) use is projected to grow 425 million bushels over the 10-year period, a smaller absolute increase than feed and residual, but a faster rate. Corn used for ethanol continues a sharp rebound in the early years, exceeding the 1994 peak use by 2000, and then expands at a somewhat slower pace. It is assumed in the baseline that the Federal tax credit for ethanol is extended beyond 2000. However, uncertainty in the passage of this extension delays long-term investment into expansion of industry plant capacity. Most other FSI uses are projected to continue to grow near their recent rates.

Corn exports are projected to increase 1,100 million bushels between 1997 and 2007, more than the gains in total domestic use. Exports match the previous record high of 2.4 billion bushels in 2000 and then surpass 3 billion by the end of the baseline. A key factor underpinning this growth is the assumption that China develops into a significant net importer of corn. In contrast to wheat and soybeans where there are more alternative suppliers, this leaves the United States as the major source to meet the world's growing import demand for corn.

Ending stocks of corn climb above 1 billion bushels over the next few years and then retreat for the remainder of the baseline, ending at less than 700 million bushels. After 2000, the stocks-to-use ratio falls to less than 10 percent, creating strong upward pressure on prices. Corn prices bottom out at $2.55 per bushel in 1999 and then strengthen to $3.10 by 2007, as tightening market conditions push the stocks-to-use ratio to under 6 percent.

Unlike corn, production of the other feed grains is not projected to even approach previous record highs because of substantially lower acreage than in previous years. Barley and oats acres are likely to remain around recent record lows, while sorghum acres are modestly higher than the low levels reached in 1993-95, the last years under the old farm program. Thus, yield increases account for nearly all of the production gains projected for sorghum, barley, and oats. While yield projections for these crops are also based on trend, the yield increases are smaller than for corn, partly reflecting the lower scale of research.

Sorghum production ranges from 610 million bushels to 745 million bushels. Yields are projected to increase at a rate of 0.6 bushels per year. Sorghum plantings gradually expand to around 11 million acres. Sorghum tends to be grown in areas that are too dry for corn, and sorghum is also an important rotation crop with wheat. As in 1992 and 1996, sorghum plantings could spike up sharply in the event of weather problems that affect other crops.

Sorghum use stays relatively low by historical measures because of lower supplies. Exports advance more than domestic use, which grows slowly. Feed and residual use, the largest single category, fails to recover to even the 1997 level by the end of the baseline. Stocks remain fairly low, indicative of a generally tight outlook. The farm price of sorghum is projected to follow a similar path to corn, weakening slightly at first and then increasing. The price relative to corn strengthens in the latter half of the baseline.

Barley production does not increase consistently until after 2000 because of early dips in acreage. By 2007, barley output is projected at 430 million bushels, well below levels achieved in the 1980s and early 1990s. Barley plantings vary little in the baseline, remaining in a range of 6.8 to

7.1 million acres. This is low by historical standards, with more producers projected to favor wheat and other crops due to better expected returns. At the beginning of the baseline, disease concerns in the northern Plains, the most important growing area, also discourage some barley growers. Barley disappearance is projected to increase slowly due to small gains in feed and residual use. Exports and FSI use of barley are expected to be steady.

Oats production is virtually flat over the baseline, for the most part staying at 170 million bushels. Acreage slips early and than flattens out at 4.7 million acres, about the historical low reached in 1996. Although not needed as a cover crop for land idled under the old farm programs, oats are expected to continue to be important in crop rotations. Food demand for oats is expected to increase slightly, while feed use shows little change. A large share of the U.S. market, especially for high quality milling oats and premium feed oats, will continue to depend on imports, mainly from Canada. Quality of the oat crop in Canada tends to be more reliable due to generally more favorable growing conditions. A favorable exchange rate also makes imports attractive.

Market revenue for feed grains producers declines slightly in the beginning of the baseline. Starting in 2000, market returns increase for each crop. For corn, average net returns are projected to reach $200 per acre midway through the baseline and then grow to nearly $250 by 2007. During 1995/96, when corn prices were record high, average net returns were estimated at about $210 per acre.

Wheat

For most of the baseline period, demand growth for wheat outstrips yield growth and additional land is brought into production. Tightening supplies and increasing prices draw more land into wheat beginning in 2000. However, the large amount of land enrolled in the CRP from areas that have traditionally been planted to wheat limits the response of planted acreage to rising wheat prices. Nonetheless, wheat plantings rise to 76 million acres by 2007.

Wheat prices increase at a faster rate than for other crops, in part because of slower yield growth for wheat than for most other crops. Planting flexibility under the 1996 Farm Act will allow wheat area to continue to shift to more profitable feed grains and soybeans in regions where these crops are viable. Increased wheat area will likely come from regions where there are few alternatives. After 2000, when wheat prices are projected to exceed $4.00 per bushel, wheat plantings rise from 71 million acres to 76 million by the end of the baseline.

Domestic use of wheat grows through the baseline. Increases in food use of 10 million bushels a year imply increasing per capita food use of wheat, but at a slowing rate. Feed and residual use declines steadily through 2000 and continues to drift lower as wheat prices rise compared with other feeds.

U.S. wheat exports will continue to rise as global imports expand. Early in the baseline, reduced competition from the EU, which faces limits on the amount of subsidized wheat it can export, increases marketing opportunities for the United States. By 2000, however, global prices are projected to rise high enough that the EU will be able to export wheat without subsidies. This,

together with tight supplies and strengthening prices, will lead to slow growth in U.S. exports in the latter years of the baseline.

Under the 1996 Farm Act, production flexibility contract payments decline each year from 1998 to 2002, and then are assumed to remain constant through 2007/08. Strengthening prices will result in market net returns for wheat producers rising more than 50 percent between 1998/99 and 2007/08, reaching about $100 per acre by 2007.

Rice

Continued strong U.S. and world rice prices are expected to result in a small, but steady, expansion in U.S. rice acreage through 2007. Rising domestic prices are spurred by continued growth in domestic use as well as strong international demand for both rough rice--of which the U.S. is the primary exporter--and high-quality milled rice. Higher international prices are the result of a greater level of world rice trade than previously experienced and the tight global stocks-to-use ratio projected during the entire baseline period. With U.S. yields forecast to increase about 0.5 percent a year, production is expected to rise almost 1 percent annually through 2007. U.S. yields are projected to increase modestly during the baseline due to better farm management practices and some improvements in rice varieties. However, a "jump" in yields due to adoption of new technology or development of new varieties is not expected.

U.S. rice planted area is projected to post small annual increases of 15,000 acres through 2007 in response to steadily rising domestic prices, with plantings exceeding 3.2 million acres by 2007. However, this would still be below 1994's planted area of 3.3 million acres and well below the 1981 record of 3.8 million acres. Competition from other crops for land as well as the provisions of the 1996 Farm Act that allow producers almost total planting flexibility are responsible for rice acreage remaining below peak levels. Under prior farm legislation, producers who shifted out of rice could lose eligibility for some government payments. Under current farm law, government payments are not dependent on planting decisions.

Projected larger area and higher yields will pull rice production up over 2 percent in 1998 to more than 184 million hundredweight. Starting in 1999, rice production increases almost 1 percent annually, reaching over 200 million hundredweight by 2007. This level of production would be more than 20 million hundredweight greater than 1997's crop, but only slightly larger than the current record of 197.8 million hundredweight achieved in 1994.

U.S. rice imports are projected to expand 5 percent annually in the baseline. Most internationally traded rice is of lower quality than demanded domestically. U.S. rice imports are predominantly high quality, specialty varieties--mostly Thai Jasmine and Basmati from India and Pakistan. These varieties are not capable of being grown domestically and are most often sold in niche markets with limited growth potential. Quality of rice and reliability of most exporters limit the presence of additional foreign rices in the U.S. market.

Rising domestic demand for rice will capture nearly all of the gains in U.S. rice production, with exports projected to increase only slightly from 1998/99 through 2007/08. Total domestic use is

projected to rise about 2 percent a year and reach almost 125 million hundredweight by 2007/08, up 22 percent from 1997/98. Food use will account for over 96 percent of the growth in domestic use, rising almost 2.5 percent a year, reaching nearly 105 million hundredweight by 2007/08. A growing share of the U.S. population from Asia and Latin America and a greater emphasis on healthier life styles account for most of the expansion in domestic food use of rice. However, food use expansion will be slower than the nearly 4-percent annual growth achieved during the previous decade. Higher prices limit growth of rice in some processed uses, such as pet foods, which expanded rapidly in the 1980s and early 1990s when rice prices were lower.

Brewers' use of rice, which has been virtually stagnant since the late 1980s, is projected to expand about 0.1 million hundredweight annually from 1997/98 to 2007/08, reaching 16 million hundredweight. No growth in per capita beer consumption and the greater popularity of light beers--which use less rice than regular beers--limit the projected growth in brewers' use of rice. Seed use, essentially a function of planted area, will expand slightly to match the modest area growth, rising to 4.2 million hundredweight in 2007 from 4.0 million hundredweight in 1997.

The combination of modest increases in U.S. rice production matched by strong growth in domestic demand for high quality U.S. rice results in an increasing differential between domestic rice prices and those of key competitors. This makes U.S. rice exports less competitive in some international markets, limiting the expansion in rice exports in the baseline. Thailand is the principle competitor of the United States in certain high quality markets. U.S. rice exports are projected to be relatively stable in the baseline, ranging from 82 to 85 million hundredweight. Strong growth in domestic demand coupled with only modest production growth is the primary factor accounting for the nearly stagnant level of exports. The U.S. exports mostly to high-quality markets, rarely competing with the low cost Asian exporters in low-quality markets. With the domestic market projected to expand each year, the near-stagnant level of exports means that the international market will account for a declining share of U.S. rice use. The export share of total use is projected to drop from 43 percent in 1996/97 to 39 percent in 2007/08. The declining reliance on the international market will likely reduce price risk for producers since the growing domestic market is more stable, and typically higher priced, than the export market.

Ending stocks grow slowly to 28.2 million hundredweight in 2007/08, maintaining a stocks-to-use ratio of about 13 percent for most of the baseline, low by historical standards.

Strong demand growth in the domestic market with only modest expansion in production will cause season-average U.S. farm prices to rise annually, from $10.15 per hundredweight projected for 1998/99 to over $12 per hundredweight in 2007/08, well above levels during most of the 1980s and early 1990s. Season-average farm prices have exceeded $9 per hundredweight since 1995/96, with the 1997/98 price projected at $9.75, just below the $9.90 reported for 1996/97. The 1996/97 price was the highest since 1980/81. Market returns to rice producers rise more than a fourth from 1998 to 2007, growing to over $300 per acre by the end of the baseline. These gains from the marketplace help to offset declining production flexibility contract payments.

Increasing U.S. rough rice exports and steady growth in domestic demand are behind much of the current price strength. In addition, quality standards for many processed uses of rice have

increased in recent years. For example, brewers now use mostly whole grain rice with high quality standards instead of the lower priced brewers' rice used prior to the early 1990s. In addition, U.S. food aid shipments, which are typically the lower quality portion of U.S. rice, are a much smaller share of U.S. exports than in previous years. Greater demand for higher quality rice continues to put upward pressure on rice prices through the baseline.

Upland Cotton

Land planted to upland cotton rises slowly during the baseline in response to expanding demand and strengthening prices. Planted area rises slowly to 14.0 million acres in 2007, while harvested area increases gradually to 13.0 million acres. The national average upland cotton yield rises 8 pounds per year, reaching 749 pounds per harvested acre in 2007. Production increases to 20.3 million bales by 2007 to meet increases in domestic mill use and export demands.

Growth in domestic mill use and exports will be affected by the GATT accord, which lowers trade barriers and increases world trade. Mill use increases slightly over 1 percent annually, rising nearly 1.5 million bales to approach 12.8 million bales by 2007. Easing of restrictions on textile import quotas and increased competition from manmade fibers limit domestic mill use gains. Significant increases in textile imports, primarily apparel, are likely. However, larger U.S. exports of cotton yarn, fabric, and semi-finished apparel products should continue to support growing mill use.

Foreign imports and consumption of upland cotton are each projected to rise nearly 2 percent annually after 1998. Meanwhile, world trade is projected to expand 1.5 to 2.0 percent annually. U.S. cotton exports are also expected to rise, maintaining a 25-26 percent share of the world market. During the baseline, U.S. exports rise more than 1 million bales from 1998 to approach 7.6 million by 2007.

Market net returns to upland cotton producers rise during the baseline from $218 per acre in 1998 to $243 in 2007. Net returns to producers enrolled in production flexibility contracts vary only slightly, ranging from $259 to $271 per acre, as increasing market receipts are partly offset by declining contract payments after 1998.

Soybeans

Gains in soybean acreage will be small in the baseline, despite rising soybean net returns. Increases in prices and yields for corn strengthen its returns relative to soybeans, limiting soybean area gains mostly to greater double cropping with wheat. In the last 2 years, farmers have shifted more wheat area into soybeans, but a progressively tighter wheat market over time may limit this tendency.

Based on significant yield gains in recent years, average soybean yields are expected to trend up at 0.5 bushels an acre annually over the next 10 years. More universal adoption of narrow row planting, a practice enhanced by acceptance of Roundup-Ready™ varieties, is anticipated. The

U.S. average soybean yield is projected to increase from 39.2 to 44.0 bushels per acre between 1997/98 and 2007/08. Within 10 years, U.S. soybean production would exceed 3 billion bushels.

Domestic soybean crush surges in 1998/99, coinciding with a larger supply and increased demand for meal and oil. However, a more modest annual increase in crush develops in later years as growth in meal and oil consumption slows. Following a rebound next season, ending soybean stocks are projected to slide to 205 million bushels. A declining stocks-to-use ratio means that U.S. soybean and soybean product prices will rise. This especially curtails export demand for meal and oil and slows growth in domestic crush.

The average soybean farm price rises to $7.25 per bushel by the end of the baseline, after turning up from a low of $5.65 projected for 1999/2000. Although average soybean net returns are expected to decline in the near term, increasing farm prices are projected to then push returns higher, reaching $221 per acre by 2007/08. Similarly, the aggregate value of farm production for soybeans eventually climbs to nearly $22 billion, up one-fourth from 1997/98.

While rising foreign demand for soybeans will produce an upward trend in U.S. soybean exports, expanding to 1.1 billion bushels by 2007/08, increasingly tight supplies and rising prices will slow the annual growth. The comparatively fixed resources available to increase exportable U.S. supplies means that foreign exporters will capture a greater share of world soybean output and trade.

Soybean oil prices remain flat for the next 4 years around 24.5 cents per pound. Solid foreign demand is expected to pull U.S. oil exports up to 3,050 million pounds by 2001/02. However, total demand growth would eventually outstrip new supplies after 2001/02. Oil prices would climb to about 27 cents per pound by 2007/08, which in turn restricts exports. Year-end soybean oil inventories build in absolute terms to around 2 billion pounds in 2007/08, but the balance of potential supplies to use gets even tighter.

Higher soybean supplies and crush push soybean meal prices down in the near term, but prices then firm as soybean supplies tighten through 2007/08. By 1999/2000, rising feed costs slow demand from the domestic livestock sector, curbing domestic meal disappearance. U.S. soybean meal exports are also projected to peak in 1999/2000. After that, soybean meal exports remain relatively flat because of continued price competition from Brazil and Argentina.

Sugar

Current legislation extends the sugar price support program through fiscal 2003. The raw cane sugar loan rate is fixed at 18 cents a pound, raw value, the level in effect since the 1985 crop. The refined beet sugar loan rate is fixed at 22.90 cents a pound. There are no domestic sugar supply restrictions, and supply control is achieved through an import tariff-rate quota (TRQ). If the TRQ is at or below 1.5 million tons, CCC loans to sugar processors will be recourse loans, otherwise they will be nonrecourse loans. The baseline assumes a continuation of the commitment of the United States in the Uruguay Round agreement to provide minimum low-duty sugar import access of 1.256 million short tons, raw value. There is a penalty on sugar forfeited

to the Government under the sugar loan program of 1 cent per pound for raw cane sugar, and 1.07 cents for refined beet sugar. An assessment is applied to all sugar marketings, 0.2475 cents per pound for raw cane sugar and 0.2654 cents per pound for refined beet sugar.

Domestic sugar prices are projected to be flat through the baseline. The raw sugar price (New York No. 14 contract) averaged 22.00 cents a pound in 1997, and is projected to average 22.06 cents in 1998 and then 22.00 cents through 2007. Grower prices for sugar beets derive from the wholesale refined beet sugar price, and grower prices for sugarcane derive from the raw cane sugar price.

Sugar beet area harvested was up 8 percent in fiscal 1998 (the 1997/98 crop) to 1.43 million acres, due in part to lower prices of alternative crops combined with stronger sugar beet prices in the past year. Sugar beet acreage rises 60,000 acres in 1999 and 30,000 acres in 2000, reflecting expanding acreage in beet sugar cooperatives in Minnesota, North Dakota, and the Northwest, and relatively stable acreage in other areas. A new beet sugar factory is scheduled to open in the State of Washington in 1998, the first new factory in the United States since 1975. After 2000, sugar beet acreage grows more slowly at 0.7 percent a year (10,000 acres). Stabilizing effects of the sugar loan program and the adjustable TRQ likely will result in less price variability for sugar beets than for most alternative crops, contributing to the growth in acreage. The gradual shift of acreage from higher-cost areas to lower-cost non-irrigated areas continues. The combination of a rising beet sugar recovery rate and stagnant sugar beet yields per acre results in a slowly rising yield of beet sugar per acre. Beet sugar production rises 120,000 and 110,000 tons in 1999 and 2000, and thereafter about 50,000 tons a year to 4.9 million tons in 2007. The beet sugar share of total domestic sugar production grows from 56 percent in 1997 to 58 percent in 2007.

Sugarcane acreage harvested for sugar rose from 847,000 acres in 1997 to 877,000 acres in 1998. Most of the acreage expansion is in Louisiana, where new areas are being developed in the western part of the State. In recent years acreage has declined in Hawaii, causing national average yields to fall, since Hawaii's yields are much higher than those in other states. After 1999, national average yields stabilize, as research and development create better varieties, and Hawaii's acreage stabilizes.

In Florida, some land is taken out of cane to be used for Everglades restoration purposes. Florida's sugar production declines from 1.73 million tons in 1998 to 1.67 million tons in 2002, then rises slowly as yields and recovery rates rise at half the 1980-97 trend. In Louisiana, sugarcane acreage harvested increases from the 1998 level of 380,000 acres to 450,000 acres in 2003. Some of this additional land was previously in western Louisiana under pasture and rice. Louisiana sugar production rises to 1.35 million tons by the year 2007. Production in Texas recovers from a weather-reduced crop of 90,000 tons in 1998 to 150,000 tons in 2001, and is stable thereafter. Hawaiian sugar production declines from 340,000 tons in 1998 to 300,000 tons by 1999 and then stabilizes. Puerto Rican sugar production is 25,000 tons annually throughout the projection period.

Domestic sugar disappearance rises about 125,000 tons a year from 1998 to 2007. Per capita sugar disappearance rises from 67 pounds, refined basis, in 1997 to 70 pounds in 2007. The rapid

substitution of corn sweeteners for sugar ended in about 1986. Since then, sugar consumption has grown at about 2 percent a year, compared to 3.9 percent for high fructose corn syrup (HFCS). However, the rate of growth of sugar consumption has slowed, and in the last 5 years was 1.4 percent a year, compared to 2.3 percent the previous 5 years. Continued slowing of the growth rate of sugar consumption to 1.2 percent a year from 1997 to 2007 is projected. HFCS consumption will continue to grow more rapidly than sugar, and is projected to overtake sugar consumption by the end of the baseline.

The 1998 raw sugar TRQ was established at 1.98 million tons. Three tranches of 220,000 tons each were initially withheld, and are allocated in January, March, and May 1998 if the forecasted ending stocks-to-use ratio for crop-year 1997 in USDA's *World Agricultural Supply and Demand Estimates* report for those months is less than or equal to 15.5 percent. The 1998 refined sugar TRQ was established at 55,116 short tons, with specific allocations made for the first time to Canada and Mexico. The remainder of the refined sugar TRQ, including a small amount for specialty sugar, enters on a first-come, first-served basis. Under NAFTA provisions, Mexico was again declared a net surplus producer of sugar for 1998 and received an allocation of 27,558 tons, which can be shipped as either raw or refined sugar.

Projected sugar imports for consumption are projected to reach nearly 2.9 million tons by 2007. While imports are shown to remain above the level of 1.5 million tons necessary to assure price support, normal variations of production will likely result in high variation in actual import needs over the projection period, perhaps leading to a TRQ at or below 1.5 million tons in some years, with the sugar loan program being recourse.

Tobacco

Production falls in 1998 after high quotas in 1997 resulted in production increases and replenished stocks. Prospects for lower U.S. cigarette production, reduced prospects for cigarette exports, and uncertain prospects for U.S. leaf exports contributed to the decline.

Flue-cured production increased in 1997 in response to lower than expected production in 1995-96. After 1997, flue-cured tobacco production begins a downward trend, reflecting continuing drops in domestic cigarette consumption and stagnant to declining leaf exports. Domestic use of flue-cured tobacco will slide steadily because of falling domestic cigarette consumption, a leveling off of cigarette exports, and greater utilization of foreign tobacco as manufacturers reduce costs. Flue-cured exports begin a downward trend after 1997. Higher world stocks and increased quality in countries such as Brazil and Zimbabwe will constrain U.S. exports. However, overseas production of cigarettes by U.S. manufacturers may slow the downward trend in exports of U.S. leaf to maintain blend consistency.

Burley production continues to rise through 1998 before trending downward. Poor recent crops and low stocks have created pent-up demand for U.S. burley, boosting production through 1998. However, long-term declines in domestic cigarette consumption will cause burley production to then begin a long-term decline. Domestic burley use is expected to range from 345 to 390 million pounds over the next decade. Exports of burley fall from 1997 levels as other producers continue

to improve quality and maintain price competitiveness. For the remainder of the 1990s, foreign stocks are expected to be abundant, further dampening export prospects.

Tobacco yields remain constant throughout the baseline. Poundage quotas reduce incentives to raise production per acre. Prices for U.S. grown tobacco rise in correspondence with increases in the support price.

Horticulture

The farm value of U.S. horticultural crop production is projected to reach about $39 billion in 1998, up an estimated 6 percent from 1997 and 13 percent above 1996. During 1997, the nearly 7-percent increase in U.S. horticultural crop value is due mainly to higher expected prices for potatoes and fresh vegetables. The value of horticultural production is projected to increase about $1.5 billion to $1.7 billion annually during 1999-2007. Approximately one-third of this value will be generated by export sales. In 1998, the value of horticultural exports is expected to total around $10.8 billion and, based on current trends, could rise to $18 billion by 2007.

The 1997 fall potato crop is forecast down 8 percent from the previous year's record crop, but up 4 percent from 1995. Grower prices are expected to improve from 1996 levels. The record 1996 crop resulted in large stocks carried into 1997 which sharply reduced prices during the marketing season through August 1997. With stocks still at a high level, particularly stocks of frozen potatoes, 1998 potato production is expected to remain relatively unchanged from last year even though 1998 prices may be up. Consequently, stable output in the fall of 1998 and projected higher prices will raise the crop value for the 1998 potato crop.

Estimated area harvested for fresh vegetables indicates 1997 production is up less than 1 percent from a year earlier. Grower prices for fresh vegetables in 1997 averaged higher than the prior year due to only a fractional increase in production and strong domestic and export demand. Imports of fresh vegetables and melons rose 6 percent in 1997 over 1996. Responding to higher prices during 1997, fresh-market vegetable growers are expected to increase acreage in 1998. Given trend yields, increased acreage would raise fresh-market vegetables supplies, likely lowering returns to fresh-market growers.

The demand for domestically produced fresh-market vegetables is expected to increase by over 1 percent yearly during 1998-2007 given the combination of projected annual increases in fresh vegetable per capita consumption of 0.7 pounds (0.4 percent) and population growth of slightly less than 1 percent. During the same period, U.S. production of fresh vegetables is projected to increase annually also by over 1 percent, about the same as for consumption. Increases in the volume of exports are projected to run at about the same pace as gains in imports. The United States is projected to remain a net importer of fresh vegetables through 2007 (both in volume and value).

Fruit production in 1998 is expected to increase less than 2 percent over 1997 and this annual rate of expansion is projected to continue through 2007. For domestic producers, the projected continuation of flat consumption of U.S.-grown fresh fruit points to the importance of export

demand for higher prices and production value. U.S. per capita consumption of bananas, which are almost all imported, is projected to increase nearly 2 percent annually during 1998-2007. Per capita consumption of other noncitrus fruits, such as apples, grapes, pears, and peaches, is projected to increase less than 1 percent annually, while fresh citrus consumption is projected to remain flat in the baseline. U.S. export volume of fresh fruits was up nearly 3 percent in 1997, partly due to lower domestic prices for fresh apples, oranges, and grapefruit. Fresh fruit exports have increased from about 20 percent of domestic production in 1986 to about 23 percent in 1997. In real terms, fresh fruit exports are projected to increase 5 to 6 percent annually during 1998-2007.

The use of U.S.-produced fruits and vegetables for processing is projected to increase during 1998-2007 reflecting increases in both domestic and export demand. The major processed products are juices and wine (fruit), tomatoes for processing (vegetables, excluding potatoes and pulses), and frozen potatoes. Domestic consumption of processed fruits and vegetables is projected to increase from 423 pounds (farm-weight equivalent) per person in 1998 to 449 pounds in 2007. While per capita consumption is expected to rise more than 1 percent in 1998, projected increases for the rest of the baseline will be slightly less than 1 percent annually. The value of processed fruit and vegetable exports will continue to increase along with that of other high-value farm products.

Table 7. Planted and harvested acreage for major field crops, baseline projections

	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
						Million acres						
Planted acreage, 8 major crops												
Corn	79.5	80.2	81.5	82.0	82.0	82.5	83.0	83.5	84.0	84.3	84.5	84.5
Sorghum	13.2	10.3	10.0	10.3	10.5	10.5	10.5	10.7	10.9	11.1	11.1	11.2
Barley	7.1	6.9	6.8	7.0	6.9	6.8	6.9	7.0	7.0	7.0	7.1	7.1
Oats	4.7	5.2	5.2	4.9	4.8	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Wheat	75.6	71.0	71.5	71.0	71.5	72.5	73.0	73.5	74.0	75.0	75.5	76.0
Rice	2.8	3.1	3.1	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.2
Upland cotton	14.4	13.7	13.4	13.6	13.8	13.8	13.8	13.8	13.9	13.9	14.0	14.0
Soybeans	64.2	70.9	69.5	68.0	68.0	68.0	68.3	68.5	68.8	69.0	69.3	69.5
Total	261.5	261.1	261.0	259.9	260.6	261.9	263.3	264.9	266.5	268.2	269.4	270.2
Harvested acreage, 8 major crops												
Corn	73.1	74.0	75.3	75.8	75.8	76.3	76.8	77.3	77.8	78.1	78.3	78.3
Sorghum	11.9	9.5	8.9	9.2	9.4	9.4	9.4	9.6	9.8	10.0	10.0	10.1
Barley	6.8	6.4	6.4	6.6	6.5	6.4	6.5	6.6	6.6	6.6	6.7	6.7
Oats	2.7	2.9	2.9	2.9	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Wheat	62.9	63.6	63.0	62.6	63.0	63.9	64.3	64.8	65.2	66.1	66.5	67.0
Rice	2.8	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.1	3.1	3.2	3.2
Upland cotton	12.6	13.2	12.5	12.6	12.8	12.8	12.8	12.8	12.9	12.9	13.0	13.0
Soybeans	63.4	69.8	68.4	66.9	66.9	66.9	67.2	67.4	67.7	67.9	68.2	68.4
Total	236.2	242.5	240.4	239.6	240.4	241.6	242.9	244.4	245.9	247.5	248.7	249.5

Table 8. Selected supply, use, and price variables for major field crops, baseline projections

	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Yields 1/												
Corn	127.1	126.4	130.0	131.7	133.4	135.1	136.8	138.5	140.2	141.9	143.6	145.3
Sorghum	67.5	69.2	68.3	68.9	69.5	70.1	70.7	71.3	71.9	72.5	73.1	73.7
Barley	58.5	58.3	60.0	60.5	61.0	61.5	62.0	62.5	63.0	63.5	64.0	64.5
Oats	57.8	60.5	59.1	59.4	59.7	60.0	60.3	60.6	60.9	61.2	61.5	61.8
Wheat	36.3	39.7	38.0	38.2	38.4	38.7	39.0	39.3	39.6	39.9	40.2	40.5
Rice	6,121.0	5,926.0	6,071.9	6,100.7	6,129.6	6,158.6	6,187.8	6,217.2	6,246.7	6,276.4	6,306.2	6,336.2
Upland cotton	701.0	666.0	677.0	685.0	693.0	701.0	709.0	717.0	725.0	733.0	741.0	749.0
Soybeans	37.6	39.2	39.5	40.0	40.5	41.0	41.5	42.0	42.5	43.0	43.5	44.0
Production 2/												
Corn	9,293	9,359	9,790	9,985	10,110	10,310	10,505	10,705	10,910	11,080	11,245	11,375
Sorghum	803	659	610	635	655	660	665	685	705	725	730	745
Barley	396	374	385	400	395	395	405	415	415	420	430	430
Oats	155	176	170	170	175	170	170	170	170	170	170	175
Wheat	2,285	2,527	2,394	2,391	2,419	2,473	2,508	2,547	2,582	2,637	2,673	2,714
Rice	171.3	180.0	184.2	186.0	187.8	189.6	191.4	193.2	195.1	196.9	198.8	200.7
Upland cotton	18,413	18,300	17,600	18,000	18,500	18,700	18,900	19,100	19,500	19,700	20,100	20,300
Soybeans	2,382	2,736	2,700	2,675	2,710	2,745	2,785	2,830	2,875	2,920	2,965	3,010
Exports 2/												
Corn	1,795	1,925	2,125	2,250	2,400	2,500	2,600	2,700	2,800	2,875	2,950	3,025
Sorghum	205	200	225	235	250	260	275	285	295	305	315	320
Barley	31	90	70	70	70	70	70	70	70	70	70	70
Oats	3	2	2	2	2	2	2	2	2	2	2	2
Wheat	1,001	1,075	1,200	1,300	1,350	1,375	1,375	1,400	1,450	1,475	1,500	1,550
Rice	76.4	85.0	82.2	83.1	83.4	83.6	83.8	84.0	84.2	84.4	84.6	84.8
Upland cotton	6,399	6,575	6,500	6,600	6,700	6,800	6,900	7,000	7,100	7,250	7,400	7,550
Soybeans	883	980	990	990	995	1,005	1,020	1,035	1,050	1,065	1,080	1,100
Soybean meal	7,100	7,450	7,650	7,750	7,600	7,500	7,400	7,400	7,450	7,500	7,600	7,700
Ending stocks 2/												
Corn	884	928	1,053	1,118	1,028	928	838	758	698	668	663	648
Sorghum	47	46	46	61	71	71	56	46	46	51	46	51
Barley	110	92	90	99	98	92	90	93	96	94	97	95
Oats	67	71	68	65	67	68	68	68	67	66	64	67
Wheat	444	655	657	610	560	528	516	517	497	496	495	479
Rice	27.1	24.2	25.2	25.6	25.9	26.2	26.5	26.8	27.1	27.5	27.8	28.2
Upland cotton	3,920	4,326	4,000	3,850	3,950	4,000	4,000	3,950	4,050	4,050	4,150	4,150
Soybeans	132	255	285	255	235	220	210	205	205	205	205	205
Prices 3/												
Corn	2.70	2.65	2.60	2.55	2.65	2.75	2.80	2.90	3.00	3.05	3.05	3.10
Sorghum	2.34	2.35	2.30	2.25	2.35	2.45	2.55	2.70	2.80	2.85	2.85	2.90
Barley	2.74	2.40	2.35	2.30	2.40	2.50	2.55	2.60	2.70	2.75	2.75	2.80
Oats	1.96	1.60	1.60	1.60	1.65	1.70	1.70	1.75	1.80	1.85	1.85	1.85
Wheat	4.30	3.55	3.50	3.75	4.05	4.15	4.20	4.25	4.35	4.40	4.40	4.45
Rice	9.90	9.75	10.15	10.35	10.56	10.77	10.99	11.21	11.43	11.66	11.89	12.13
Soybeans	7.38	6.40	5.70	5.65	6.00	6.30	6.50	6.75	7.00	7.10	7.15	7.25
Soybean oil	0.225	0.250	0.248	0.245	0.243	0.243	0.250	0.258	0.263	0.265	0.268	0.270
Soybean meal	270.9	212.5	182.5	182.5	198.0	211.5	216.5	222.5	230.0	233.0	234.0	236.5

1/ Bushels per acre except for upland cotton and rice (pounds per acre).

2/ Million bushels except for upland cotton (thousand bales), rice (million hundredweight), and soybean meal (thousand tons).

3/ Dollars per bushel except for soybean oil (per pound), rice (per hundredweight), and soybean meal (per ton).

Table 9. Corn baseline

Item	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Acreage (million acres):												
CRP acres:												
Cropping history 1/	4.8	4.6	4.1	4.4	4.6	4.6	4.5	4.4	4.4	4.4	4.4	4.4
PFC acreage reduction 2/	3.9	3.5	2.2	2.0	1.9	1.8	1.7	1.5	1.5	1.5	1.4	1.4
Planted acres	79.5	80.2	81.5	82.0	82.0	82.5	83.0	83.5	84.0	84.3	84.5	84.5
Harvested acres	73.1	74.0	75.3	75.8	75.8	76.3	76.8	77.3	77.8	78.1	78.3	78.3
Yields (bushels per acre):												
Yield/harvested acre	127.1	126.4	130.0	131.7	133.4	135.1	136.8	138.5	140.2	141.9	143.6	145.3
Supply and use (million bushels):												
Beginning stocks	426	884	928	1,053	1,118	1,028	928	838	758	698	668	663
Production	9,293	9,359	9,790	9,985	10,110	10,310	10,505	10,705	10,910	11,080	11,245	11,375
Imports	13	10	10	10	10	10	10	10	10	10	10	10
Supply	9,733	10,253	10,728	11,048	11,238	11,348	11,443	11,553	11,678	11,788	11,923	12,048
Feed & residual	5,362	5,625	5,725	5,800	5,875	5,950	6,000	6,050	6,100	6,125	6,150	6,175
Food, seed, & industrial	1,691	1,775	1,825	1,880	1,935	1,970	2,005	2,045	2,080	2,120	2,160	2,200
Domestic	7,054	7,400	7,550	7,680	7,810	7,920	8,005	8,095	8,180	8,245	8,310	8,375
Exports	1,795	1,925	2,125	2,250	2,400	2,500	2,600	2,700	2,800	2,875	2,950	3,025
Total use	8,849	9,325	9,675	9,930	10,210	10,420	10,605	10,795	10,980	11,120	11,260	11,400
Ending stocks	884	928	1,053	1,118	1,028	928	838	758	698	668	663	648
Stocks/use ratio, percent	10.0	10.0	10.9	11.3	10.1	8.9	7.9	7.0	6.4	6.0	5.9	5.7
Prices (dollars per bushel):												
Farm price	2.70	2.65	2.60	2.55	2.65	2.75	2.80	2.90	3.00	3.05	3.05	3.10
Loan rate	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89
Variable costs of production (dollars):												
Per acre	163.77	166.09	168.45	171.20	174.55	178.47	182.26	185.93	189.87	194.07	198.28	202.49
Per bushel	1.29	1.31	1.30	1.30	1.31	1.32	1.33	1.34	1.35	1.37	1.38	1.39
Returns over variable costs (dollars per acre):												
Market returns	179.40	168.87	169.55	164.64	178.96	193.06	200.78	215.72	230.73	238.73	239.70	247.94

1/ The cropping history allocation is based on 1996 plantings on farms with CRP acreage, and is used as a general indicator influencing land available for plantings.
2/ The production flexibility contract acreage reduction allocation of the CRP affects the acreage available for production flexibility contracts and, therefore, is used in the determination of PFC payment rates.

Table 10. Sorghum baseline

Item	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Acreage (million acres):												
CRP acres:												
Cropping history 1/	1.1	1.1	1.2	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
PFC acreage reduction 2/	2.2	2.3	1.6	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Planted acres	13.2	10.3	10.0	10.3	10.5	10.5	10.5	10.7	10.9	11.1	11.1	11.2
Harvested acres	11.9	9.5	8.9	9.2	9.4	9.4	9.4	9.6	9.8	10.0	10.0	10.1
Yields (bushels per acre):												
Yield/harvested acre	67.5	69.2	68.3	68.9	69.5	70.1	70.7	71.3	71.9	72.5	73.1	73.7
Supply and use (million bushels):												
Beginning stocks	18	47	46	46	61	71	71	56	46	46	51	46
Production	803	659	610	635	655	660	665	685	705	725	730	745
Imports	0	0	0	0	0	0	0	0	0	0	0	0
Supply	821	706	656	681	716	731	736	741	751	771	781	791
Feed & residual	529	425	350	350	360	365	370	375	375	380	385	385
Food, seed, & industrial	40	35	35	35	35	35	35	35	35	35	35	35
Domestic	569	460	385	385	395	400	405	410	410	415	420	420
Exports	205	200	225	235	250	260	275	285	295	305	315	320
Total use	774	660	610	620	645	660	680	695	705	720	735	740
Ending stocks	47	46	46	61	71	71	56	46	46	51	46	51
Stocks/use ratio, percent	6.1	7.0	7.5	9.8	11.0	10.8	8.2	6.6	6.5	7.1	6.3	6.9
Prices (dollars per bushel):												
Farm price	2.34	2.35	2.30	2.25	2.35	2.45	2.55	2.70	2.80	2.85	2.85	2.90
Loan rate	1.81	1.76	1.74	1.73	1.71	1.67	1.68	1.68	1.70	1.72	1.74	1.76
Variable costs of production (dollars):												
Per acre	81.85	82.82	83.89	85.32	87.05	89.01	90.94	92.79	94.74	96.80	98.86	100.93
Per bushel	1.21	1.20	1.23	1.24	1.25	1.27	1.29	1.30	1.32	1.34	1.35	1.37
Returns over variable costs (dollars per acre):												
Market returns	76.10	79.80	73.20	69.70	76.27	82.73	89.35	99.72	106.58	109.83	109.48	112.80

1/ The cropping history allocation is based on 1996 plantings on farms with CRP acreage, and is used as a general indicator influencing land available for plantings.
2/ The production flexibility contract acreage reduction allocation of the CRP affects the acreage available for production flexibility contracts and, therefore, is used in the determination of PFC payment rates.

Table 11. Barley baseline

Item	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Acreage (million acres):												
CRP acres:												
Cropping history 1/	0.8	0.7	0.8	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
PFC acreage reduction 2/	2.6	2.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Planted acres	7.1	6.9	6.8	7.0	6.9	6.8	6.9	7.0	7.0	7.0	7.1	7.1
Harvested acres	6.8	6.4	6.4	6.6	6.5	6.4	6.5	6.6	6.6	6.6	6.7	6.7
Yields (bushels per acre):												
Yield/harvested acre	58.5	58.3	60.0	60.5	61.0	61.5	62.0	62.5	63.0	63.5	64.0	64.5
Supply and use (million bushels):												
Beginning stocks	100	110	92	90	99	98	92	90	93	96	94	97
Production	396	374	385	400	395	395	405	415	415	420	430	430
Imports	37	40	50	55	55	55	55	55	55	55	55	55
Supply	532	524	527	545	549	548	552	560	563	571	579	582
Feed & residual	219	170	195	205	210	215	220	225	225	235	240	245
Food, seed, & industrial	172	172	172	171	171	171	172	172	172	172	172	172
Domestic	391	342	367	376	381	386	392	397	397	407	412	417
Exports	31	90	70	70	70	70	70	70	70	70	70	70
Total use	422	432	437	446	451	456	462	467	467	477	482	487
Ending stocks	110	92	90	99	98	92	90	93	96	94	97	95
Stocks/use ratio, percent	26.1	21.3	20.6	22.2	21.7	20.2	19.5	19.9	20.6	19.7	20.1	19.5
Prices (dollars per bushel):												
Farm price	2.74	2.40	2.35	2.30	2.40	2.50	2.55	2.60	2.70	2.75	2.75	2.80
Loan rate	1.55	1.57	1.56	1.59	1.59	1.59	1.55	1.56	1.56	1.55	1.56	1.56
Variable costs of production (dollars):												
Per acre	80.90	81.91	82.97	84.32	85.99	87.89	89.75	91.54	93.45	95.48	97.50	99.54
Per bushel	1.38	1.40	1.38	1.39	1.41	1.43	1.45	1.46	1.48	1.50	1.52	1.54
Returns over variable costs (dollars per acre):												
Market returns	79.39	58.01	58.03	54.83	60.41	65.86	68.35	70.96	76.65	79.15	78.50	81.06

1/ The cropping history allocation is based on 1996 plantings on farms with CRP acreage, and is used as a general indicator influencing land available for plantings.
2/ The production flexibility contract acreage reduction allocation of the CRP affects the acreage available for production flexibility contracts and, therefore, is used in the determination of PFC payment rates.

Table 12. Oats baseline

Item	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Acreage (million acres):												
CRP acres:												
Cropping history 1/	0.3	0.3	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
PFC acreage reduction 2/	1.3	1.3	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Planted acres	4.7	5.2	5.2	4.9	4.8	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Harvested acres	2.7	2.9	2.9	2.9	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Yields (bushels per acre):												
Yield/harvested acre	57.8	60.5	59.1	59.4	59.7	60.0	60.3	60.6	60.9	61.2	61.5	61.8
Supply and use (million bushels):												
Beginning stocks	66	67	71	68	65	67	68	68	68	67	66	64
Production	155	176	170	170	175	170	170	170	170	170	170	175
Imports	97	100	100	100	100	100	100	100	100	100	100	100
Supply	319	343	341	338	340	337	338	338	338	337	336	339
Feed & residual	155	175	175	175	175	170	170	170	170	170	170	170
Food, seed, & industrial	95	95	96	96	96	97	98	98	99	99	100	100
Domestic	250	270	271	271	271	267	268	268	269	269	270	270
Exports	3	2	2	2	2	2	2	2	2	2	2	2
Total use	252	272	273	273	273	269	270	270	271	271	272	272
Ending stocks	67	71	68	65	67	68	68	68	67	66	64	67
Stocks/use ratio, percent	26.6	26.1	24.9	23.8	24.5	25.3	25.2	25.2	24.7	24.4	23.5	24.6
Prices (dollars per bushel):												
Farm price	1.96	1.60	1.60	1.60	1.65	1.70	1.70	1.75	1.80	1.85	1.85	1.85
Loan rate	1.03	1.11	1.10	1.13	1.16	1.21	1.17	1.17	1.16	1.15	1.15	1.14
Variable costs of production (dollars):												
Per acre	52.17	52.77	53.46	54.26	55.29	56.46	57.61	58.74	59.97	61.26	62.56	63.87
Per bushel	0.90	0.87	0.90	0.91	0.93	0.94	0.96	0.97	0.98	1.00	1.02	1.03
Returns over variable costs (dollars per acre):												
Market returns	61.12	44.03	41.10	40.78	43.21	45.54	44.90	47.31	49.65	51.96	51.22	50.46

1/ The cropping history allocation is based on 1996 plantings on farms with CRP acreage, and is used as a general indicator influencing land available for plantings.

2/ The production flexibility contract acreage reduction allocation of the CRP affects the acreage available for production flexibility contracts and, therefore, is used in the determination of PFC payment rates.

Table 13. Wheat baseline

Item	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Acreage (million acres):												
CRP acres:												
Cropping history 1/	9.5	9.1	9.7	10.9	11.3	11.5	11.6	11.8	11.8	11.8	11.8	11.8
PFC acreage reduction 2/	10.1	10.2	8.4	8.7	8.7	8.8	8.8	8.9	8.9	8.9	8.9	8.9
Planted acres	75.6	71.0	71.5	71.0	71.5	72.5	73.0	73.5	74.0	75.0	75.5	76.0
Harvested acres	62.9	63.6	63.0	62.6	63.0	63.9	64.3	64.8	65.2	66.1	66.5	67.0
Yields (bushels per acre):												
Yield/harvested acre	36.3	39.7	38.0	38.2	38.4	38.7	39.0	39.3	39.6	39.9	40.2	40.5
Supply and use (million bushels):												
Beginning stocks	376	444	655	657	610	560	528	516	517	497	496	495
Production	2,285	2,527	2,394	2,391	2,419	2,473	2,508	2,547	2,582	2,637	2,673	2,714
Imports	92	95	100	115	120	120	115	115	110	110	110	110
Supply	2,753	3,065	3,149	3,163	3,149	3,153	3,151	3,178	3,209	3,244	3,279	3,319
Food	892	910	920	930	940	950	960	970	980	990	1,000	1,010
Seed	103	100	97	98	99	100	100	101	102	103	104	105
Feed & residual	314	325	275	225	200	200	200	190	180	180	180	175
Domestic	1,308	1,335	1,292	1,253	1,239	1,250	1,260	1,261	1,262	1,273	1,284	1,290
Exports	1,001	1,075	1,200	1,300	1,350	1,375	1,375	1,400	1,450	1,475	1,500	1,550
Total use	2,310	2,410	2,492	2,553	2,589	2,625	2,635	2,661	2,712	2,748	2,784	2,840
Ending stocks	444	655	657	610	560	528	516	517	497	496	495	479
Stocks/use ratio, percent	19.2	27.2	26.4	23.9	21.6	20.1	19.6	19.4	18.3	18.1	17.8	16.9
Prices (dollars per bushel):												
Farm price	4.30	3.55	3.50	3.75	4.05	4.15	4.20	4.25	4.35	4.40	4.40	4.45
Loan rate	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58
Variable costs of production (dollars):												
Per acre	70.01	70.89	71.82	72.97	74.39	76.01	77.60	79.14	80.79	82.55	84.30	86.06
Per bushel	1.93	1.79	1.89	1.91	1.94	1.96	1.99	2.01	2.04	2.07	2.10	2.12
Returns over variable costs (dollars per acre):												
Market returns	88.82	72.76	64.64	74.02	84.97	88.58	90.31	92.12	95.87	97.60	97.42	99.30

1/ The cropping history allocation is based on 1996 plantings on farms with CRP acreage, and is used as a general indicator influencing land available for plantings.
2/ The production flexibility contract acreage reduction allocation of the CRP affects the acreage available for production flexibility contracts and, therefore, is used in the determination of PFC payment rates.

Table 14. Rice baseline, rough basis

Item	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Acreage (thousand acres):												
Planted	2,819	3,065	3,080	3,095	3,110	3,125	3,140	3,155	3,170	3,185	3,200	3,215
Harvested	2,799	3,037	3,034	3,049	3,063	3,078	3,093	3,108	3,122	3,137	3,152	3,167
Yields (lbs per acre):												
Yield/harvested acre	6,121	5,926	6,072	6,101	6,130	6,159	6,188	6,217	6,247	6,276	6,306	6,336
Supply and use (million cwt.):												
Beginning stocks	25.0	27.1	24.2	25.2	25.6	25.9	26.2	26.5	26.8	27.1	27.5	27.8
Production	171.3	180.0	184.2	186.0	187.8	189.6	191.4	193.2	195.1	196.9	198.8	200.7
Imports	10.0	10.0	10.5	11.0	11.6	12.2	12.8	13.4	14.1	14.8	15.5	16.3
Total supply	206.3	217.1	218.9	222.2	224.9	227.6	230.3	233.1	235.9	238.8	241.8	244.8
Domestic use	99.4	102.4	104.4	106.5	108.7	110.8	113.1	115.3	117.6	120.0	122.4	124.8
Exports	76.4	85.0	82.2	83.1	83.4	83.6	83.8	84.0	84.2	84.4	84.6	84.8
Residual	3.4	5.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Total use	179.2	192.9	193.7	196.6	199.0	201.4	203.8	206.3	208.8	211.3	213.9	216.6
Ending stocks (million cwt.)	27.1	24.2	25.2	25.6	25.9	26.2	26.5	26.8	27.1	27.5	27.8	28.2
Stocks/use ratio, percent	15.1	12.4	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
Milling rate, percent	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0
Prices (dollars per cwt.):												
World price	7.66	7.50	7.65	7.80	7.96	8.12	8.28	8.45	8.62	8.79	8.96	9.14
Average market price	9.90	9.75	10.15	10.35	10.56	10.77	10.99	11.21	11.43	11.66	11.89	12.13
Loan rate	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Variable costs of production (dollars):												
Per acre	372	374	379	387	396	405	415	424	434	444	454	465
Per cwt.	6.07	6.31	6.25	6.34	6.45	6.58	6.71	6.83	6.95	7.08	7.21	7.33
Returns over variable costs (dollars per acre):												
Market returns	234	204	237	245	252	258	265	272	280	287	296	304

Table 15. Upland cotton baseline

Item	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Acreage (million acres):												
CRP acres:												
Cropping history 1/	1.1	1.0	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
PFC acreage reduction 2/	1.4	1.4	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Planted acres	14.4	13.7	13.4	13.6	13.8	13.8	13.8	13.8	13.9	13.9	14.0	14.0
Harvested acres	12.6	13.2	12.5	12.6	12.8	12.8	12.8	12.8	12.9	12.9	13.0	13.0
Yields (pounds per acre):												
Yield/harvested acre	701	666	677	685	693	701	709	717	725	733	741	749
Supply and use (thousand bales):												
Beginning stocks	2,543	3,920	4,326	4,000	3,850	3,950	4,000	4,000	3,950	4,050	4,050	4,150
Production	18,413	18,300	17,600	18,000	18,500	18,700	18,900	19,100	19,500	19,700	20,100	20,300
Imports	403	25	5	5	5	5	5	5	5	5	5	5
Supply	21,359	22,245	21,931	22,005	22,355	22,655	22,905	23,105	23,455	23,755	24,155	24,455
Domestic use	11,020	11,290	11,400	11,550	11,700	11,850	12,000	12,150	12,300	12,450	12,600	12,750
Exports	6,399	6,575	6,500	6,600	6,700	6,800	6,900	7,000	7,100	7,250	7,400	7,550
Total use	17,419	17,865	17,900	18,150	18,400	18,650	18,900	19,150	19,400	19,700	20,000	20,300
Ending stocks	3,920	4,326	4,000	3,850	3,950	4,000	4,000	3,950	4,050	4,050	4,150	4,150
Stocks/use ratio, percent	23	24	22	21	21	21	21	21	21	21	21	20
Prices (dollars per pound): 3/												
Loan rate	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192
Variable costs of production (dollars):												
Per acre	298.78	305.53	312.72	319.90	328.14	337.36	346.42	355.08	364.03	373.41	382.83	392.61
Per pound	0.43	0.46	0.46	0.47	0.47	0.48	0.49	0.50	0.50	0.51	0.52	0.52
Returns over variable costs (dollars per acre):												
Market returns	258.43	211.75	218.28	225.07	232.10	233.42	234.71	236.19	238.06	239.58	241.77	243.09

1/ The cropping history allocation is based on 1996 plantings on farms with CRP acreage, and is used as a general indicator influencing land available for plantings.
2/ The production flexibility contract acreage reduction allocation of the CRP affects the acreage available for production flexibility contracts and, therefore, is used in the determination of PFC payment rates.
3/ USDA is prohibited from publishing cotton price projections.

Table 16. Soybean and products baseline

Item	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Soybeans												
Acreage (million acres)												
Planted	64.2	70.9	69.5	68.0	68.0	68.0	68.3	68.5	68.8	69.0	69.3	69.5
Harvested	63.4	69.8	68.4	66.9	66.9	66.9	67.2	67.4	67.7	67.9	68.2	68.4
Yield/harvested acre (bushels)	37.6	39.2	39.5	40.0	40.5	41.0	41.5	42.0	42.5	43.0	43.5	44.0
Supply (million bushels)												
Beginning stocks, Sept 1	183	132	255	285	255	235	220	210	205	205	205	205
Production	2,382	2,736	2,700	2,675	2,710	2,745	2,785	2,830	2,875	2,920	2,965	3,010
Imports	10	4	5	7	8	9	7	7	9	6	7	8
Total supply	2,575	2,872	2,960	2,967	2,973	2,989	3,012	3,047	3,089	3,131	3,177	3,223
Disposition (million bushels)												
Crush	1,436	1,500	1,550	1,585	1,605	1,625	1,640	1,665	1,690	1,715	1,745	1,770
Seed and residual	125	137	135	137	138	140	141	142	144	146	147	148
Exports	883	980	990	990	995	1,005	1,020	1,035	1,050	1,065	1,080	1,100
Total disposition	2,443	2,617	2,675	2,712	2,738	2,770	2,801	2,842	2,884	2,926	2,972	3,018
Carryover stocks, August 31												
Total ending stocks	132	255	285	255	235	220	210	205	205	205	205	205
Stocks/use ratio, percent	5.4	9.7	10.7	9.4	8.6	7.9	7.5	7.2	7.1	7.0	6.9	6.8
Prices (dollars per bushel)												
Loan rate	4.97	5.26	5.26	5.26	5.26	5.13	5.10	5.10	5.26	5.26	5.26	5.26
Soybean price, farm	7.38	6.40	5.70	5.65	6.00	6.30	6.50	6.75	7.00	7.10	7.15	7.25
Variable costs of production (dollars):												
Per acre	80.00	81.40	82.40	83.71	85.30	87.19	89.01	90.68	92.49	94.45	96.41	98.38
Per bushel	2.13	2.08	2.09	2.09	2.11	2.13	2.14	2.16	2.18	2.20	2.22	2.24
Returns over variable costs (dollars per acre):												
Market returns	197.28	169.48	142.75	142.29	157.70	171.11	180.74	192.82	205.01	210.85	214.61	220.62
Soybean oil (million pounds)												
Beginning stocks, Oct. 1	2,015	1,520	1,555	1,775	2,010	2,085	2,000	1,900	1,870	1,895	1,900	1,940
Production	15,744	16,725	17,360	17,770	18,010	18,250	18,435	18,730	19,030	19,330	19,685	19,985
Imports	53	60	60	65	65	65	65	65	70	75	80	85
Total supply	17,812	18,305	18,975	19,610	20,085	20,400	20,500	20,695	20,970	21,300	21,665	22,010
Domestic disappearance	14,242	14,350	14,600	14,850	15,100	15,350	15,600	15,850	16,125	16,400	16,675	16,950
Exports	2,050	2,400	2,600	2,750	2,900	3,050	3,000	2,975	2,950	3,000	3,050	3,100
Total demand	16,292	16,750	17,200	17,600	18,000	18,400	18,600	18,825	19,075	19,400	19,725	20,050
Ending stocks, Sept. 30	1,520	1,555	1,775	2,010	2,085	2,000	1,900	1,870	1,895	1,900	1,940	1,960
Soybean oil price ($/lb)	0.225	0.250	0.248	0.245	0.243	0.243	0.250	0.258	0.263	0.265	0.268	0.270
Soybean meal (thousand short tons)												
Beginning stocks, Oct. 1	212	207	225	225	225	225	225	225	225	225	225	225
Production	34,210	35,593	36,775	37,650	38,100	38,550	39,000	39,550	40,150	40,750	41,400	42,050
Imports	103	125	125	100	100	100	100	100	100	100	100	100
Total supply	34,525	35,925	37,125	37,975	38,425	38,875	39,325	39,875	40,475	41,075	41,725	42,375
Domestic disappearance	27,218	28,250	29,250	30,000	30,600	31,150	31,700	32,250	32,800	33,350	33,900	34,450
Exports	7,100	7,450	7,650	7,750	7,600	7,500	7,400	7,400	7,450	7,500	7,600	7,700
Total demand	34,318	35,700	36,900	37,750	38,200	38,650	39,100	39,650	40,250	40,850	41,500	42,150
Ending stocks, Sept. 30	207	225	225	225	225	225	225	225	225	225	225	225
Soybean meal price ($/ton)	270.9	212.5	182.5	182.5	198.0	211.5	216.5	222.5	230.0	233.0	234.0	236.5
Crushing yields (pounds per bushel)												
Soybean oil	10.96	11.15	11.20	11.21	11.22	11.23	11.24	11.25	11.26	11.27	11.28	11.29
Soybean meal	47.66	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50
Crush margin ($ per bushel)	1.54	1.43	1.41	1.43	1.43	1.45	1.45	1.44	1.42	1.42	1.43	1.42

Table 17. U.S. Sugar: Supply, disappearance, and prices, fiscal years 1/

Item	Units	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Sugarbeets-Planted	1,000 Acres	1,445	1,368	1,455	1,515	1,545	1,555	1,565	1,575	1,585	1,595	1,605	1,615
Harvested	1,000 Acres	1,420	1,323	1,430	1,490	1,520	1,530	1,540	1,550	1,560	1,570	1,580	1,590
Yield	Tons/Acre	19.8	20.2	21.0	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
Production	Mil. S. Tons	28.1	26.7	30.0	30.3	30.9	31.1	31.3	31.5	31.7	31.9	32.1	32.3
Sugarcane-Harvested	1,000 Acres	901	847	877	916	918	917	917	927	927	926	926	926
Yield	Tons/Acre	32.8	33.1	32.3	31.4	31.3	31.3	31.2	31.2	31.2	31.3	31.3	31.3
Production	Mil. S. Tons	29.6	28.1	28.3	28.7	28.7	28.7	28.6	28.9	28.9	29.0	29.0	29.0
Supply:													
Beginning Stocks	1,000 S. Tons	1,241	1,492	1,485	1,447	1,500	1,520	1,540	1,550	1,570	1,590	1,610	1,630
Production	1,000 S. Tons	7,370	7,203	7,735	7,885	8,015	8,075	8,125	8,225	8,285	8,355	8,425	8,485
Beet Sugar 2/	1,000 S. Tons	3,916	4,013	4,400	4,520	4,630	4,670	4,710	4,760	4,800	4,850	4,900	4,940
Cane Sugar 3/	1,000 S. Tons	3,454	3,190	3,335	3,365	3,385	3,405	3,415	3,465	3,485	3,505	3,525	3,545
Total imports	1,000 S. Tons	2,772	2,765	2,327	2,518	2,475	2,535	2,595	2,625	2,695	2,755	2,815	2,885
For consumption 4/	1,000 S. Tons	2,232	2,272	2,017	2,068	2,025	2,085	2,145	2,175	2,245	2,305	2,365	2,435
Other imports 5/	1,000 S. Tons	540	493	310	450	450	450	450	450	450	450	450	450
Total supply	1,000 S. Tons	11,383	11,460	11,547	11,850	11,990	12,130	12,260	12,400	12,550	12,700	12,850	13,000
Use:													
Domestic disappearance	1,000 S. Tons	9,554	9,766	9,900	10,020	10,140	10,260	10,380	10,500	10,630	10,760	10,890	11,020
Exports	1,000 S. Tons	385	211	200	330	330	330	330	330	330	330	330	330
Miscellaneous 6/	1,000 S. Tons	-48	-1	0	0	0	0	0	0	0	0	0	0
Total use	1,000 S. Tons	9,891	9,977	10,100	10,350	10,470	10,590	10,710	10,830	10,960	11,090	11,220	11,350
Ending stocks	1,000 S. Tons	1,492	1,485	1,447	1,500	1,520	1,540	1,550	1,570	1,590	1,610	1,630	1,650
Stocks/use ratio	Percent	15.1	14.9	14.3	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
Raw sugar prices:													
World (No. 11)	Cents/lb.	12.40	11.67	11.10	11.70	11.80	12.10	12.50	12.80	13.20	13.50	13.80	13.50
N.Y. (No. 14) 7/	Cents/lb.	22.50	22.00	22.06	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00
Raw sugar loan rate	Cents/lb.	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00
Beet sugar loan rate	Cents/lb.	22.90	22.90	22.90	22.90	22.90	22.90	22.90	22.90	22.90	22.90	22.90	22.90
Grower prices: 8/													
Sugarbeets	Dol./ton	38.10	41.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Sugarcane	Dol./ton	29.40	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00

1/ Fiscal year is October 1 through September 30. The 1996 crop corresponds with fiscal 1997, etc. Historic data for area planted, harvested, yield, production, and prices of sugarbeets and sugarcane are on the NASS crop year basis; all other data are on a fiscal year basis.

2/ Beet sugar yield, raw value, per ton of beets (not including sugar from molasses) rises on trend, at 0.04 percentage points each year. Desugaring of molasses adds a net 275,000 tons in 1998, 300,000 tons in 1999, and then rises slowly to 330,000 tons by 2007.

3/ Raw cane sugar yield per ton of cane rises 0.4 percent per year as new processing technology is adopted.

4/ Quota imports, both raw and refined, at the low rate of duty and very small amounts of high-duty imports. Projected imports do not necessarily reflect the determination by the Secretary which will be made pursuant to Additional U.S. Note 3 of Chap. 17 of the HTSUS.

5/ For re-export and for polyhydric alcohol.

6/ Includes CCC disposals, refining loss, and a statistical adjustment to account for invisible stock change.

7/ Through 1997, fiscal-year average of the nearest futures, No. 14 contract, New York Coffee Sugar and Cocoa Exchange; for 1998 forwards, projected.

8/ For 1998 forwards, projected.

Table 18. Flue-cured tobacco baseline

Item	Unit	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Acreage, yield, and production:													
Planted area	1,000 acres	422	451	351	342	351	356	342	325	309	293	279	265
Harvested area	1,000 acres	422	451	351	342	351	356	342	325	309	293	279	265
Yield	lbs./acre	2,151	2,235	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250
Production	Mil. lbs.	908	1,008	790	770	790	800	770	732	695	660	627	596
Supply:													
Beg. stocks	Mil. lbs.	1,166	1,116	1,219	1,124	1,029	974	949	914	891	870	861	858
Marketings	Mil. lbs.	897	1,008	790	770	790	800	770	732	695	660	627	596
Total 1/	Mil. lbs.	2,063	2,124	2,009	1,894	1,819	1,774	1,719	1,646	1,585	1,531	1,488	1,454
Imports	Mil. lbs.	(260)	(220)	(200)	(200)	(200)	(200)	(220)	(240)	(260)	(280)	(300)	(300)
Use:													
Domestic	Mil. lbs.	555	525	515	505	495	485	475	450	435	415	400	375
Export	Mil. lbs.	391	380	370	360	350	340	330	305	280	255	230	230
Total 1/	Mil. lbs.	946	905	885	865	845	825	805	755	715	670	630	605
Ending stocks:													
Total	Mil. lbs.	1,117	1,219	1,124	1,029	974	949	914	891	870	861	858	849
Price:													
Avg. to growers	$/Cwt	184	172	175	177	179	182	185	195	198	201	200	203
Support	$/Cwt	160	163	165	167	169	172	175	183	186	189	191	194

1/ Domestic tobacco only.

Table 19. Burley tobacco baseline

Item	Unit	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Acreage, yield, and production:													
Planted area	1,000 acres	268	301	310	274	238	226	226	226	224	214	214	214
Harvested area	1,000 acres	268	301	310	274	238	226	226	226	224	214	214	214
Yield	lbs./acre	1,940	1,868	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100
Production	Mil. lbs.	520	563	650	575	500	475	475	475	470	450	450	450
Supply:													
Beg. stocks	Mil. lbs.	890	776	741	821	866	826	776	741	711	696	681	671
Marketings	Mil. lbs.	516	560	650	600	500	475	475	475	470	450	450	450
Total 1/	Mil. lbs.	1,406	1,336	1,391	1,421	1,366	1,301	1,251	1,216	1,181	1,146	1,131	1,121
Imports	Mil. lbs.	(150)	(150)	(160)	(165)	(175)	(175)	(175)	(185)	(195)	(205)	(205)	(205)
Use:													
Domestic	Mil. lbs.	420	405	390	380	370	360	350	350	350	345	345	345
Export	Mil. lbs.	210	190	180	175	170	165	160	155	135	120	115	115
Total 1/	Mil. lbs.	630	595	570	555	540	525	510	505	485	465	460	460
Ending stocks:													
Total	Mil. lbs.	776	741	821	866	826	776	741	711	696	681	671	661
Price:													
Avg. to growers	$/Cwt	194	195	198	201	204	207	210	211	214	217	215	215
Support	$/Cwt	174	178	181	184	187	190	193	196	199	202	200	200

1/ Domestic tobacco only.

Table 20. Fruit, vegetable, and greenhouse/nursery baseline

Item	Unit	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Production value:	$ Mil.	34,521	36,774	38,868	40,328	41,817	43,326	44,865	46,431	48,025	49,649	51,304	52,993
Fruits	$ Mil.	11,290	12,154	12,791	13,304	13,837	14,385	14,954	15,542	16,151	16,780	17,432	18,108
Vegetables	$ Mil.	12,318	13,120	14,154	14,600	15,057	15,518	15,988	16,466	16,952	17,446	17,949	18,462
Greenhouse/Nurs.	$ Mil.	10,912	11,500	11,923	12,423	12,923	13,423	13,923	14,423	14,923	15,423	15,923	16,423
Production:	1,000 MT	88,626	87,785	90,422	91,918	93,430	94,929	96,442	97,959	99,481	101,010	102,549	104,101
Fruits													
Citrus	1,000 MT	14,256	15,693	16,047	16,400	16,755	17,108	17,464	17,820	18,177	18,535	18,895	19,258
Noncitrus	1,000 MT	14,710	14,868	15,063	15,255	15,449	15,641	15,835	16,029	16,223	16,418	16,615	16,813
Nuts	1,000 MT	377	473	483	493	502	512	521	531	540	550	560	569
Total	1,000 MT	29,342	31,034	31,593	32,147	32,707	33,261	33,820	34,380	34,940	35,504	36,070	36,641
Vegetables													
Fresh	1,000 MT	18,366	18,455	18,717	18,935	19,157	19,376	19,598	19,820	20,043	20,267	20,494	20,723
Processed	1,000 MT	15,896	15,014	16,793	17,077	17,364	17,648	17,933	18,218	18,503	18,789	19,075	19,363
Potatoes 1/	1,000 MT	23,235	21,459	21,459	21,862	22,269	22,675	23,086	23,499	23,914	24,333	24,756	25,182
Pulses	1,000 MT	1,429	1,466	1,499	1,531	1,563	1,596	1,628	1,661	1,694	1,727	1,760	1,793
Mushrooms	1,000 MT	357	357	361	366	370	374	378	382	386	390	395	399
Total	1,000 MT	59,283	56,751	58,829	59,771	60,723	61,668	62,623	63,580	64,540	65,506	66,479	67,461
Trade: 2/													
Imports	$ Mil.	11,631	12,316	12,822	13,385	13,944	14,522	15,118	15,733	16,369	17,025	17,703	18,404
Fruit													
Fresh	$ Mil.	2,298	2,350	2,446	2,544	2,645	2,749	2,855	2,963	3,075	3,189	3,305	3,425
Processed	$ Mil.	600	618	636	654	673	693	713	734	755	778	800	824
Other	$ Mil.	2,879	3,145	3,228	3,328	3,409	3,493	3,578	3,666	3,756	3,849	3,944	4,041
Total	$ Mil.	5,777	6,113	6,310	6,526	6,728	6,934	7,146	7,363	7,586	7,815	8,049	8,289
Vegetables													
Fresh	$ Mil.	1,789	1,899	2,014	2,132	2,254	2,381	2,511	2,646	2,785	2,928	3,077	3,230
Processed	$ Mil.	561	594	613	632	651	671	691	712	733	756	778	801
Potatoes	$ Mil.	238	249	238	253	267	283	299	315	332	350	368	386
Pulses	$ Mil.	37	52	54	56	58	60	63	65	67	70	73	75
Other	$ Mil.	1,053	1,114	1,175	1,236	1,296	1,357	1,418	1,479	1,539	1,600	1,661	1,722
Total	$ Mil.	3,678	3,908	4,093	4,308	4,527	4,752	4,981	5,217	5,457	5,704	5,956	6,214
Greenhouse/Nurs.	$ Mil.	952	1,009	1,070	1,134	1,202	1,274	1,350	1,431	1,517	1,608	1,705	1,807
Exports	$ Mil.	9,088	10,068	10,781	11,510	12,257	13,023	13,807	14,610	15,432	16,275	17,139	18,024
Fruits													
Fresh	$ Mil.	1,890	1,939	2,053	2,170	2,291	2,416	2,545	2,679	2,816	2,959	3,105	3,257
Processed	$ Mil.	686	706	726	748	769	792	815	839	863	888	914	941
Other	$ Mil.	2,368	2,551	2,754	2,961	3,174	3,392	3,615	3,843	4,077	4,317	4,563	4,814
Total	$ Mil.	4,943	5,196	5,533	5,879	6,235	6,600	6,975	7,361	7,757	8,164	8,582	9,012
Vegetables													
Fresh	$ Mil.	951	1,162	1,234	1,310	1,387	1,467	1,550	1,636	1,724	1,816	1,910	2,007
Processed	$ Mil.	633	977	1,061	1,148	1,238	1,331	1,427	1,527	1,630	1,737	1,847	1,961
Potatoes	$ Mil.	613	617	671	727	785	845	907	972	1,038	1,107	1,178	1,252
Pulses	$ Mil.	261	279	293	308	322	337	353	369	386	403	421	439
Other	$ Mil.	1,444	1,589	1,734	1,880	2,025	2,170	2,315	2,461	2,606	2,751	2,896	3,041
Total	$ Mil.	3,903	4,624	4,994	5,372	5,757	6,151	6,553	6,965	7,384	7,814	8,252	8,701
Greenhouse/Nurs.	$ Mil.	242	248	254	260	266	272	278	284	291	298	304	311
Prices:													
Grower													
Fruits	1990-92=100	118	115	121	125	127	129	132	134	136	139	141	143
Vegetables	1990-92=100	107	109	112	114	116	119	121	123	126	128	131	133
Potatoes	$/MT	109	143	152	155	159	162	166	169	173	176	180	183
Dry beans	$/MT	534	440	460	501	504	508	511	515	519	522	526	529
Retail													
Fruits													
Fresh	1982-84=100	234	235	242	253	263	274	284	295	305	316	326	337
Processed	1982-84=100	145	149	152	155	158	161	164	167	170	173	176	180
Vegetables													
Fresh	1982-84=100	189	193	202	209	217	224	231	238	246	253	260	267
Processed	1982-84=100	144	147	151	154	158	162	165	169	172	176	179	183

1/ Includes sweet potatoes.

2/ Total for imports includes beer and malt beverages. Fruit imports includes bananas. Melons are included in vegetables. Other fruit includes juices, wine, and tree nuts. Other vegetables includes mushrooms, dehydrated vegetables, and miscellaneous processed foods.

Livestock

Changes in the U.S. meat complex continue to reflect the effects of the high grain prices of the 1995/96 crop year. Although grain prices have since fallen, they remain relatively high and harvested forage supplies are tight. Both the poultry and pork sectors are expanding in response to lower grain prices. However, the beef sector is expected to continue contracting over the next 3 years, reflecting producers' response to poor returns and the longer biological lags inherent in beef production. Over the baseline, lower feed prices than in 1995/96 and replenishment of forage supplies should moderate production costs in the meat sector. Continued low inflation, domestic demand strength from slow but steady income growth, and gains in export sales are expected to contribute to producer returns that encourage higher red meat and poultry output. However, as feed costs increase beyond 2000, beef and poultry production gains slow towards the end of the baseline. Pork production declines in the middle of the baseline but begins expanding again in the last few years.

Decreases in real prices of meats combined with increases in real disposable income allow consumers to purchase more total meat with a smaller proportion of disposable income, continuing a long-term trend. Consumption gains exceed population growth with per capita meat consumption reaching nearly 229 pounds (retail weight) by 2007. The meats will vie for domestic market share through product development, advertising, and promotion. Poultry gains a larger proportion of both total meat consumption and total meat expenditures, reflecting its lower production costs and prices relative to other meats. On a retail weight basis, total poultry consumption is expected to exceed total red meat consumption in 2004.

Total egg production expands slightly in the baseline in part to support larger broiler production. Per capita consumption of shell eggs is declining more slowly and total egg use per person has risen due to growing use in processed foods. Real egg prices continue to fall.

Although milk-feed price ratios could become less favorable, dairy productivity gains continue into the next decade, pushing milk output per cow higher and real cost lower. Milk production will grow despite slowly declining cow numbers throughout the period. Real milk prices will fall.

Beef

Lower feeder cattle prices due to record grain prices in 1995/96 were compounded by poor forage supplies in 1996 through the summer of 1997. Low returns to the cow-calf sector, large beef cow slaughter in 1997, and the length of the biological lag is likely to prevent herd expansion before the turn of the century. Returns above cash costs per cow were near break-even in 1997 and could turn positive starting in 1998, but this is not expected to be sufficient to encourage large expansion. The cattle herd builds from a cyclical low of 97 million head in 2000, reaching about 102 million head by 2007. Shifts toward larger-framed cattle and heavier slaughter weights partly offset the need for expanding cattle inventories to previous levels.
Beef production declines over the next few years, reflecting sector adjustments to low cow-calf returns. From 2000 to 2005, production gradually rises but less than gains in population. Coupled with larger exports and declining imports after 2001, per capita beef consumption drops

just over 7 pounds, retail weight, from 1997 to 2007. The beef production mix continues to shift toward a larger proportion of fed beef as nearly all steers and heifers are feedlot fed. Calf slaughter returns to relatively low levels as a larger proportion of the herd is placed on feed.

Feeder cattle remain on grass longer and will be marketed at heavier weights as grains remain relatively expensive. Cattle will remain in feedlots for 120 to 140 days to Select or Choice grade, with dressed slaughter weights growing slowly during the baseline. Heavier placement weights coupled with less finish required to reach Choice grade will hold down feed grain use and feed fed per pound of fed beef produced. The strongest prices will be received for cattle that grade Choice or higher for the growing export and domestic hotel-restaurant markets.

Adequate land resources will remain available to the cattle and crop sectors into the next decade. In addition, the 1996 Farm Act further expands the forage base by allowing haying and grazing at any time on land enrolled in production flexibility contracts. Conservation Reserve Program acreage will remain over 30 million acres. Grazing and haying on CRP acreage will continue to be allowed under restricted conditions during emergencies such as drought and floods. This increased availability of forage for the reduced cattle sector, combined with a shift toward cow-calf-yearling operations, allows flexibility in the use of forage and the marketing of feeder cattle. In the event of poor forage conditions, for example, feeder cattle can be marketed early, allowing the cow herd to be maintained.

Veal production falls through 2007. A larger share of veal production will come from higher valued formula fed calves marketed at heavier weights. Declining dairy cow numbers will reduce the supply of dairy calves. High stocker and feeder cattle prices will encourage more of these dairy calves to move into feedlot channels rather than being slaughtered as young calves.

The emergence of the United States as a long-term net beef exporter will be delayed until early in the next decade as the cattle inventory is reestablished and weak demand in the Pacific Rim recovers. Adjustments in world beef trade will continue as market access is opened under the GATT agreement, but long-term growth in meat demand in the Pacific Rim may be slower than previously thought. The United States remains the primary source of high quality fed beef for export, and will see exports of high quality steaks and roasts continue to increase, primarily to Pacific Rim nations. Australia and perhaps New Zealand will also increase exports to Pacific Rim nations, although their beef will be lower quality, grass-fed beef with limited amounts of grain-fed beef. However, the United States will remain an important market for Oceania, especially while the beef cow inventory remains low.

U.S. emphasis on fed beef production and the smaller cattle inventory will result in marginal beef import growth for processing beef. Most processing beef will be used in higher valued hamburger as large supplies of low priced, processing quality poultry and pork are used in lower valued manufactured products.

Pork

The pork sector will continue to transform into a more vertically coordinated industry. Larger, more efficient pork producers will market a greater percentage of the hogs over the next 10 years. These larger operations are able to spread fixed costs across more animals and purchase grain in large quantities, resulting in greater efficiency. Breeding inventories are low relative to pork production and will likely fall further as the number of pigs per litter increases.

Pork production grows slowly from 17 billion pounds in 1997 to nearly 20 billion pounds by 2007, with 9 percent and 6 percent jumps in 1998 and 1999 as larger producers expand following an exodus of smaller producers in 1995/96 due to high grain prices. The large production increases drive returns to near break-even in 1999 and 2000, causing the cycle to turn in 2001, before production begins to increase again in 2004. However, the lack of any supply or demand shocks in the baseline, combined with the more vertically coordinated industry structure, dampens the hog cycle. Pork production growth remains slow through the remainder of the baseline as higher grain prices and competition from beef and poultry moderate returns.

Per capita pork consumption on a retail basis rises from 48 pounds in 1997 to a cyclical peak near 54 pounds per person in 1999-2000 before dropping off to about 49 pounds in 2007. Nominal hog prices slowly rise from 1999 through 2007.

The United States becomes an increasingly important net pork exporter. Exports will continue to expand while pork imports decline modestly. Pork exports will be boosted in the near-term due to Taiwan's foot and mouth disease problems. Longer term gains in pork exports reflect in part environmental constraints in a number of competitor countries (including Taiwan) that limit their production growth. The major growth markets for U.S. pork exports will remain Pacific Rim nations and Mexico. Yearly trade variations will depend upon major foreign suppliers such as Canada and Denmark, as well as exchange rate fluctuations.

Poultry and Eggs

Poultry production expands as broiler meats gain an increasing share of total meat consumption. Poultry meat will be less expensive than other meats so consumers can purchase more poultry meat per dollar. Poultry firms will continue aggressive market development and promote poultry's image of providing lean, convenient products. Further processed products including those seasoned, marinated, and packaged with other food products are recent trends. Production gains for turkeys reflect projected growth in the further-processed market and exports.

Poultry production gains accelerate in the next few years from a recent slowdown caused by high feed costs in 1995/96. Then increases in production slow again as broiler producers respond to more moderate net returns when real feed costs flatten beyond 2000. Poultry meat prices in the baseline decline in real terms.

The broiler and turkey industries have kept the cost of production from increasing at the full rate of inflation through technological advancements and improved production management practices,

including taking advantage of economies of size through increasing vertical integration. While some further technological improvements and continued vertical integration occur during the baseline, they will not affect production costs as significantly as in the past 10 years.

Turkey production will expand slowly with per capita consumption stabilizing. Low returns in recent years have slowed product development and larger pork production will provide more competition in the marketplace.

Continued competition in world poultry meat markets holds U.S. poultry exports to moderate gains. Increases are expected in exports of broiler parts, especially for dark meat, as U.S. real prices decline.

Table egg producers expand production slowly through the baseline in response to low industry net returns. A larger expansion in total U.S. egg production reflects increased broiler hatching egg production to accommodate broiler sector expansion.

Shell egg consumption per person falls more slowly than the long-term historical declining trend of 1 to 3 eggs a year. Per capita consumption of total eggs increases throughout the baseline. Processed egg products are an increasing part of the egg market as ingredients in many prepared foods. As consumers opt for more convenience foods, consumption of egg products will continue to increase, as negative egg attributes are less noticeable in processed products.

Wholesale egg prices trend upward, with increases less than the inflation rate. A competitive market with little product differentiation will result in supplies that keep prices near the cost of production.

U.S. egg exports are fairly constant over the baseline as many countries will likely continue to experience surpluses of eggs. World import demand will remain relatively static as domestic production will generally meet increased domestic demands in most countries.

Dairy

Milk production is expected to grow slowly, but supply shifts are projected to be much more modest than during the 1980s and early 1990s. Alfalfa hay prices will be higher than in the past, and milk-feed price ratios will run at levels normally associated with below-trend growth in milk per cow. Feed conditions will tend to slow growth in milk per cow and deter individual herd expansions. However, milk production will continue to expand in the West as well as on large operations in the North. Although pressures for larger output may not be as strong as in the past, they are expected to still outweigh weaknesses in milk production.

Slipping real milk prices are likely to continue to push weaker farms (and some of their land) out of dairying. Intensive grazing may prolong the existence of some operations, particularly in areas of marginal land. However, these techniques are not expected to make very many of the currently marginal operations viable into the next generation.

Dairy Program Changes

The 1996 Farm Act modified dairy programs by phasing out the price support purchase program, and consolidating and reforming Federal milk marketing orders.

Dairy support prices are phased down through 1999, and the price support purchase program ends on December 31, 1999. Starting January 1, 2000, a recourse loan program, in which loans must be repaid with interest, is implemented for butter, nonfat dry milk, and cheddar cheese at loan rates equivalent to $9.90 per hundredweight for milk to assist processors in the management of dairy product inventories.

The Act requires that Federal milk marketing orders be reformed and consolidated from the current 32 orders into 10-14 orders, reserving one order for California. This will expand the size of marketing order areas, and could have local price impacts by raising prices received by some farmers while reducing prices for others. In addition, a broad number of reforms may be considered under expedited administrative procedures.

Milk cow numbers are projected to decline about 1 percent a year or slightly less. Meanwhile, milk per cow will grow about 1.5 to 2 percent annually. Although generally rising, milk production will be vulnerable to declines in years with feed price increases, demand reductions, or other negative shocks.

Real price declines, economic growth, and population increases are expected to trigger slow expansion in commercial use of dairy products. Sales of cheese and dairy ingredients for processed foods are expected to continue to expand, while fluid milk sales are stagnant.

The price support purchase program is not expected to have much effect during the remainder of its scheduled life (1998 and 1999). The Dairy Export Incentive Program (DEIP) will continue to support dairy prices, but DEIP amounts are tightly controlled by WTO limits. Government price support programs will have much less impact on dairy markets than in the past.

International market prices are expected to run generally below domestic prices. Commercial exports will be limited to a variety of niche markets, such as nearby markets, value-added products where raw material costs are less important, or where U.S. products have particular appeal (ice cream and mozzarella cheese, for example). Infrequently, commercial exports of sizable quantities of butter or nonfat dry milk probably will occur. Commercial exports probably will not be a major factor in domestic milk prices.

Farm milk prices are expected to rise by less than the rate of general inflation. These prices will slow milk production enough to allow domestic sales to keep pace. Retail prices also are expected to trail prices of other products. Prices may be considerably more volatile than they generally have been in the past because of the delicate balance between expansion in both production and use.

Table 21. Per capita meat consumption, retail and boneless weight

Item	Units	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Retail weight:													
Total beef	Pounds	67.7	67.0	65.5	61.2	59.4	60.0	61.0	61.0	60.5	60.2	60.0	59.7
Total veal	Pounds	1.2	1.0	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.6
Total pork	Pounds	49.1	48.1	51.7	54.0	53.9	52.7	51.6	50.7	50.2	49.8	49.5	49.3
Lamb and mutton	Pounds	1.1	1.1	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9
Total red meat	Pounds	119.1	117.1	119.1	117.0	115.1	114.5	114.2	113.3	112.3	111.5	111.0	110.4
Broilers	Pounds	71.6	74.0	78.3	82.3	85.2	88.0	90.3	91.9	93.8	95.6	97.6	99.5
Other chicken	Pounds	0.9	0.5	0.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Turkeys	Pounds	18.5	18.1	19.0	18.9	18.9	19.1	19.2	19.1	19.0	18.9	18.7	18.7
Total poultry	Pounds	90.9	92.6	97.9	101.5	104.4	107.4	109.7	111.2	113.1	114.8	116.6	118.5
Red meat & poultry	Pounds	210.0	209.8	217.0	218.5	219.5	221.9	224.0	224.5	225.3	226.3	227.6	228.9
Boneless weight:													
Total beef	Pounds	64.6	63.9	62.5	58.4	56.7	57.3	58.1	58.1	57.7	57.4	57.2	57.0
Total veal	Pounds	1.0	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5
Total pork	Pounds	46.1	45.1	48.6	50.7	50.7	49.5	48.5	47.6	47.1	46.8	46.5	46.3
Lamb & mutton	Pounds	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6
Total red meat	Pounds	112.5	110.7	112.6	110.5	108.7	108.1	107.9	107.0	106.1	105.4	104.9	104.4
Broilers	Pounds	50.1	51.8	54.8	57.6	59.6	61.6	63.2	64.3	65.6	66.9	68.3	69.6
Other chicken	Pounds	0.6	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Turkeys	Pounds	14.6	14.3	15.0	14.9	15.0	15.1	15.1	15.1	15.0	14.9	14.8	14.8
Total poultry	Pounds	65.2	66.4	70.2	72.7	74.7	76.9	78.5	79.5	80.8	82.0	83.3	84.6
Red meat and poultry	Pounds	177.7	177.1	182.7	183.2	183.5	185.0	186.4	186.6	186.9	187.4	188.2	188.9

Table 22. Consumer expenditures for meats

Item	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Beef, dollars per person	191.54	188.93	190.72	190.39	189.78	190.36	191.83	194.24	196.27	197.86	199.58	200.91
Percent of income	0.91	0.86	0.83	0.79	0.75	0.72	0.69	0.66	0.64	0.61	0.59	0.57
Percent of meat expenditures	44.84	43.80	42.73	41.46	40.71	40.57	40.53	40.35	40.04	39.71	39.42	39.08
Pork, dollars per person	108.57	111.48	116.90	118.33	118.69	118.53	118.53	119.03	119.58	119.97	120.37	120.46
Percent of income	0.51	0.51	0.51	0.49	0.47	0.45	0.42	0.41	0.39	0.37	0.36	0.34
Percent of meat expenditures	25.41	25.84	26.19	25.76	25.46	25.26	25.04	24.73	24.39	24.08	23.78	23.43
Broilers, dollars per person	107.83	111.83	118.65	129.44	135.94	138.83	141.81	147.02	153.15	159.09	164.97	171.18
Percent of income	0.51	0.51	0.52	0.54	0.54	0.52	0.51	0.50	0.50	0.49	0.49	0.48
Percent of meat expenditures	25.24	25.92	26.58	28.18	29.16	29.59	29.96	30.54	31.24	31.93	32.59	33.30
Turkeys, dollars per person	19.27	19.13	20.08	21.11	21.80	21.52	21.12	21.12	21.25	21.32	21.32	21.54
Percent of income	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.07	0.07	0.07	0.06	0.06
Percent of meat expenditures	4.51	4.43	4.50	4.60	4.68	4.59	4.46	4.39	4.33	4.28	4.21	4.19
Total meat, dollars per person	427.20	431.37	446.35	459.27	466.21	469.24	473.28	481.41	490.24	498.24	506.24	514.09
Percent of income	2.02	1.96	1.94	1.91	1.84	1.76	1.69	1.64	1.59	1.55	1.50	1.45

Table 23. Beef baseline

Item	Units	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Beginning stocks	Mil. lbs.	519	377	400	350	400	410	425	450	475	475	475	475
Commercial production	Mil. lbs.	25,419	25,313	24,750	23,658	23,231	23,732	24,401	24,712	24,778	24,955	25,172	25,364
Change	Percent	1.2	-0.4	-2.2	-4.4	-1.8	2.2	2.8	1.3	0.3	0.7	0.9	0.8
Farm production	Mil. lbs.	106	106	106	106	106	106	106	106	106	106	106	106
Total production	Mil. lbs.	25,525	25,419	24,856	23,764	23,337	23,838	24,507	24,818	24,884	25,061	25,278	25,470
Imports	Mil. lbs.	2,073	2,387	2,680	2,440	2,437	2,441	2,439	2,435	2,422	2,412	2,392	2,374
Total supply	Mil. lbs.	28,117	28,183	27,936	26,554	26,174	26,689	27,371	27,703	27,781	27,948	28,145	28,319
Exports	Mil. lbs.	1,877	1,978	2,095	2,119	2,232	2,283	2,366	2,452	2,522	2,602	2,682	2,764
Ending stocks	Mil. lbs.	377	400	350	400	410	425	450	475	475	475	475	475
Total consumption	Mil. lbs.	25,863	25,805	25,491	24,035	23,532	23,981	24,555	24,776	24,784	24,871	24,988	25,080
Per capita, carcass weight	Pounds	97.4	96.4	94.3	88.1	85.5	86.4	87.7	87.7	87.1	86.6	86.3	85.9
Per capita, retail weight	Pounds	67.7	67.0	65.5	61.2	59.4	60.0	61.0	61.0	60.5	60.2	60.0	59.7
Change	Percent	0.3	-1.0	-2.2	-6.6	-3.0	1.1	1.5	0.0	-0.7	-0.6	-0.3	-0.5
Prices:													
Beef cattle, farm	$/cwt	59.30	63.55	69.38	75.01	75.99	75.81	76.33	77.68	79.10	80.59	81.98	83.28
Calves, farm	$/cwt	58.74	83.14	87.00	100.75	100.20	92.76	93.70	96.51	98.53	99.72	101.21	103.07
Choice steers, Nebraska	$/cwt	65.21	66.67	73.50	79.46	80.51	80.31	80.86	82.29	83.79	85.38	86.85	88.22
Deflated price	$/cwt	41.54	41.46	44.44	46.63	45.74	44.18	43.06	42.48	41.98	41.51	40.99	40.34
Yearl. steers, Okla. City	$/cwt	61.08	75.94	79.50	92.07	91.56	84.76	85.63	88.19	90.04	91.12	92.48	94.18
Deflated price	$/cwt	38.90	47.23	48.07	54.03	52.02	46.62	45.59	45.53	45.11	44.30	43.65	43.06
Retail: Beef and veal	1982-84=100	134.5	137.0	142.0	151.7	155.8	154.7	153.6	155.5	158.2	160.4	162.4	164.2
Retail: Other meats	1982-84=100	144.0	147.0	149.0	159.2	163.5	162.3	161.1	163.2	166.0	168.3	170.4	172.3
ERS retail beef	$/lb.	2.82	2.82	2.91	3.11	3.19	3.17	3.15	3.19	3.24	3.29	3.33	3.37
Costs and returns, cow-calf enterprise:													
Variable expenses	$/cow	201.64	219.24	215.54	205.74	208.74	216.40	223.85	229.26	235.65	242.42	248.01	252.60
Fixed expenses	$/cow	114.41	116.84	118.07	120.24	122.99	125.76	127.38	130.25	133.45	136.79	140.47	143.27
Total cash expenses	$/cow	316.05	336.08	333.61	325.97	331.73	342.16	351.23	359.51	369.10	379.21	388.47	395.88
Returns above cash costs	$/cow	-43.85	0.01	16.05	76.63	74.45	42.37	43.52	52.99	58.01	59.13	62.51	69.43
Cattle inventory	1,000 head	103,487	101,209	98,526	96,802	96,714	98,517	100,061	100,639	100,928	101,316	101,734	102,040
Beef cow inventory	1,000 head	35,261	34,291	33,835	32,703	32,910	33,755	34,531	34,835	35,059	35,313	35,574	35,794

Table 24. Pork baseline

Item	Units	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Beginning stocks	Mil. lbs.	396	366	400	380	380	380	380	380	380	380	400	400
Commercial production	Mil. lbs.	17,085	17,029	18,500	19,559	19,793	19,590	19,453	19,384	19,444	19,583	19,735	19,906
Change	Percent	-4.1	-0.3	8.6	5.7	1.2	-1.0	-0.7	-0.4	0.3	0.7	0.8	0.9
Farm production	Mil. lbs.	32	32	32	32	32	32	32	32	32	32	32	32
Total production	Mil. lbs.	17,117	17,061	18,532	19,591	19,825	19,622	19,485	19,416	19,476	19,615	19,767	19,938
Imports	Mil. lbs.	618	620	615	608	600	591	582	573	564	556	547	538
Total supply	Mil. lbs.	18,131	18,047	19,547	20,579	20,805	20,593	20,447	20,369	20,420	20,551	20,714	20,876
Exports	Mil. lbs.	951	1,064	1,150	1,221	1,296	1,373	1,455	1,543	1,636	1,733	1,839	1,949
Ending stocks	Mil. lbs.	366	400	380	380	380	380	380	380	380	400	400	400
Total consumption	Mil. lbs.	16,814	16,583	18,017	18,978	19,129	18,840	18,612	18,446	18,404	18,418	18,475	18,527
Per capita, carcass weight	Pounds	63.3	61.9	66.7	69.6	69.5	67.9	66.5	65.3	64.6	64.2	63.8	63.5
Per capita, retail weight	Pounds	49.1	48.1	51.7	54.0	53.9	52.7	51.6	50.7	50.2	49.8	49.5	49.3
Change	Percent	-6.3	-2.2	7.6	4.4	-0.1	-2.4	-2.1	-1.7	-1.0	-0.8	-0.5	-0.5
Prices:													
Hogs, farm	$/cwt	53.34	52.38	47.36	42.29	42.34	44.36	46.22	48.06	49.22	49.95	50.51	50.86
Iowa, So. Minn. market	$/cwt	53.39	51.98	47.00	42.19	42.24	44.26	46.12	47.96	49.12	49.85	50.41	50.76
Deflated price	$/cwt	34.01	32.33	28.42	24.76	24.00	24.35	24.56	24.76	24.61	24.23	23.79	23.21
Retail: pork	1982-84=100	148.2	155.0	151.0	146.4	147.0	150.4	153.5	156.9	159.3	161.0	162.4	163.4
ERS retail pork	$/lb.	2.21	2.32	2.26	2.19	2.20	2.25	2.30	2.35	2.38	2.41	2.43	2.45
Costs and returns, farrow to finish:													
Variable expenses	$/cwt	42.52	41.22	38.19	36.60	36.54	38.12	39.59	40.35	41.46	42.66	43.37	43.71
Fixed expenses	$/cwt	4.91	4.99	5.15	5.09	5.07	5.05	4.99	4.98	4.98	4.99	5.04	5.05
Total cash expenses	$/cwt	47.43	46.20	43.34	41.69	41.61	43.17	44.59	45.33	46.44	47.65	48.41	48.76
Returns above cash costs	$/cwt	5.96	5.78	3.66	0.50	0.63	1.09	1.53	2.62	2.68	2.20	2.00	2.00
Hog inventory, Dec. 1, previous year	1,000 head	60,540	58,200	60,250	64,775	65,983	65,350	64,923	64,706	64,893	65,329	65,803	66,338

Table 25. Young chicken baseline

Item	Units	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Beginning stocks	Mil. lbs.	560	641	625	750	800	850	900	950	1000	1050	1100	1150
F.I. slaughter	Mil. lbs.	26,336	27,281	29,200	30,810	32,208	33,529	34,719	35,862	37,016	38,175	39,338	40,517
Change	Percent	5.3	3.6	7.0	5.5	4.5	4.1	3.5	3.3	3.2	3.1	3.0	3.0
Production	Mil. lbs.	26,124	27,199	28,953	30,562	31,949	33,259	34,440	35,574	36,718	37,867	39,021	40,191
Total supply	Mil. lbs.	26,684	27,840	29,578	31,312	32,749	34,109	35,340	36,524	37,718	38,917	40,121	41,341
Change	Percent	5.5	4.3	6.2	5.9	4.6	4.2	3.6	3.3	3.3	3.2	3.1	3.0
Exports	Mil. lbs.	4,420	4,655	4,750	4,986	5,229	5,426	5,636	6,003	6,290	6,583	6,824	7,110
Ending stocks	Mil. lbs.	641	625	750	800	850	900	950	1,000	1,050	1,100	1,150	1,200
Consumption	Mil. lbs.	21,623	22,560	24,078	25,526	26,670	27,783	28,754	29,520	30,378	31,234	32,147	33,031
Per capita, carcass weight	Pounds	81.4	84.2	89.1	93.6	96.9	100.1	102.7	104.5	106.7	108.8	111.0	113.2
Per capita, retail weight	Pounds	71.6	74.0	78.3	82.3	85.2	88.0	90.3	91.9	93.8	95.6	97.6	99.5
Change	Percent	2.8	3.4	5.8	5.1	3.5	3.3	2.6	1.8	2.1	2.0	2.0	2.0
Prices:													
Broilers, farm	Cents/lb.	38.5	38.0	38.0	36.8	37.1	36.3	35.9	36.8	37.6	38.5	39.2	40.1
12-city market price	Cents/lb.	61.2	59.5	59.5	61.3	61.8	60.4	59.8	61.3	62.7	64.2	65.4	66.8
Deflated wholesale price	Cents/lb.	39.0	37.0	36.0	36.0	35.1	33.2	31.9	31.6	31.4	31.2	30.9	30.5
Change	Percent	5.4	-5.1	-2.8	0.1	-2.4	-5.4	-4.2	-0.7	-0.6	-0.8	-1.0	-1.0
Composite retail broiler price	Cents/lb.	150.7	151.1	151.5	157.3	159.6	157.8	157.1	160.1	163.3	166.4	169.1	172.0
Costs and returns:													
Total costs	Cents/lb.	55.86	53.00	52.50	50.70	50.96	53.40	55.72	57.07	58.89	60.83	62.12	62.91
Net returns	Cents/lb.	5.36	6.50	7.00	10.64	10.87	7.04	4.13	4.20	3.84	3.33	3.28	3.89

Table 26. Turkey baseline

Item	Units	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Beginning stocks	Mil. lbs.	271	328	350	325	320	320	320	320	320	320	320	320
F.I. slaughter	Mil. lbs.	5,466	5,475	5,725	5,866	5,957	6,085	6,167	6,209	6,249	6,290	6,327	6,366
Change	Percent	6.6	0.2	4.6	2.5	1.6	2.1	1.3	0.7	0.6	0.7	0.6	0.6
Production	Mil. lbs.	5,401	5,444	5,680	5,796	5,887	6,013	6,094	6,136	6,176	6,216	6,253	6,291
Total supply	Mil. lbs.	5,672	5,772	6,030	6,121	6,207	6,333	6,414	6,456	6,496	6,536	6,573	6,611
Change	Percent	6.6	1.8	4.5	1.5	1.4	2.0	1.3	0.7	0.6	0.6	0.6	0.6
Exports	Mil. lbs.	438	567	575	650	675	700	725	750	775	800	825	850
Ending stocks	Mil. lbs.	328	350	325	320	320	320	320	320	320	320	320	300
Consumption	Mil. lbs.	4,906	4,855	5,130	5,151	5,212	5,313	5,369	5,386	5,401	5,416	5,428	5,461
Per capita	Pounds	18.5	18.1	19.0	18.9	18.9	19.1	19.2	19.1	19.0	18.9	18.7	18.7
Change	Percent	3.3	-1.9	4.7	-0.5	0.3	1.1	0.2	-0.5	-0.5	-0.6	-0.6	-0.2
Prices:													
Turkey, farm	Cents/lb.	43.5	41.1	39.9	40.7	42.0	41.0	40.2	40.4	40.8	41.2	41.5	42.0
Hen turkey (whsle.) East	Cents/lb.	66.5	66.6	64.3	67.9	70.0	68.3	66.9	67.3	68.1	68.7	69.1	70.0
Deflated hen turkey	Cents/lb.	42.4	41.4	38.9	39.9	39.8	37.6	35.6	34.7	34.1	33.4	32.6	32.0
Retail frozen turkey	Cents/lb.	104.3	105.5	105.8	111.7	115.1	112.4	110.1	110.7	112.0	113.0	113.7	115.1
Retail: poultry	1982-84=100	152.4	156.1	159.0	168.7	174.6	175.2	176.9	182.8	189.1	195.3	201.1	207.4
Costs and returns:													
Total costs	Cents/lb.	72.86	68.50	65.50	65.23	66.76	68.33	68.16	67.41	67.66	67.71	67.26	67.01
Net returns	Cents/lb.	-6.36	-1.90	-1.20	2.68	3.21	0.00	-1.22	-0.12	0.41	0.98	1.86	2.97

Table 27. Egg baseline

Item	Units	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Beginning stocks	Mil. doz.	11	9	10	10	14	15	15	15	15	15	15	15
Production	Mil. doz.	6,358	6,438	6,580	6,695	6,809	6,918	7,022	7,127	7,234	7,342	7,453	7,564
Change	Percent	2.3	1.3	2.2	1.8	1.7	1.6	1.5	1.5	1.5	1.5	1.5	1.5
Imports	Mil. doz.	5	5	4	5	5	5	5	5	5	5	5	5
Total supply	Mil. doz.	6,375	6,452	6,594	6,710	6,828	6,938	7,042	7,147	7,254	7,362	7,473	7,584
Change	Percent	2.2	1.2	2.2	1.8	1.8	1.6	1.5	1.5	1.5	1.5	1.5	1.5
Hatching use	Mil. doz.	865	896	940	992	1,037	1,079	1,118	1,154	1,192	1,229	1,266	1,304
Exports	Mil. doz.	253	220	255	260	265	270	275	280	285	290	295	300
Ending stocks	Mil. doz.	9	10	10	14	15	15	15	15	15	15	15	15
Consumption	Mil. doz.	5,248	5,326	5,389	5,444	5,511	5,574	5,634	5,698	5,762	5,829	5,896	5,965
Per capita	Number	237.1	238.6	239.2	239.6	240.3	240.9	241.5	242.1	242.9	243.6	244.4	245.2
Change	Percent	0.6	0.6	0.3	0.1	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3
Prices:													
Eggs, farm	Cents/doz.	76.0	68.4	64.2	65.8	67.0	67.8	68.6	69.4	70.1	70.8	71.4	72.2
New York, Grade A large	Cents/doz.	88.2	79.9	75.0	76.1	77.4	78.4	79.3	80.2	81.0	81.8	82.6	83.5
Deflated wholesale prices	Cents/doz.	56.2	49.7	45.3	44.7	44.0	43.1	42.3	41.4	40.6	39.8	39.0	38.2
Retail, Grade A, large	Cents/doz.	111	106	104	104	105	106	107	109	110	111	112	113
Retail: Eggs	1982-84=100	142.1	140.0	140.0	140.6	143.8	146.5	149.0	151.6	154.0	156.3	158.7	161.3
Costs and returns:													
Total costs	Cents/doz.	78.00	76.10	71.07	68.63	68.98	72.29	75.42	77.25	79.71	82.34	84.09	85.16
Net returns	Cents/doz.	10.20	3.80	3.93	7.47	8.42	6.11	3.88	2.95	1.29	-0.54	-1.49	-1.66

Table 28. Dairy baseline

Item	Units	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Production data:													
Milk production	Bil. lbs.	156.5	157.0	157.9	159.7	161.2	163.1	164.6	166.9	168.5	170.5	172.5	174.9
Number of cows	1,000	9,267	9,175	9,090	9,015	8,945	8,900	8,825	8,770	8,720	8,670	8,615	8,555
Milk per cow	Pounds	16,883	17,120	17,375	17,720	18,020	18,325	18,650	19,030	19,320	19,665	20,020	20,440
Commercial use:													
Milkfat basis	Bil. lbs.	156.3	158.0	159.3	161.0	162.5	164.2	165.8	168.1	169.8	171.8	173.9	175.9
Skim solids	Bil. lbs.	154.5	157.5	158.7	160.5	162.0	164.1	165.5	168.0	159.5	171.7	173.6	175.8
Net removals:													
Milkfat basis	Bil. lbs.	0.8	1.0	0.7	0.8	0.9	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Skim solids	Bil. lbs.	2.7	3.2	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Prices:													
Basic Formula Price	$/cwt	11.88	11.90	12.50	12.60	13.10	13.00	13.40	13.65	13.90	14.15	14.40	14.65
All milk	$/cwt	13.60	13.15	13.60	13.70	14.20	14.10	14.50	14.75	15.00	15.25	15.50	15.75
Costs and returns:													
Ration value	$/cwt	8.83	8.54	8.20	8.20	8.55	8.90	9.10	9.35	9.65	9.80	9.90	10.05
Returns above concentrate costs	$/cwt	9.94	9.56	10.16	10.26	10.61	10.36	10.68	10.82	10.95	11.13	11.34	11.53
Milk-feed ratio	ratio	1.54	1.54	1.66	1.67	1.66	1.58	1.59	1.58	1.55	1.56	1.57	1.57

Farm Income and Farm Financial Conditions

Farm income prospects for 1997-2007 appear favorable in the baseline. Net cash income through the end of the millennium and into the early 2000s is projected to hover around $56-57 billion. At this level net cash income will average higher than the first half of the 1990s ($53 billion for 1990-95), but fall below the record $60 billion achieved in 1996. If current expectations prevail, a steady growth in net cash income will begin in the early 2000s, eclipse the 1996 record, and continue until the end of the baseline, reaching over $66 billion in 2007. The rate of projected growth over the baseline period (1997-2007) is a modest 2 percent per year. With expected inflation of 3 percent annually, the sector's inflation-adjusted net cash income by the end of period could be lower than forecast for 1997. The implication is that real net cash income in the future, unless key variables change notably, is expected to not look much different than it does today.

Net farm income, which adds changes in farm inventories to cash receipts as a measure of revenue, is more reflective of the changing weather and market conditions than net cash income. Cash sales of farm output can be managed between years, by holding or drawing upon inventories to benefit from improving prices and to stabilize year-to-year net cash income. Net farm income, however, incorporates the full impact of annual swings in production and prices. The baseline projections of net farm income are an abstraction from the substantial variability typical of this measure. Since annual variations in weather, crop yields, and indirectly market prices cannot be foreseen, projections of net farm income are represented as a slow but steady incline to end of the baseline. Net farm income is projected to be higher than the early 1990s ($44 billion), but not reach 1996's record of $52 billion until well into the baseline period. The rate of increase projected is approximately 2.5 percent, marginally lower than the expected rate of general inflation. In real terms, then, net farm income in 2007 may be little different than it is today.

In 1994, crop sales surpassed livestock sales as the largest source of receipts and is projected to remain so throughout the baseline period. The dollar value of crop receipts is projected to rise at a rate of 2.7 percent per annum. But with 3 percent inflation, the real value of crop output is declining slightly. The lack of growth in the real value of crop receipts reflects declining real prices. The quantity produced of major crops, such as corn, wheat, soybeans, and cotton is expected to increase over the baseline period. The trends projected for these commodities indicate that production will reach or exceed each of these commodity's record output by the end of the baseline period. Consequently, while crop output can be expected to expand, larger cash receipts (in current dollars) will not likely be reflected in larger real farm income.

Livestock receipts are expected to grow steadily, a total of 27 percent (or 2.4 percent annually) over the baseline period. The overall rate of growth in livestock receipts is slightly slower than for crops. Cattle and broiler receipts are projected to increase faster than receipts for dairy products, eggs, and hogs. The expected result of the cattle cycle during the baseline period is for a short-term decline in commercial beef output offset by higher prices, followed by both output and prices drifting upward toward the end. Commercial beef output is not projected to reach as high, nor are prices expected to fall as low, as occurred in 1996. A steady rise in broiler output underlies the projected rise in broiler receipts. By contrast, the expanded output of hogs expected

during the first half of the baseline is foreseen as pressuring prices downward, resulting in lowered receipts to hog producers over much the 1997-2007 period. In real terms, the changes in livestock receipts projected for the baseline will not contribute to increasing real sector income.

Already a relatively small portion of cash sources of income (3.3 percent in 1996), direct government payments are expected to trend downward. The 1996 Farm Act replaced deficiency payments linked to plantings and prices of eligible commodities with production flexibility contract payments that have maximum budgetary allocations preset through 2002. Government payments for 1996 and 1997 reflect a transition to the new legislation. Production flexibility contract payments made in 1996 and 1997 were adjusted for previous years' deficiency payments occurring in those years, as well as for repayments of unearned deficiency payments. Payments in 1998 will be governed by the new legislation, and total government payments will begin to follow the declining allocations for production flexibility payments through the year 2002. Almost all government payments are from production flexibility contract payments or CRP payments. The baseline assumes that production flexibility contracts payments continue at their 2002 levels beyond the expiration of the 1996 Farm Act. CRP enrollment is nearly flat after 2000, so CRP payments are relatively constant in those years. Beyond 2000, direct government payments account for less than 3 percent of gross cash income, the lowest share since 1982. Thus, the farm sector increasingly relies on the marketplace for its income.

Total cash expenses grow moderately, at a projected 2.5 percent over the baseline. Expenditures for farm-produced inputs--feed, feeder livestock, and seed--show the least upward movement. Farm origin expenses, which represent about a quarter of cash farm production expenses, increase at an average rate of about 1 percent per year. The generally slow rise in farm product prices is also reflected in the prices of farm-origin inputs. Manufactured input expenses rise more rapidly (3 percent), near the pace of inflation. Interest expenses appear to represent a nearly stable share of cash expenses (about 8 percent) throughout, although interest rates on agricultural real estate loans rise slightly. Real estate debt is projected to rise slowly (2 percent per year), reflecting the present conservative attitude of farm operators toward borrowing to expand their basic resource base. Nonreal estate debt, a large share of which is turned over annually to finance production expenditures, rises slightly faster than the overall increase in cash farm expenses. This suggests that a marginally greater proportion of annual production expenses may be financed over the baseline period. Labor costs, which account for approximately 12 percent of cash expenditures, are projected to be the most rapidly rising expense item. Even so, labor expenses are projected to rise at about the rate of inflation.

Baseline farm business asset values rise at a slower pace than recent history, mostly reflecting increases in the value of real estate assets. Farmland values have risen at about 6 percent or more every year since 1993. Farm real estate values are forecast to have risen by almost 6 percent in 1997 and another 5 percent for 1998. The projected rate of increase in land values for the baseline is 4 percent, slightly above the inflation rate. Increased variability in net returns to farm assets under the new, more market-oriented 1996 Farm Act could affect farmland values. Also, future farmland prices will adjust to account for expected lower government payments. Both the additional risk assumed by producers and the reduction in revenue from government payments will be factored into what purchasers are prepared to pay for farmland in the future. However,

the effects of nonagricultural factors such as urban pressure on farmland values could mitigate the expected downward direction of these adjustments. Farm debt is projected to grow at an even more modest rate, reducing debt-to-asset ratios to below 13 percent by 2005. Farm debt grew in the mid-1990s, after adjusting downward from the mid-1980s. Increases in total farm business debt averaged over 3 percent during 1994-1997 and are projected at 2.4 percent over the baseline. The recent and projected increases are relatively small compared with annual debt changes during the 1970s, when outstanding loan balances grew at an average annual rate of over 12 percent. Thus, farm operators' expanding use of credit is not expected to place excessive demands on their ability to service debt. With larger increases in farm asset than farm debt, farm equity rises during the baseline.

The 1996 Farm Act transferred income variability risk from the Government to farmers, so management of risk will be important for farmers. Although baseline projections assume no shocks, normal variations in supply and demand will occur in the future. With the 1996 farm law, net farm income is potentially more variable from year to year in response to these supply and demand variations because production flexibility contract payments are fixed regardless of market prices. The Government carries little risk while farmers in general will face greater risk of income volatility due to price variability, as total revenue reflects market price variation more directly. Previously, a portion of this risk was managed through deficiency payments which were linked to market prices. Marketing alternatives to manage risk and buffer a portion of this potentially greater income volatility will become more important for many farmers. Some farmers will expand their use of futures and options markets, possibly using new instruments such as yield contracts. Many producers continue to use crop insurance for yield protection and may expand coverage using revenue insurance now available in some areas. Other alternatives to manage risk include diversification of production, contracting in advance for the future sale of the commodity, integrated ownership, and involvement with more value-added processing beyond the farm gate.

Table 29. Farm receipts, expenses, and incomes in nominal dollars

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
						Billion dollars						
Cash receipts:												
Crops	109.4	108.4	108.3	109.2	112.7	117.4	121.5	125.7	130.5	134.7	138.1	141.4
Livestock and products	92.9	92.7	94.7	98.7	99.3	100.9	103.3	106.6	109.3	112.0	114.7	117.5
All commodities	202.3	201.2	203.0	207.9	212.0	218.3	224.8	232.3	239.7	246.7	252.8	258.9
Farm-related income	11.0	11.2	11.4	11.6	11.9	12.2	12.5	12.8	13.1	13.4	13.7	14.0
Government payments	7.3	7.9	7.3	7.4	6.8	6.0	5.9	5.8	5.8	5.8	5.8	5.8
Gross cash income	220.6	220.2	221.6	226.8	230.7	236.5	243.2	251.0	258.7	265.9	272.4	278.7
Cash expenses	160.8	165.6	164.9	169.4	173.7	178.6	183.7	188.9	194.6	200.7	206.6	212.1
Net cash income	59.9	54.6	56.7	57.4	56.9	57.9	59.5	62.0	64.1	65.2	65.8	66.6
Value of inventory change	2.8	0.9	-0.7	0.2	1.8	1.8	1.1	0.9	1.0	1.0	0.9	0.8
Non-money income	10.2	10.7	11.0	11.3	11.6	11.9	12.2	12.5	12.8	13.1	13.4	13.7
Gross farm income	233.6	231.9	232.0	238.4	244.1	250.1	256.4	264.4	272.5	280.0	286.6	293.2
Noncash expenses	15.4	15.5	15.5	15.8	16.1	16.3	16.4	16.7	16.7	16.7	16.8	16.9
Operator dwelling expenses	5.2	5.2	5.2	5.2	5.2	5.3	5.3	5.3	5.4	5.4	5.4	5.4
Total production expenses	181.4	186.3	185.6	190.4	195.1	200.1	205.4	210.9	216.7	222.8	228.8	234.5
Net farm income	52.2	45.6	46.4	47.9	49.0	50.0	51.0	53.5	55.8	57.2	57.8	58.7
Farm assets	1,034.8	1,082.5	1,131.2	1,174.5	1,220.5	1,274.8	1,334.1	1,396.5	1,460.3	1,526.7	1,592.3	1,656.2
Farm debt	156.1	162.2	167.2	169.5	172.7	177.3	181.7	186.1	190.8	195.5	200.4	205.2
Farm equity	878.7	920.3	964.1	1,005.1	1,047.8	1,097.5	1,152.4	1,210.4	1,269.5	1,331.2	1,391.9	1,451.0
						Percent						
Debt/equity ratio	17.8	17.6	17.3	16.9	16.5	16.2	15.8	15.4	15.0	14.7	14.4	14.1
Debt/assets ratio	15.1	15.0	14.8	14.4	14.1	13.9	13.6	13.3	13.1	12.8	12.6	12.4

Table 30. Farm receipts, expenses, and incomes in 1992 dollars

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
						Billion 1992 dollars						
Cash receipts:												
Crops	99.3	96.3	93.9	92.0	92.0	92.8	93.1	93.4	94.0	94.1	93.5	92.8
Livestock and products	84.2	82.4	82.1	83.1	81.1	79.8	79.1	79.2	78.7	78.2	77.7	77.1
All commodities	183.5	178.7	176.0	175.1	173.1	172.6	172.3	172.6	172.7	172.2	171.1	170.0
Farm-related income	10.0	9.9	9.9	9.8	9.7	9.6	9.6	9.5	9.4	9.4	9.3	9.2
Government payments	6.6	7.0	6.3	6.2	5.5	4.7	4.5	4.3	4.2	4.1	3.9	3.8
Gross cash income	200.1	195.6	192.2	191.1	188.4	186.9	186.3	186.5	186.3	185.7	184.4	183.0
Cash expenses	145.8	147.1	143.0	142.7	141.9	141.2	140.7	140.4	140.2	140.1	139.9	139.3
Net cash income	54.3	48.5	49.2	48.4	46.5	45.8	45.6	46.1	46.1	45.6	44.5	43.7
Value of inventory change	2.5	0.8	-0.6	0.2	1.5	1.4	0.8	0.7	0.7	0.7	0.6	0.5
Non-money income	9.3	9.5	9.6	9.5	9.5	9.4	9.3	9.3	9.2	9.1	9.1	9.0
Gross farm income	211.9	206.0	201.1	200.8	199.4	197.7	196.5	196.4	196.3	195.5	194.0	192.5
Noncash expenses	14.0	13.7	13.5	13.3	13.2	12.9	12.6	12.4	12.0	11.7	11.4	11.1
Operator dwelling expenses	4.7	4.6	4.5	4.4	4.3	4.2	4.1	4.0	3.9	3.8	3.7	3.6
Total expenses	164.5	165.4	160.9	160.4	159.4	158.2	157.4	156.7	156.1	155.6	154.9	154.0
Net farm income	47.4	40.5	40.2	40.4	40.0	39.5	39.1	39.7	40.2	39.9	39.1	38.5
Farm assets	938.6	961.5	980.9	989.7	997.0	1,007.9	1,022.3	1,037.6	1,051.9	1,066.0	1,077.9	1,087.3
Farm debt	141.6	144.1	145.0	142.8	141.1	140.2	139.3	138.3	137.4	136.5	135.7	134.7
Farm equity	797.0	817.4	835.9	846.9	856.0	867.7	883.1	899.3	914.5	929.5	942.2	952.6

Nominal dollar values divided by the GDP deflator.

Food Prices and Expenditures

The Consumer Price Index (CPI) for food is projected to rise moderately in the baseline, increasing at an average rate of about 2.5 percent from 1997 to 2007. This compares to a 3.1-percent average rise expected in the CPI for all items, continuing a long-term trend of food prices increasing at slightly less than the general inflation rate. Moderate but steady economic growth, with sustained increases in disposable personal income, will have a positive impact on consumer demand for food.

Increases in prices for food away from home, which contain a large service component, are being held down by competition in the food industry. As a result, away-from-home prices rise at a moderate annual average rate of about 2.5 percent from 1997 to 2007. Prices for food at home also increase about 2.5 percent per year. For foods purchased for consumption at home, the strongest price increases generally occur among the more highly processed foods such as cereals and bakery products and other prepared foods. Prices for these foods are related more to the costs of processing and marketing than to the costs of farm commodities and, therefore, rise at a rate close to the general inflation rate.

Total food expenditures rise at a 4.1-percent average annual rate in the baseline. Expenditures for meals eaten away from home account for a growing share of food spending, reaching almost half of total food expenditures by 2007. Growth in expenditures for food eaten away from home will average 4.5 percent a year while expenditures for food at home will rise 3.7 percent annually.

Table 31. Consumer food price indexes and food expenditures baseline

CPI category	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Consumer price indexes:						*1982-84=100*						
All food	153.3	157.4	160.8	165.5	170.0	174.2	178.2	182.8	187.4	192.0	196.6	201.4
Food away from home	152.7	157.0	161.1	165.0	169.3	173.8	178.4	182.9	187.4	192.0	196.6	201.6
Food at home	154.3	158.3	161.3	166.5	171.1	175.1	178.8	183.4	188.1	192.8	197.3	202.1
Meats	140.2	144.0	145.8	151.4	154.5	154.7	154.8	157.2	159.8	161.9	163.8	165.3
Beef and veal	134.5	137.0	142.0	151.7	155.8	154.7	153.6	155.5	158.2	160.4	162.4	164.2
Pork	148.2	155.0	151.0	146.4	147.0	150.4	153.5	156.9	159.3	161.0	162.4	163.4
Other meats	144.0	147.0	149.0	159.2	163.5	162.3	161.1	163.2	166.0	168.3	170.4	172.3
Poultry	152.4	156.1	159.0	168.7	174.6	175.2	176.9	182.8	189.1	195.3	201.1	207.4
Fish and seafood	173.1	177.5	183.9	190.3	197.0	203.9	211.0	218.4	226.0	233.9	242.1	250.6
Eggs	142.1	140.0	140.0	140.6	143.8	146.5	149.0	151.6	154.0	156.3	158.7	161.3
Dairy products	142.1	145.0	143.8	147.4	149.5	153.5	155.3	158.7	161.7	164.8	168.0	171.1
Fats and oils	140.5	141.8	147.3	150.5	153.9	157.6	161.6	166.6	171.7	176.5	180.9	185.9
Fruits and vegetables	183.9	186.6	192.8	199.3	206.1	212.8	219.0	225.8	232.3	239.1	245.3	252.3
Sugar and sweets	143.7	147.8	150.5	153.9	157.6	161.4	165.3	169.1	172.9	176.8	180.7	185.0
Cereals and bakery products	174.0	177.8	181.1	186.6	193.3	199.9	206.3	212.5	218.8	225.3	231.7	238.7
Nonalcoholic beverages	128.6	138.7	142.2	145.8	149.4	153.1	156.9	160.8	164.8	168.9	173.1	177.4
Other prepared foods	156.2	161.3	165.4	170.2	175.6	181.2	187.0	192.7	198.4	204.3	210.3	216.8
Food expenditures:						*Billion dollars*						
All food	692.6	723.0	753.2	783.4	816.0	849.8	883.7	920.1	957.4	996.0	1,034.9	1,076.7
Food at home	376.6	391.6	405.7	421.6	437.6	453.7	469.2	486.9	504.9	523.3	541.4	560.8
Food away from home	316.0	331.4	347.5	361.8	378.4	396.1	414.5	433.2	452.5	472.7	493.5	515.9

Table 32. Changes in consumer food prices, baseline

CPI category	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
						Percent						
All food	3.3	2.7	2.2	2.9	2.7	2.5	2.3	2.6	2.5	2.5	2.4	2.4
Food away from home	2.5	2.8	2.6	2.4	2.6	2.7	2.6	2.5	2.5	2.5	2.4	2.5
Food at home	3.7	2.6	1.9	3.2	2.8	2.3	2.1	2.6	2.6	2.5	2.3	2.4
Meats	3.5	2.7	1.3	3.8	2.0	0.1	0.1	1.6	1.7	1.3	1.2	0.9
Beef and veal	-0.3	1.9	3.6	6.8	2.7	-0.7	-0.7	1.2	1.7	1.4	1.2	1.1
Pork	9.9	4.6	-2.6	-3.0	0.4	2.3	2.1	2.2	1.5	1.1	0.9	0.6
Other meats	3.6	2.1	1.4	6.8	2.7	-0.7	-0.7	1.3	1.7	1.4	1.2	1.1
Poultry	6.2	2.4	1.9	6.1	3.5	0.3	1.0	3.3	3.4	3.3	3.0	3.1
Fish and seafood	0.9	2.5	3.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Eggs	17.9	-1.5	0.0	0.4	2.3	1.9	1.7	1.7	1.6	1.5	1.5	1.6
Dairy products	7.0	2.0	-0.8	2.5	1.4	2.7	1.2	2.2	1.9	1.9	1.9	1.8
Fats and oils	2.3	0.9	3.9	2.2	2.3	2.4	2.5	3.1	3.1	2.8	2.5	2.8
Fruits and vegetables	3.5	1.5	3.3	3.4	3.4	3.3	2.9	3.1	2.9	2.9	2.6	2.9
Sugar and sweets	4.5	2.9	1.8	2.3	2.4	2.4	2.4	2.3	2.2	2.3	2.2	2.4
Cereals and bakery products	3.9	2.2	1.9	3.0	3.6	3.4	3.2	3.0	3.0	3.0	2.8	3.0
Nonalcoholic beverages	-2.4	7.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Other prepared foods	3.4	3.3	2.5	2.9	3.2	3.2	3.2	3.0	3.0	3.0	2.9	3.1

Agricultural Trade

Relatively strong growth in the volume of global trade in bulk agricultural commodities is projected for 1998-2007. Trade in grains, led by coarse grains, is expected to show the fastest growth among bulk commodities, particularly during 2000-2007. Despite prospects for slowed demand in Southeast Asia over the next several years, projected trade gains are driven by relatively strong economic growth in most developing regions, including China, South and Southeast Asia, Latin America, North Africa, and the Middle East. Increasingly market-oriented domestic and trade policies in many countries, stemming from both multilateral and unilateral reforms, are also expected to contribute expanding bulk commodity trade.

Higher incomes in developing countries are projected to lead to further diet diversification, rising meat demand, expanding livestock sectors, and higher demand for feed grains. Wheat trade is also projected to expand in response to higher developing country incomes. Combined trade in soybeans and meal is expected to be relatively strong, due to the same expansion of developing country feed-livestock sectors that will push up coarse grain trade. Growth in soybean oil trade is also projected to remain faster than in the 1980s, but slower than some competing oils because of its high relative price. Raw cotton demand and trade is projected to be stronger than in the early 1990s, but not match the 1980s when there was increased substitution of cotton for synthetic fibers.

U.S. export growth is projected to strengthen for most bulk commodities. U.S. exports of wheat and coarse grains are projected to expand the fastest. After 2000, U.S. wheat export growth is projected to slow because of anticipated unsubsidized competition from the European Union (EU) as world wheat prices rise. U.S. rice export volume stays nearly flat as domestic demand captures nearly all of the gains in U.S. production. Exports of U.S. soybeans and products are projected to rise faster than in the 1980s, aided by improving U.S. yields. However, foreign competition and slowing U.S. acreage gains are likely to constrain export growth relative to that of competitors after 2000. U.S. raw cotton exports are projected to strengthen through most of the 1998-2007 period, benefiting from rising demand and reduced competition in some countries.

U.S. wheat is projected to gain a rising share of world trade during 1998-2000, with the U.S. share then stabilizing because of anticipated unsubsidized EU competition. For other crops, projected U.S. market shares will generally follow historical trends. Reduced competition will lead to a continued rise in the U.S. share of world coarse grain trade, although the emergence of competitors such as Eastern Europe will limit U.S. gains in coarse grains trade after 2000. U.S. rice market share is projected to decline because of minimal domestic rice production gains and strong domestic use. U.S. market share for soybeans and products is projected to continue to decline gradually because of South American competition, as well as anticipated U.S. acreage constraints. The U.S. share of world cotton trade is projected at about 25 percent through the baseline, as many foreign producers reduce raw cotton exports by channeling production toward consumption and value-added textile products.

Despite a near-term slowdown in growth in Asia, generally favorable global economic growth is expected to spur growth in meat demand and trade over the longer term. Already negotiated

reductions in trade barriers, primarily in East Asia, will help spur trade growth. Rising meat demand is projected in several countries in the Pacific Rim and Latin America, with the Pacific Rim providing the most growth in both consumption and import demand. The United States is well positioned to provide a variety of meat products to these markets.

Growth in meat import demand in the Former Soviet Union (FSU) is projected to slow. Although declines in meat consumption will slow and demand will turn upward after 2000, domestic FSU production of meat is also projected to begin increasing. This could reduce the region's dependence on imported meat, although the United States is expected to continue to supply low-priced parts and trimmings to that market.

The value of U.S. meat exports is projected to grow an average of about 4 percent annually during 1998 to 2007, somewhat slower than the rapid ascent of the past several years. Although export volume will rise, the increasing share of low-valued meat products may slow the growth in total value.

Table 33. International trade summary, by decade or indicated period 1/

Years	Wheat	Rice	Coarse grains	Soybeans	Soybean meal	Soybean oil	Cotton
			World trade growth, annual percent 2/				
1960 to 1970 3/	1.1	2.2	4.9	11.4	14.4	11.3	0.8
1970 to 1980	4.7	4.9	8.7	8.2	11.7	12.8	1.2
1980 to 1990	-0.3	0.6	-1.0	-0.4	2.9	0.5	2.5
1990 to 2000	-0.3	4.8	1.0	5.2	3.6	5.9	-0.2
2000 to 2007	2.8	2.7	3.3	1.4	2.2	1.4	1.7
			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	0.5	2.0	3.1	5.9	3.2	10.6	0.3
2000 to 2007	2.0	0.3	3.3	1.4	0.2	0.5	1.7
			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	32.2	15.0	59.6	67.0	18.8	15.9	25.9
2000 to 2007	33.5	12.3	66.7	67.8	16.7	19.4	25.3

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.

U.S. Agricultural Trade Value

The total value of U.S. agricultural exports is projected to rise from $57.3 billion in fiscal 1997 to $62.6 billion (current dollars) in fiscal 2000, and approach $85 billion by 2007 (see box, page 17, for impacts of the Asia crisis). U.S. imports are projected to rise from $35.8 billion in fiscal 1997 to $50.4 billion in 2007, resulting in the agricultural trade surplus rising from $21.5 billion in 1997 to $33.9 billion in 2007.

Table 34. U.S. agricultural trade values, baseline projections, fiscal years

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	1997-2007 growth rate
						Billion dollars							*Percent*
Agricultural exports:													
Animals and products	11.7	11.7	12.2	12.5	13.2	13.5	14.0	14.7	15.4	16.1	16.8	17.5	4.2
Grains, feeds, and products	21.6	16.5	16.7	17.5	18.6	20.2	21.3	22.3	23.5	24.8	24.2	24.9	4.2
Oilseeds and products	9.7	11.4	11.0	10.3	10.4	11.1	11.8	12.3	12.9	13.5	14.0	14.4	2.3
Horticultural products	10.0	10.6	11.2	11.8	12.5	13.3	14.1	14.9	15.7	16.5	17.4	18.3	5.6
Tobacco, unmanufactured	1.4	1.6	1.6	1.4	1.4	1.4	1.4	1.4	1.2	1.2	1.2	1.2	-3.1
Cotton and linters	3.0	2.7	2.7	2.8	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	2.4
Other exports	2.4	2.7	3.1	3.4	3.6	3.7	3.9	4.0	4.1	4.3	4.4	4.6	5.2
Total agricultural exports	59.8	57.3	58.5	59.7	62.6	66.2	69.4	72.6	76.0	79.8	81.4	84.3	3.9
Bulk commodities exports	28.0	23.3	22.8	22.9	23.8	25.6	27.0	28.0	29.3	30.9	30.3	31.0	2.9
High-value product exports	31.8	34.0	35.7	36.8	38.8	40.6	42.5	44.6	46.7	48.9	51.1	53.3	4.6
High-value product share	53%	59%	61%	62%	62%	61%	61%	61%	61%	61%	63%	63%	
Agricultural imports:													
Animals and products	6.0	6.4	6.9	7.5	7.6	7.8	8.1	8.3	8.8	9.2	9.4	9.5	4.0
Grains, feeds, and products	2.5	2.9	3.0	3.1	3.2	3.4	3.4	3.5	3.6	3.6	3.7	3.7	2.5
Oilseeds and products	2.1	2.2	2.1	2.3	2.8	2.8	2.9	3.2	3.4	3.5	3.5	3.6	5.0
Horticultural products	11.7	12.7	14.4	14.5	15.1	15.7	16.4	17.0	17.7	18.4	19.2	19.9	4.6
Tobacco, unmanufactured	0.8	1.2	1.4	1.4	1.3	1.3	1.4	1.5	1.5	1.7	1.9	2.0	5.2
Sugar and related products	1.8	1.9	1.7	1.9	2.0	2.0	2.2	2.3	2.4	2.5	2.5	2.6	3.2
Coffee, cocoa, and rubber	5.6	6.4	6.4	6.3	6.2	6.3	6.4	6.6	6.6	6.6	6.7	6.7	0.5
Other imports	2.1	2.1	2.1	2.3	2.2	2.3	2.1	2.2	2.3	2.3	2.4	2.4	1.3
Total agricultural imports	32.6	35.8	38.0	39.3	40.4	41.6	42.9	44.6	46.3	47.8	49.3	50.4	3.5
Net agricultural trade balance	27.2	21.5	20.5	20.4	22.2	24.6	26.5	28.0	29.7	32.0	32.1	33.9	4.7

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 total exports less the bulk commodities. HVP's includes 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. The projections were completed in November 1997 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 Exports" published in February, May, August, and December.

Export value declined in fiscal 1997, primarily reflecting lower grain prices. However, continued strong growth in high-value product (HVP) exports kept 1997 export value second only to the 1996 record. During 1997-2007, the expectation is for continued rapid HVP export growth of about 4.6 percent annually. Although bulk exports are projected to continue to grow more slowly than HVP exports, faster growth in bulk exports compared with the 1980s is expected to be a key source of export strength during 2000-2007. Total exports are projected to grow 3.9 percent annually from fiscal 1997 to 2007, with bulk exports expanding at about 2.9 percent annually.

Because of the more rapid increase in HVP exports, HVPs are projected to increase in share from about 61 percent to more than 63 percent. Much of the HVP gain is in horticultural products, which are projected to rise 5.6 percent annually from 1997 to 2007. Animal product exports, led by beef, pork, and poultry, grow about 4.2 percent each year over this period.

U.S. imports are projected to rise about 3.5 percent annually from 1997 to 2007. Horticultural imports, the largest import category, grow about 4.6 percent annually. Growth in animal product imports slows from 5.9 percent between fiscal 1997 and 2000, to 3.2 percent during 2000-2007.

Foreign Country and Regional 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 January 1998. Bilateral agreements affecting agricultural trade between the United States and Canada, the United States and Mexico, the United States and Japan, and the United States and Korea are examples of recent agreements for which full compliance is assumed. In contrast, no compliance is assumed for any agreements under discussion or not formally ratified by November 1997.

In terms of 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. Specific agreements assumed not to occur include: accession to the World Trade Organization (WTO) by the FSU, China, or Taiwan; enlargement of the EU-15 to add one or more Central or East European country; implementation of more liberalized trade among the Asia-Pacific Economic Cooperation (APEC) countries, and; expansion of NAFTA to include additional countries.

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, the process of liberalizing 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 European Union (EU) incorporate policy changes adopted as part of the 1992-93 reform of the Common Agricultural Policy (CAP), as well as EU commitments under the Uruguay Round agreement that limit subsidized exports and improve market access. The final price cuts under the 1992 CAP reform took place during 1995/96. Basic support prices are assumed to remain at 1995/96 nominal levels for most commodities, but internal market prices may be driven below support levels in order to clear domestic markets. If Uruguay Round limits

on subsidized exports are binding, excess supplies will have to be absorbed on the internal market, driving market prices down. The annual set-aside program instituted for grains, oilseeds, and protein crops is assumed to remain in effect, with the set-aside rate being used as a policy instrument to adjust production to market conditions.

The baseline assumes that the EU's Uruguay Round commitment on internal support is not a binding constraint, since many policies resulting from CAP reform meet the WTO "production-limiting" criteria and are exempt from reduction commitments. Tariffication of nontariff barriers and tariff reductions are assumed to have little impact because the high tariff equivalents 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, rye, and oats. 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.

There is significant uncertainty about the measures the EU will use to meet its subsidized export and minimum import commitments under the Uruguay Round agreement. The baseline assumes that the EU will use current policy mechanisms to meet its Uruguay Round limits on subsidized exports. For grains, it is assumed that any production in excess of intervention purchases and on-farm use that cannot be exported will depress the internal market price and dampen output. The EU will use the set-aside rate to constrain surplus production. The set-aside rate is 5 percent from 1997/98 to 1999/00 and then increase to 10 percent for the remainder of the baseline. Under baseline market conditions, maintaining a 5 percent set-aside would likely lead to the accumulation of surplus grain stocks, while raising the set-aside toward the EU statutory level of 17.5 percent would result in forgoing opportunities to produce and export wheat without subsidy. In the longer term, the baseline assumes that the EU will not increase intervention purchases and accumulate stocks beyond the historical average level; accumulation of intervention stocks is viewed as a short-term strategy for dealing with excess grain supplies. The baseline assumes that the EU will export grain without subsidy only when the world price is equal to or greater than the average EU price. For pork and poultry, the baseline assumes that market prices adjust to clear the internal market and that more than half of all EU exports are unsubsidized.

There is also uncertainty regarding what measures the Commission will adopt to deal with the projected imbalance between beef production and consumption in the wake of the bovine spongiform encephalopathy (BSE) crisis. The effect of the herd liquidation program because of the "mad cow" crisis is included. Continued limited intervention for beef, a shrinking dairy herd, and measures to encourage less intensive production methods are also assumed to limit beef production. To prevent surpluses from accumulating in the face of lower consumption, it is assumed that revisions to the CAP will further reduce beef producer incentives.

Potential Agricultural Trade Impacts of EU Enlargement

Ten Central and East European (CEE) countries[1] have applied for membership in the European Union (EU-15). The *Agenda 2000* communication, presented by the European Commission in July 1997, recommends that accession negotiations begin in 1998 to define the terms and conditions of accession for Hungary, Poland, Estonia, the Czech Republic, and Slovenia. The actual timetable for accession will depend on each country's progress in meeting EU policy targets. It is doubtful that any country would join before 2002. If the five remaining countries can meet the necessary conditions to enter into negotiations, the European Commission will recommend that they too begin accession negotiations.

The baseline projections do not incorporate impacts of EU enlargement because of uncertainty over which countries will accede, and the timing and terms of accession. USDA's Economic Research Service has, however, conducted preliminary analysis on the potential impacts of accession. Two scenarios were analyzed: one where the current CAP is applied to

[1]The ten countries are Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia.

Table 35. net surpluses under alternative EU enlargement scenarios

	Baseline	Enlargement scenario 1/	
	(2002-05 average)	CAP	New CAP
		Million tons	
EU-15			
Grains	24.9	24.9	30.4
Wheat	18.5	18.5	37.4
Meats	2.0	2.0	-2.0
Visegrad-four 2/			
Grains	1.2	-13.4	-12.5
Meats	0.4	4.7	4.7
EU-19			
Grains	26.0	11.5	17.9
Meats	2.4	6.6	2.6

1/ CAP scenario assumes enlargement under prices and acreage controls of current Common Agricultural Policy. The "New CAP" scenario assumes movement to world prices and elimination of acreage controls, but not other changes proposed in "Agenda 2000."
2/ Visegrad-four refers to the Czech Republic, Hungary, Poland, and Slovakia.
Source: ERS estimates.

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Potential Agricultural Trade Impacts of EU Enlargement -- Continued

the acceding CEE countries, and another (referred to here as "New CAP") where agriculture in the enlarged EU faces world prices and the acreage set-aside program of the current CAP is abolished. Other potential reforms included in *Agenda 2000* were not analyzed here. The analysis assumed the accession of the Visegrad-four countries (Czech Republic, Hungary, Poland, and Slovakia), to form the EU-19.

In both scenarios, the agricultural economies of both the EU-15 and the acceding CEE countries would experience major adjustments. Agricultural commodity prices in the EU are typically above world prices, while most CEE prices are below world prices. Thus, adopting EU prices would stimulate CEE farm output and reduce consumption. If the EU-19 adopted world prices, the increase in CEE production would be smaller, while EU-15 production would decrease and EU-15 consumption would increase. The impacts would be greatest for those commodities with the largest price differences.

Under both scenarios, CEE meat prices increase significantly, spurring production and discouraging consumption. Meat production shifts somewhat from the EU-15 to the CEE countries. The new EU-19 would continue to have exportable surpluses of meat, with the surpluses much larger if accession occurred at CAP prices. CEE and EU-15 grain production increases in response to higher prices under both scenarios. Under the terms of the current CAP, grain exports of the EU-19 would likely fall, with higher CEE feed use more than offsetting increased CEE production. If the EU-19 adopted world prices and abolished the set-aside, the estimates suggest that the EU-19 could be a larger exporter of wheat but, due to lower production and higher consumption of coarse grains, a smaller overall grain exporter. These estimated impacts do not include world price effects which, in the case of the "New CAP" scenario, would likely reduce estimated exports of wheat and meat, as well as coarse grain imports.

The baseline assumes that there is no enlargement of the EU-15 to add one or more Central or East European countries. Accession of the large agricultural-producing CEE countries could cause serious problems for the CAP in its current form and would likely require changes in that policy. Similarly, the baseline does not incorporate implementation of the proposed "Agenda 2000" policy reforms which will be considered by EU policy makers during 1998. Implementation of these reforms could also have significant impacts on the projections.

China

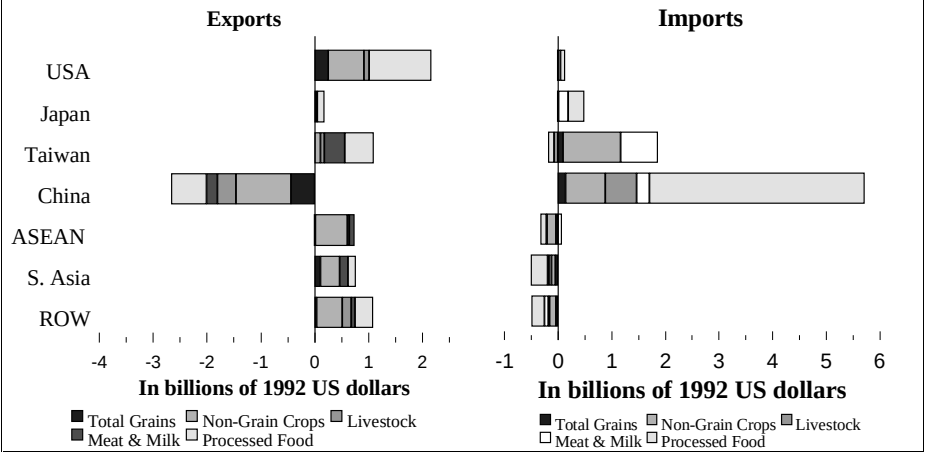
China's economy is assumed to continue to grow at a rapid but gradually declining rate over the projection period. Average annual real GDP growth is forecast to fall from 8.9 percent in 1998 to 7.8 in 2007. This assumes China will continue to gradually reform its economy, with reform efforts focusing on restructuring and improving the performance of state-owned enterprises. Also, domestic and foreign direct investment are assumed to continue to grow, although at a

Potential Agricultural Trade Impacts of WTO Accession by China and Taiwan

China and Taiwan are each negotiating terms of accession to the World Trade Organization (WTO). There is still significant uncertainty about both the timing of accession, and the extent of policy reform that will be required. Both economies are undertaking changes to bring their policy regimes into conformity with WTO standards. China is taking steps to reduce tariffs, make its currency convertible, and reform its state-owned enterprises. However, there are still specific disagreements regarding access to China's agriculture, automobile, and services markets. For Taiwan, a number of significant problems remain in agriculture, including reforms to policies affecting rice, chicken, and pork. Taiwan's admission to the WTO will be contingent on China's entry.

Because of uncertainty regarding the timing and terms of accession, the impacts of accession are not accounted for in the baseline projections. The Economic Research Service has, however, estimated the impacts on the world economy of China and Taiwan joining the WTO versus their continued exclusion.[1] The results indicate that WTO accession by China and Taiwan would have a modest impact on the overall world economy, representing a modest acceleration of current trends toward increasing integration with world markets, and the freer play of comparative advantage in world markets. Policy reforms by China in the late 1970s and early 1980s were far more fundamental changes than those assumed in the study's accession scenario. China and Taiwan themselves would be, by far, the biggest gainers from aligning their policies with other WTO members and capturing the benefits of increased access to apparel, textile, and other markets. The key benefit to other WTO members may be from the greater predictability of the two Chinese economies playing by internationally accepted trading rules.

Figure 3. China and Taiwan WTO Accession: Estimated Impacts on Agricultural Trade



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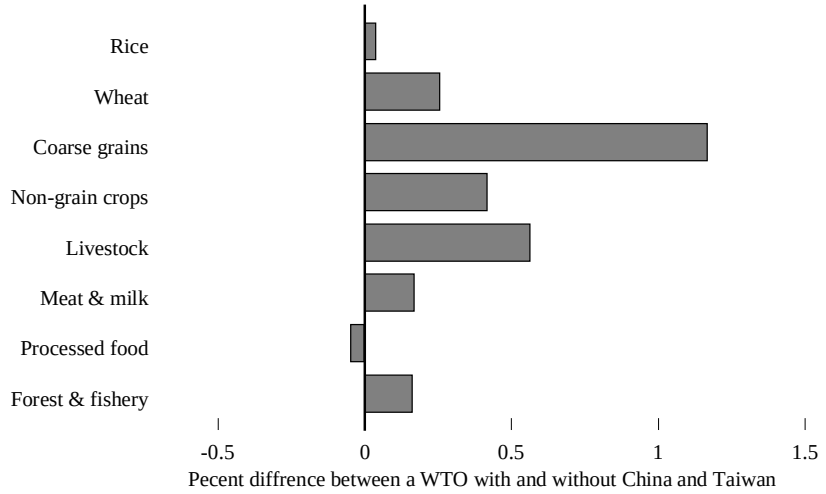
[1]Zhi Wang, *The Impact of China and Taiwan Joining the World Trade Organization on U.S. and World Agricultural Trade*. ERS Technical Bulletin No. 1858, May 1997.

Potential Agricultural Trade Impacts of WTO Accession by China and Taiwan--Continued

Under the WTO accession scenario, total world agriculture trade would increase 3 percent. The key change would be a $9 billion increase in China's annual net agricultural imports (figure 3), as production factors are bid away from agriculture by an expanding, labor-intensive, light manufacturing sector. Net food and agricultural imports would also increase in Taiwan, Japan, and Korea, as these economies shift resources from agriculture to manufacturing in order to meet China's stepped-up demand for imported capital inputs. On the other hand, labor-intensive manufacturing sectors in South and Southeast Asia shrink due to increased competition from China, leading to increased production and exports of agricultural products.

WTO accession would raise world agricultural product prices modestly, led by a 1 percent increase in coarse grains (figure 4). Changes in world grain trade would parallel changes in total agricultural trade, with increased exports for North America, Southeast Asia, and South Asia and declines for China. Grain imports increase in Taiwan and China and decline in Southeast Asia and South Asia. U.S. agriculture would benefit modestly from rising exports ($2.2 billion), farm income, and export prices. In addition to farmers, U.S. consumers, food processing firms, and capital- and technology-intensive manufacturers would gain. But U.S. textile and apparel production would decline by 10 percent.

Figure 4. China and Taiwan WTO Accession: Estimated Impacts on World Prices



declining rate. Investment in port, rail, road, and power generation infrastructure is, in general, expected to be sufficient to support the projected future increases in agricultural output and trade flows.

Agricultural policy is assumed to continue to gradually and incrementally liberalize, increasing the role of market forces in all aspects of China's agricultural sector. Government planning gradually

diminishes for most crops, with a rising (but less than 100 percent) share of farm gate, wholesale, and retail transactions occurring at market rather than government-set prices. Intermittent state intervention to stabilize markets will still occur, but with declining frequency.

China's agricultural trade system is assumed to continue to be slowly reformed. Although central government control over trade in key commodities (food grains and cotton) is not eliminated, the share handled by private and joint private-public trade companies expands. The baseline assumes China will not become a member of the WTO. China has applied for WTO membership, but negotiations are ongoing and the ultimate provisions and timing of a final agreement are very uncertain.

Production of most major crops is expected to increase as rising domestic prices boost yields by stimulating more use of improved varieties, fertilizer, and better management. Reduced agricultural investment during the 1980s induces a modest slowdown in the rate of yield growth over the projection period. Total cultivated land continues its current decline under pressure from non-agricultural uses, but the rate of decline slows in response to more effective government policies.

Assumptions regarding future meat production and the expansion of commercial feeding remain key to the China projections. The projections incorporate the expectation that capital and infrastructure constraints will affect growth in China's meat production. Reflecting recent trends, however, the projections also incorporate relatively fast growth in commercial feeding of corn and soybean meal. As a result, commercial feeding and imports of corn, soybeans, and soybean meal are projected to show strong growth.

Rapid income growth, and its expected impact on meat, feed, and edible oil demand, is the key factor in China's future agricultural trade patterns. However, there is a great deal of uncertainty in the agricultural trade projections for China. Unanticipated shifts in government agricultural or trade policy would likely result in significantly altered trade patterns. Likewise, small changes in China's income growth, technical parameters (e.g., feed-meat conversion rate), or supply trend assumptions result in dramatic changes in trade projections for a country with 1.2 billion people.

Former Soviet Union

Between 1997 and 2000, real GDP growth for the countries of the FSU is assumed to be very sluggish, and currencies appreciate slightly in real terms. After 2000, real GDP growth across the region is assumed to be 3 to 4 percent per year, with the exchange value of the region's currencies remaining roughly constant in real terms. The projections assume that liberalization of markets and restructuring of agricultural enterprises in the FSU will continue at their current slow pace. Commodity-specific trade policies remain mostly unchanged, with tariffs remaining at relatively low levels, and no quotas imposed. Price transmission between world and domestic markets for major commodities is assumed to be about 50 percent, meaning that a 1-percent change in the world price will result in about a 0.5-percent change in the domestic price.

The primary policy uncertainty in the outlook concerns the possibility of more protectionist trade measures for agricultural commodities. Higher tariffs, and/or tariff-rate quotas or quotas may be announced in Russia for livestock products. Significantly higher tariffs, or imposition of quotas, could drastically change the meat import projections. Some increase in tariffs is anticipated, but more drastic changes that could affect meat imports are assumed to be avoided, in part because of some limited foreign direct investment in the Russian livestock industry.

Crop productivity gains in the FSU are expected to be small. Progress in land reform that could lead to significant productivity gains is not anticipated. FSU livestock production is assumed to recover very slowly, at least until the process of economic reform reduces production costs and increases the competitiveness of the sector. The current high cost of meat production in the FSU suggests that livestock inventory declines of recent years will not be fully recouped in the foreseeable future and some meat demand will continue to be satisfied by imports. Also, state grain imports are minimal in the baseline because slow growth in livestock production will limit feed demand. The Central Asian countries of the FSU are expected to meet their grain needs primarily from Kazakhstan and Ukraine, rather than from imports from non-FSU countries.

Central and Eastern Europe

The economic outlook for the region calls for continued positive income growth and falling inflation. As the economic transition proceeds, it is assumed that most of the rigidities inherited from the Communist period 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, the impact of protectionist policies in the Visegrad countries (Poland, Hungary, the Czech Republic, and Slovakia) mainly has been to keep domestic producer prices at world levels. These measures have tended to counter the downward pressures on prices coming from the 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. Of the Visegrad Four countries, only Hungary seeks to be a major grain exporter. Others aim for self-sufficiency.

The projections also incorporate the assumption of a steady increase in efficiency in the agricultural sector, reflected in rising 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 CEEs. 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. 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 projections period. Although some CEE countries may join the EU by 2007, the timing of accession is

uncertain. When CEE countries do accede to the EU, significant changes in domestic and trade policies from those assumed here are likely.

East Asia

South Korea and Japan continue to open their livestock sectors to foreign competition as dictated by the Uruguay Round agreement, using deficiency payments to assist the beef cattle sector and encouraging pork and poultry production with indirect subsidies. Japan will also make maximum use of the pork and beef safeguard mechanisms negotiated in the Uruguay Round, which raise tariffs and levies on those meats on a quarterly basis. South Korea, Japan, and Taiwan are expected to retain bans on beef and pork imports from areas with foot-and-mouth disease. The outbreak of foot-and-mouth disease in Taiwan in March 1997, however, has completely shut down Taiwan's pork exports. It is assumed that Taiwan's exports of pork will not resume until 2003, and that they will recover by the end of the baseline to only about a third their average level of 1990-96.

All three East Asian economies are assumed to maintain tight state control over trade in rice. Rice production in South Korea will continue to be insufficient to meet domestic needs and maintain adequate stocks, but Korea's aversion to imports is so strong that it is assumed to take the risk of low stock levels through much of the projection period. Japan will continue to meet its minimum access commitment, but does not import above those levels. Rice imports of Japan and South Korea are projected to remain at the final levels set by the Uruguay Round for the years after 2000 and 2004, respectively.

Japan's wheat, barley, and soybean production, and South Korea's barley and soybean production are maintained through border protection and the use of domestic products by processors in response to government mandates or subsidies. The quota for corn for new industrial uses introduced during the Uruguay Round should expand Japan's nonfeed imports of corn.

The projections were made before the financial crisis of 1997 hit East Asia, and assume that the East Asian governments will continue enormous expenditures designed to help domestic agriculture restructure itself. A continued steady outflow of labor from farming will help full-time farmers achieve larger operations and economies of size. Despite the restructuring, production of some key commodities declines in some countries, including rice in South Korea and pork and poultry in Japan. In South Korea, declining rice consumption will mean that production declines may not lead to increased imports, but in Japan, greater pork and poultry imports will be needed to offset the production decline.

Southeast Asia

The region's financial crisis is expected to result in continued exchange rate instability and slowed economic growth during 1997-2000. The economic assumptions underlying the projections call for the slowdown to be a temporary phenomenon, with a recovery to near previous levels of economic growth by 2000 (see Asia Crisis box, page 17, for further discussion). With the region's rapidly expanding consumption of farm commodities predicated on rising incomes,

urbanization, and population growth, agricultural import demand is expected to slow during 1997-2000. Higher local consumer and producer prices stemming from currency devaluations across the region will also play a key role in slowing imports by reducing consumer demand and raising domestic producer incentives.

With recovery to near previous growth rates by about 2000, demand is expected to resume outpacing production, as it did during the early 1990s. Rice importers in the region are expected to continue to increase their imports as production remains handicapped by slow increases in yields, expanding use of rice land for producing vegetables and fruits, and conversion for urban and industrial development. Thailand and Vietnam are expected to remain very competitive rice exporters with their devalued currencies.

Although slower income growth and higher local currency prices should slow wheat import growth in the near term, longer term prospects are for strong import growth as wheat continues to account for a growing share of diets in the region. Recent rapid growth in the region's production and consumption of livestock products, and in consumption and imports of feed grains and proteins, also are expected to slow in response to income and price shocks associated with the current crisis. Because consumer demand for meats is relatively more responsive to changes in incomes and prices than is demand for other food items, derived demand for imports of corn, soybeans, and soybean meal may be relatively more affected by the crisis in the near term. In the longer term, however, the expected economic recovery in the region, combined with limited capacity for efficient production of corn and soybeans, should lead to sustained high growth in meat demand and feed imports.

Agricultural exports from the region, including rice (mostly Thailand and Vietnam), palm oil (Malaysia and Indonesia), and poultry (Thailand) will be more competitive following the devaluation of local currencies.

South Asia

India's farm sector is expected to continue to benefit from improving terms of trade as agricultural price incentives are maintained and liberalizing reforms steadily reduce protection in nonfarm sectors. A strong policy emphasis on improving producer price incentives is, however, unlikely during the baseline because relatively fragile coalition governments are likely to give priority to assuring consumer price stability. Food grain production is expected to receive a boost from reduced protection of oilseeds resulting from the recent shift from state trading to tariffication of vegetable oil imports. 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 and domestic feed demand remains limited. Domestic surpluses of rice continue in the baseline, with India's relatively low-quality rice maintaining a significant global market share. While some wheat exports are projected, India's surpluses of relatively low-quality wheat are more likely to be disposed of in the domestic market. With the reform of vegetable oil trade remaining in place, vegetable oil imports will grow rapidly. Price incentives and productivity gains will sustain strong growth in cotton production, with most production consumed domestically to meet domestic and export demand for cotton-based products.

Producer incentives in Pakistan will continue to support gains in cotton area, leading to stagnation of wheat yields due to late planting on double-cropped land. Trade policy permits rising dependence on imported wheat. Cotton yields are expected to recover gradually from current pest-related problems. As with India, most cotton production is processed domestically, with strong growth in exports of cotton-based products. Continued, relatively liberal import policies will permit continued growth in vegetable oil imports. Growing livestock product demand is expected to lead to growing soybean meal imports and the emergence of feed corn imports during the baseline.

Africa and Middle East

In Sub-Saharan Africa, per capita food grain consumption is projected to continue to decline because of little or no growth in per capita incomes, strong population growth, slow growth in production, and constrained import capacity. Capacity to import food commercially is expected to grow only slowly, consistent with sluggish gains in total export earnings and slower declines in real food prices. The region is projected to receive a growing share of available global food aid. However, with global food aid budgets assumed to be fixed at current levels, food aid to the region will not be sufficient to maintain per capita consumption.

Stronger growth in import demand for grains and feeds is projected in most of North Africa, based on the outlook for improved economic growth in most countries, limited production potential and, for some countries, more open trade policies. Political unrest is expected to constrain economic growth in Algeria, but wheat and corn imports are projected to rise as crop production is hampered by high input prices, input shortages, and lack of credit. In Egypt, average annual real GDP growth of 4 to 5 percent along with recent policy reforms are projected to generate more growth in wheat, corn, soybean meal, and vegetable oil imports. Since joining the WTO in 1995, Egypt has been reducing producer and consumer subsidies in agriculture and has opened up trade to the private sector for some grains, cotton, and other commodities.

Morocco's real GDP growth of about 5 percent annually, coupled with a continuation of recent steps to liberalize trade and phase out grain, oilseed, and sugar subsidies, should also spark stronger growth in import demand. In Tunisia, which began liberalizing its domestic markets and trade in 1992, real GDP growth of 5 to 6 percent a year is expected to generate expanding imports of wheat, rice, soybean oil, and livestock products.

Many Middle Eastern economies are also projected to experience stronger economic growth during 1998-2007, in part due to the outlook for stronger petroleum prices. Prospects for Iran are highly dependent on both oil prices and the implementation of structural reform. Moderate economic growth, together with limited success in improving yields, and an ambitious livestock/dairy development program, lead to the projected growth in wheat, rice, corn, and barley imports. The situation in Iraq, both economic and political, is extremely uncertain. Under the assumption of 3 to 4 percent annual real GDP growth and the continued recovery in petroleum export revenues**,** food consumption is projected to gradually recover from the sharp drop following the 1991 Persian Gulf War, driving moderate growth in imports of food and feed

grains. If, however, Iraq's imports remain constrained by the terms of the current UN Security Council Resolution, imports would be significantly lower.

The Saudi Arabian economy also is expected to benefit from stronger oil prices. Saudi grain output is expected to continue to decline due to cuts in government subsidies and continuing concern about the depletion of water resources. Rising imports of rice and wheat are projected, and ambitious plans to expand the livestock and poultry sectors will also boost feed imports. Turkey's agricultural trade outlook will be shaped by its expanding and urbanizing population, large external debt, and lack of commitment to privatization and restructuring in the farm sector. Steady growth in rice imports is likely, and reduced producer subsidies will raise wheat imports. Continued strong expansion of the poultry sector and livestock development is expected to result in increased imports of feed grains and oil meals.

Mexico

The Mexican economy continues to recover from the economic crisis of 1995, triggered by the December 1994 peso devaluation, and has bounced back relatively quickly. Annual real GDP growth will be near 6 percent in 1997 and is expected to average near 5 percent through 2007. Fundamentally, the long-term outlook for Mexican agriculture remains unchanged with its productive capacity limited by scarce water, land, and low levels of technology. Mexico is a progressively larger importer of grains, oilseed products, and meats over the next decade. Growing demand for meats will spur domestic meat production and demand for imported feed ingredients. Trade liberalization provides opportunities for greater imports of meats, almost entirely from the United States.

Agricultural policy continues to be driven by the *Alianza para el Campo*, of which the PROCAMPO program is a major component, and 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. PROCAMPO direct payments, which require planting but are otherwise decoupled, will continue to be phased out. Under NAFTA, all tariffs on baseline commodities will be eliminated by 2008. Because of the price-competitiveness and quality of U.S. corn, pork, poultry, and eggs, particularly to the border areas, it is assumed that Mexico will import at least the tariff-rate quota quantities. Mexico continues to reduce consumer subsidies; the main subsidies that continue will be those on tortillas and milk. Feed compounders will now procure corn directly from farmers, thus eliminating CONASUPO subsidies for animal feed.

South America

Strong overall economic growth is expected in South America, led by the two largest economies in the region, Argentina and Brazil. Many countries in the region continue to benefit from their successful evolution from semi-authoritarian political systems and managed economies to political pluralism and market oriented economies.

For Argentina, the key assumptions are on the supply side and involve the availability of land for crop production and the level of yields obtainable. In 1996 Argentine producers harvested almost 22 million hectares of grains, oilseeds, and cotton. This was almost 3 million hectares above the previous year's total, which itself had been an all-time high. The baseline assumes that cropped area can continue to expand when market conditions provide adequate incentives. Crop yield response in recent years also has indicated stronger response to prices than in the past, with the use of inputs increasing sharply. Consequently, the baseline assumes faster growth in use of fertilizer and other inputs than has been the case historically. Finally, Argentina has begun the process of attaining foot-and-mouth-free status. It is assumed that market access in foot-and-mouth free areas, and consumer acceptance of Argentine beef, will increase gradually during the baseline.

In Brazil, the economic stabilization program begun in mid-1994 continues to hold inflation down to low levels. Controlling inflation through tight monetary and fiscal policy remains the primary goal of the government, along with attempts to manage a gradual devaluation in the real exchange rate in an effort to get the growing trade deficit under control. Recent government efforts to reign in the trade deficit include restrictions on the use of short-term import financing while simultaneously increasing the availability of credit for exports. With policies such as these and a continued gradual real depreciation of the exchange rate, Brazilian producers should continue to face stronger price incentives in local currency terms, thus encouraging growth in Brazilian exports. In the case of soybeans, expansion will be accommodated by a continued northward and westward movement of Brazil's agricultural frontier, aided by low land costs and improvements in infrastructure which have reduced the transportation costs of soybeans destined for export.

Canada

A major factor affecting baseline production projections for Canadian crops is the shift over the past several years into the production of canola. Encouraged by development of new varieties, canola acreage rose from a range of 2.5 to 3.7 million hectares during 1984-92, to a range of 5.3 to 5.75 million hectares during 1994-95. Canola plantings significantly affect area and production of other crops, particularly wheat and barley. Wheat acreage, for example, has been below 12.3 million hectares every year since 1993 after remaining well above 13 million hectares over the 1984-92 period. Rotational constraints on canola plantings are, however, assumed to limit canola acreage.

Canada's 1996/97 budget projected a reduction in annual domestic support programs for agriculture from C$854 million to C$600 million over three years. In redesigning agricultural support programs to meet the new budget restrictions, emphasis is being placed on providing whole-farm insurance (such as the recently developed whole-farm savings plan program--the Net Income Stabilization Account), rather than crop-specific and production-distorting subsidies. The baseline assumes that government subsidies to crop and revenue insurance programs will be "production neutral" and that Canadian grains and oilseed production will fully respond to market forces.

Canada's 1995/96 budget eliminated the C$561 million Western Grain Transportation Act (WGTA) freight subsidy for prairie grains and oilseeds, effective August 1, 1995. The elimination of the WGTA freight subsidy meets Canada's commitment under the Uruguay Round export subsidy reduction requirements. Elimination of the subsidy means that the cost of transportation of Prairie Province crops (such as wheat, barley, and canola) to export positions has increased, estimated at about C$17 per metric ton at the time of the subsidy elimination. This increase in transportation costs reduces farmers' incentives to plant grains and oilseeds and reduces production. At the same time, prairie processing and livestock sectors benefit from reductions in local prices. The WGTA subsidy removal has reinforced recent trends toward more value-added processing in the Canadian prairie region. Substantial increases in livestock feeding and canola crushing are projected to continue in the baseline.

Increases in Canada's wheat exports to the United States over the 1990-94 period led to the negotiation of a bilateral agreement to govern wheat trade with a tariff-rate quota for one year, from September 12, 1994 to September 11, 1995. The agreement also established a joint commission to study all aspects of U.S. and Canadian grain marketing systems. With expiration of the TRQ in September of 1995, USTR and USDA announced that the United States now plans to "monitor" imports of Canadian wheat using the expired TRQ as a benchmark for comparison, and to ask for consultations with the Canadian government if there is a surge in imports. The baseline assumes that these provisions will prove sufficient and that no new restrictions on U.S. grain imports from Canada will be imposed.

Several commodities which are grown in Canada have unique characteristics which are likely to guarantee certain export markets for the future. Canadian canola is preferred by Japanese importers. Canadian oats are an indispensable import for U.S. processors. Canadian and Australian barley malt are positioned to benefit from increasing demand from importers in China and Latin America. Because of these market "niches," projections for Canadian production of these three commodities are favored in the later years of the baseline.

Australia

Australia has returned to more normal output after last year when there was record wheat production and prices. Fears that El Nino would devastate the crop have not materialized, although parts of Australia did experience much drier than usual conditions. Producer returns are up for beef but down for crops with the drop in grain prices. The number of cattle in feedlots is expanding as feed prices are down. As producers attempt to maximize returns, some switching will occur in the baseline between types of crops produced, as well as between crops and livestock.

Production for export dominates Australian agriculture and is expected to continue to do so in the future. 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 Australian producers to uncertainties regarding price variability and the availability of water. Until more irrigated area is available, area expansion will be low for some

crops. Crops are to again be planted in the Ord River project in Western Australia, and 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. Further growth in rice exports, however, will be very limited due to constraints on increasing either area or yield. Increases in barley output will also be dependent 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 moderate gains. Cotton production and exports could, however, show stronger gains if production resumes in the Ord River region, or in newly developed irrigated areas. 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.

Commodity Trade Highlights

Growth in global and U.S. trade in most bulk commodities is projected to be relatively strong during 1998-2007 compared with the 1980s or early 1990s. The impacts of the Asian financial crisis, which are assumed to affect the Southeast Asian economies during 1997-1999, contribute to somewhat slower near-term growth in bulk commodity trade, but strong growth is projected for 2000-2007 (see Asia Crisis box, page 17, for further discussion). Growth in meat trade also remains strong, although somewhat slower than recent performance. With the Southeast Asia crisis assumed in the baseline to be resolved over two to three years, projected world and U.S. trade gains are expected to be driven by favorable global economic prospects, particularly in developing countries, along with freer trade resulting from multilateral and unilateral policy reforms. Income growth, particularly in developing countries, is expected to boost food demand, including the derived demand for livestock feeds stemming from rising meat consumption. Developing regions, including China, South and Southeast Asia, North Africa, the Middle East, and Latin America are all expected to show relatively strong economic growth, and be key sources of agricultural import demand.

Coarse grains are projected to show the fastest trade growth among bulk commodities; the result of rising meat consumption and feed demand in Asia, Latin America, North Africa, and the Middle East. Wheat trade will also benefit from rising incomes and urbanization in developing regions. Trade in soybeans and meal, while projected to be slower than grains, will also be driven higher by expanding feed-livestock sectors in developing countries. Increased market access in East Asia is the key source of sustained growth in beef, pork, and poultry trade.

Wheat

World wheat production is expected to increase by an average of almost 10 million tons per year between 1998 and 2007. Above trend yields in China, the United States, the FSU, and Eastern Europe produced a dramatic record global yield in 1997, and a return to trend means lower yields for several years in these key wheat producing countries. World area is projected to gradually expand after 1998, as wheat prices strengthen relative to most other crops. However, world area

does not exceed the 1997 level until 2001 and, at the end of the baseline, remains 6 million hectares below the 1981 record. Land availability is constrained in most countries by climate and increased urbanization. Wheat area declined in the 1980s and 1990s in the FSU and Eastern Europe, as unprofitable area went out of production when the role of centralized planning was reduced. Much of that area is expected to remain out of production through the baseline.

Foreign consumption growth for wheat is projected to average almost 10 million tons per year between 1997 and 2007, twice the rate posted during the previous 10 years. Food demand is expected to account for most foreign consumption growth, but feed and industrial use also expand slowly. Wheat feed use falls in many regions as wheat prices rise relative to feed grains, but wheat feeding increases in the FSU and the EU. In the FSU, increased livestock production will boost wheat feeding, while in the EU, wheat that fails to meet milling standards will not be eligible for price supports, moving it into feed channels. Per capita food use of wheat is projected to rise in regions with modest but growing incomes.

World wheat trade (including the wheat equivalent of wheat flour) is projected to grow an average of more than 3 million tons annually during 1997-2007. Projected growth is well above that of the 1980s, but less than during the 1970s. Wheat trade rebounds from the unusually low levels in 1997, with increased imports by China, and then returns to trend growth, with some acceleration towards the end of the baseline.

Most world import growth is expected to occur in lower income and middle income countries that have prospects for strong macroeconomic growth over the next 10 years, including much of Asia, Latin America, North Africa, and the Middle East. Gains in incomes and urbanization will continue to shift consumer preferences away from rice, coarse grains (for food use), and tubers, and toward wheat-based foods and meat. Per capita wheat consumption is expected to continue to increase relative to rice in China and Southeast Asia. In North Africa, rising incomes and market-oriented farm reforms, including privatization of trade, are expected to boost imports.

China's wheat imports are projected to rebound from a 1997 low of 2 million tons, as yields return to trend and limited area reduces production, and then to increase gradually through the baseline as demand growth outstrips production. China is a key source of uncertainty in global wheat import prospects because of the uncertain impacts of potential water constraints, yield improvements, dietary shifts toward meats, and policies toward grain imports.

In the past, many importers benefited from exporter subsidies, credit, or food aid. Under the Uruguay Round agreement, subsidized exports fall from about 40 percent of world trade in 1994 to about 25 percent by 2000. However, budgeted EEP funds are assumed to be spent, starting in 1998/99, so targeted countries receive larger exporter subsidies than in recent years. Some countries will be affected by the outlook for no increase in the nominal value of credit and food aid. Wheat imports by the least developed countries, particularly the Sub-Saharan Africa region, are likely to decline relative to imports by the higher income developing countries.

Details of EU Wheat Export Projections

The EU is projected to begin exporting wheat without the aid of export subsidies by about 2000. Unsubsidized EU wheat exports are expected to occur as projected real world prices and internal EU market prices converge, allowing the EU to export beyond the limits set for subsidized exports during the Uruguay Round. In the early years of the projections, EU market prices of wheat are expected to remain above world prices, with EU wheat exports projected at or below the UR limits. By 2000, firm world prices and declining internal prices are expected to permit the EU to export wheat without subsidy, with exports exceeding the UR limits by about 45 percent, or 7.6 million tons by 2007.

It is important to note that the projections do not account for annual or seasonal variability in market conditions that, as has occurred in the last 3 years, may result in periods of relatively high world prices and unsubsidized wheat exports prior to 2000, as well as periods of tight EU supplies that lead to export taxes on wheat.

Several key factors and assumptions affect the projections. First, with the assumption that no significant reforms will be made to the CAP, the EU is expected to maintain a 5-percent land set aside until 1999/2000, then increase to 10 percent for the duration of the projection period. A lower set-aside rate could allow the EU to produce and export more wheat. However, because the set-aside is not crop specific, a smaller set-aside would also likely lead to excess supplies of coarse grains, primarily barley, that would exceed the EU's UR limits on coarse grain exports and that could not be exported without subsidy. Revision of the CAP to alter the set-aside mechanism or to reduce internal coarse grain prices closer to world prices would appear to be needed to push EU wheat exports significantly higher than the current projections.

Finally, the projections incorporate the assumption that the ECU will strengthen relative to the dollar during 1998-2007, reflecting tighter fiscal and monetary policies in EU member states as they prepare for the European Monetary Union. A strong ECU means that EU farmers will face prices that decline more (or increase less) than prices denominated in U.S. dollars. The strengthening ECU tends to reduce producer and export incentives, particularly toward the end of the projection period.

Table 36. EU-15: Details of wheat export projections

Variable	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
						1990 ECU/ton					
Wheat											
Market (consumer) price	92.35	85.95	81.80	79.99	77.28	76.53	74.89	72.63	70.50	67.87	65.01
World price	86.99	77.28	78.99	83.38	82.65	80.70	78.87	77.89	76.06	72.52	69.99
Intervention price	92.35	89.82	87.32	84.79	82.29	79.85	77.50	75.18	72.92	70.73	68.61
						Million tons					
Wheat exports	16.2	18.3	17.8	16.7	17.8	18.9	19.8	21.0	21.9	23.2	24.3
UR subsidized limit	20.2	19.0	17.8	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
Real exchange rate ($/ECU)	1.34	1.35	1.35	1.36	1.38	1.39	1.41	1.43	1.44	1.46	1.48
Set-aside rate (percent)	5	5	5	10	10	10	10	10	10	10	10

U.S. wheat exports are projected to grow fairly rapidly in the early years of the baseline, but flatten when prices get high enough for the EU to export without subsidy in 2001. U.S. export growth recovers late in the baseline, reaching 42.2 million tons in 2007, still lower than wheat exports in 1981 and 1987. The U.S. share of world trade increases until 2000 and then declines slowly to less than one-third. In the early years of the baseline, U.S. exports benefit from rebounding U.S. production, the use of EEP, and Uruguay Round limits on EU wheat exports. As time progresses, however, slow U.S. yield growth and large acreage in the CRP limit the U.S. ability to expand production relative to competitors.

Compared with the 1980s and early 1990s, the EU is a less significant competitor in world wheat trade, particularly during 1998-2000, because of internal policy reforms and Uruguay Round constraints on subsidized exports. After 2001, although the EU is expected to be able to consistently export some wheat without subsidy, the EU land set-aside is expected to remain at about 10 percent in order to avoid building excess grain stocks.

Initially, land constraints and competitive prices for other crops are expected to limit wheat exports by Argentina, Australia, and Canada. But later, Argentina and Australia are projected to find it increasingly profitable to increase wheat production and exports. Canada's exports stay relatively flat, largely because of expected slow yield growth. In the early years of the baseline, Canada maintains wheat exports by reducing stocks, but then wheat area increases in response to strengthening prices. Minor exporters, like Eastern Europe, become more important in the latter part of the baseline.

Rice

Rice trade is projected to grow about 2 percent annually from 1997 (marketing year 1997/98) through 2007, with growth strengthening after 2000. Anticipated growth is about the same as in the 1980s and the early 1990s, but slower than in the 1970s. World trade is projected at 21.1 million tons by 2001 and 24.6 million tons by 2007. Trade is expected to continue to consist predominantly of long grain varieties, despite anticipated gains 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 continue to fall, although less rapidly than in the past. Global medium-grain prices are expected to rise relative to long-grain prices due to limited world export supplies of high-quality japonica rice and greater import demand.

Foreign production is forecast to rise gradually, growing a little less than 1.2 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. Slower production growth stems primarily from a projected slowdown in yield increases. Global acreage growth is expected to remain extremely small, as it has since 1975.

Foreign consumption is projected to rise about 1.2 percent per year, markedly slower than during the 1980s and virtually matching the expansion rate for production. 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 and meat. Per capita rice use in other countries, including China and India, is projected to reach the stage where it flattens or declines during the coming decade as consumers primarily shift from lower-quality to higher-quality rice varieties and some begin to diversify their diets away from rice in response to higher incomes. These developments are expected to offset consumption gains in other regions, primarily lower income rice-producing countries and higher income nonproducing countries, where per capita rice use is still rising.

The rice export market share for the United States between 1991 and 1995 varied from 15 to 18 percent, and averaged about 13.5 percent in 1996 and 1997. It is projected to average 13.6 percent during 1997-2000 and then decline gradually to just over 11 percent by 2007. Small U.S. production gains, strong domestic use, and high prices relative to competitors are expected to limit the volume of U.S. rice exports. Total U.S. exports are projected at 2.8 million tons, while total imports rise to 0.5 million tons, leaving the U.S. a net exporter of 2.3 million tons of rice in 2007.

As a major exporter of medium-grain rice, the United States will benefit significantly from the Uruguay Round agreement. But, despite significant market access gains in East Asian medium-grain markets, total U.S. rice export volume expands only slightly in the baseline. The extent of U.S. gains in medium-grain markets depends on U.S. capacity to expand production and exports on a sustainable basis. California, the primary U.S. producer of high-quality japonica rice, faces increasing environmental restrictions on expanding acreage and yields. Other U.S. growing regions have yet to develop suitable japonica type varieties for cultivation. The outlook for a widening long-grain export price premium compared with top-quality Asian exports implies that the United States will lose some of its long-grain exports in the more price-sensitive markets such as the Middle East. Further, under fixed budget levels, higher domestic prices imply lower program-assisted exports.

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 Burma, India, Indonesia, Thailand, the Philippines, and Vietnam, on rainfall during the Asian monsoon season, and from the fact that only a small share (about 5 percent) 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.

Coarse Grains

Reversing a decline that began in the early 1980s, world import demand for coarse grains is projected to strengthen, with annual growth averaging 3.4 percent from 1998 to 2007. Global coarse grain trade is projected to exceed the 1980/81 record of 108 million tons in 2001 and reach over 132 million tons by 2007. Strong economic growth is expected to fuel higher coarse grain imports by China, North Africa, and Latin America. East Asia's imports remain steady despite macroeconomic problems, as these countries tend to maintain domestic livestock and poultry production, while slowing meat imports. Taiwan's feed imports are expected to begin recovering

by 2000, as hog numbers start to rebound and poultry production continues to expand. Southeast Asian feed grain imports are expected to be slowed by 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 small net importer of coarse grains late in the baseline, as animal numbers increase with an improving economy. High wheat prices are expected to reduce feed wheat trade in favor of coarse grains, especially to South Korea.

Significant growth in both corn and barley trade is expected. 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 from 1997 levels, but remain below 1995 levels throughout the baseline as EU rye shipments to Korea are limited by transport costs.

World corn trade is expected to expand rapidly, passing the 1989 record of 80 million tons in 2002, and reaching 97 million tons by 2007. The largest gains in corn imports are expected to occur in China, Southeast Asia, and North Africa/Middle East, where demand for feed for livestock is expected to continue expanding rapidly. Although Argentina's corn exports are projected to rise, wheat and oilseed prices are likely to limit Argentine corn area expansion, leaving the United States the major beneficiary of robust 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 slowed by 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. The Uruguay Round agreement limits on subsidized EU coarse grain exports will constrain combined exports of barley, rye, and other coarse grains through 2007. 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.

U.S. exports of coarse grains are projected to rise in the near term, as China returns to being a net corn importer and competition from Eastern Europe declines. U.S. exports grow an average of 2.8 million tons per year, reaching 86.5 million by 2007. By 2001, U.S. coarse grain exports are expected to reach the 1979/80 record of 71 million tons, with corn accounting for 64 million. The U.S. share of world coarse grain trade is projected to grow to 66.4 percent in 2004, but fall slightly in the last few years of the baseline. Growth in U.S. market share is expected to slow towards the end of the projection period, 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 expected to drop in the near term, as gains in demand outpace production in China and South Africa. In the longer term, foreign coarse grain exports are projected to rise, particularly when import demand and prices strengthen after 2000, but remain below the highs of the early 1990s.

Foreign coarse grain production is projected to rise through 2007, as gains in both area and yields reverse the downward trend of the 1980s and early 1990s. Past coarse grain yield growth is

expected to continue. Area growth is anticipated to be slow, 0.5 percent per year, but any growth is a big change from the generally declining coarse grain area since 1980. Foreign corn and barley production, in particular, are expected to respond to higher prices after 2000. Annual growth in foreign coarse grain consumption is projected at 2 percent through 2007, stronger than during the 1980s, but below the 3-percent rate of the 1970s. Corn is expected to account for the growth, especially in China, Southeast Asia, and Latin America where livestock output and feed demand are expanding rapidly as incomes rise.

Soybeans and Products

World soybean production is projected to climb 1.5 percent annually through 2007. Foreign output growth, at 2.4 percent per year, is expected to be faster than U.S. output growth of 0.7 percent. Foreign output growth will, however, be sharply slower than during the 1970s (9 percent annually) and 1980s (6 percent), when Brazil and Argentina added large amounts of land to soybean production. World soybean area is projected to expand 0.5 percent per year, with most of that growth occurring in South America. Production increases for the United States will come mainly through improvements in soybean yields, which are expected to rise 1.2 percent annually.

World soybean trade is projected to increase faster during 1997-2007 than during the 1980s, but much more slowly than in the early 1990s. Soybean meal trade growth is projected to be slower than both the 1980s and the early 1990s. During 1997-2007, global exports of soybeans and meal rise at annual rates of 1.2 and 2.2 percent, reaching 44.3 and 44.1 million tons, respectively, by 2007. Combined exports of soybeans and meal, on a soybean-equivalent basis, are projected at 100.1 million tons by 2007.

Gains in world soybean meal consumption also are projected to be smaller than in the 1980s, primarily because of weaker demand growth in the FSU, Japan, and the EU. However, strong economic growth in developing economies is projected to partially compensate for those declines and support global consumption growth of about 2 percent annually.

World use of soybean oil is projected to expand at a rate of 2.1 percent annually during 1997-2007, about the same as in the 1980s, but well below the strong 5.1-percent rate of growth achieved during 1990-96. Projected consumption gains are concentrated in Asia and South America, with little growth anticipated in the Middle East, North Africa, Central America, and the Caribbean. Foreign soybean oil production is projected to rise 2.5 percent annually and reach 18.4 million tons by 2007. Growth in soybean processing in Mexico, Brazil, Argentina, India, and China accounts for most of the projected gains in foreign soybean oil production.
Both world and U.S. exports of soybean oil and soybean meal are projected to grow faster than exports of soybeans during 1997-2007. With the outlook for continued growth in trade in oil relative to meal, incentives to produce high-oil content oilseeds and palm oil are expected to strengthen.

World vegetable oil trade is projected to grow 2.7 percent annually during 1997-2007, less than the rates achieved in the 1980s and the early 1990s. Soybean oil trade is projected to slow even more than total vegetable oil trade, with projected annual growth of 1.8 percent during

1997-2007, compared with growth of about 9 percent in the early 1990s when trade responded to U.S. and EU subsidies and sharp import gains in developing countries. During 1997-2007, growth in soybean oil trade will be curbed by reduced U.S. export subsidies, negligible oilseed expansion in the EU, and higher relative prices that shift demand toward competing oils.

Soybeans and Meal

Developing economies likely will account for all soybean and soybean meal import growth during 1997-2007, as imports by developed nations decline. Feed demand is projected to expand most rapidly in China. Economic difficulties slow Southeast Asian imports during 1998 and 1999, but growth is then expected to resume. Per capita income growth also supports robust gains in the livestock sectors in South America, the Middle East, and North Africa. EU imports are projected to stagnate, with their share of world soybean and meal imports, on a soybean equivalent basis, dropping from 42 percent to 36 percent by 2007.

Brazil's elimination of differential export taxes reduces incentives to export soybean meal instead of soybeans. Strong internal feed consumption will also slow Brazilian soybean meal exports. Argentina's small consumption base and rapidly expanding crush capacity assure long term growth in exports of soybean meal. India's soybean meal exports likely will rise as production increases faster than domestic consumption, although at a slower rate than in the past.

U.S. exports of soybeans and soybean meal are projected at 29.9 and 7.0 million tons, respectively, in 2007. The U.S. soybean market share is projected to remain about 68 percent through 2007, while the U.S. share of the soybean meal market contracts from 19 percent to 16 percent. These projected U.S. shares contrast with significantly higher shares for soybeans (73 percent) and soybean meal (24 percent) achieved in the 1980s. Limited potential for expanding U.S. acreage and rising livestock numbers, especially poultry, constricts U.S. exportable supplies of soybeans and soybean meal. A thriving meat export trade also keeps more feed supplies within U.S. borders.

Soybean Oil

Income growth in China, India, and Pakistan, which together account for more than a third of total world population, is a significant determinant of global vegetable oil trade growth during 1997-2007. Despite significant tariffs and/or import controls in these countries, consumption of vegetable oils is projected to expand considerably. Per capita consumption of oils in these countries is still well below those of developed nations.

Soybean oil, however, is expected to have a diminishing role in global vegetable oil trade because of higher market prices relative to palm oil, reflecting insufficient global soybean oil supplies. Palm oil exports by Malaysia and Indonesia are expected to continue to meet the largest share of consumption and trade growth. Palm oil is expected to account for most of the increase in imports by China, India, and Pakistan because of favorable relative prices and transport costs.

Since the projected growth in vegetable oil demand during 1997-2007 is highly dependent on expected economic growth in developing countries, the projections are sensitive to the macroeconomic outlook for these countries. The import projections are also sensitive to assumptions on changes in market access for vegetable oils. India is assumed to maintain its tariffication of vegetable oil imports, while no changes in current access policies are anticipated in China and Pakistan.

The United States, Argentina, Brazil, and the EU continue to account for more than 90 percent of world soybean oil exports. Argentina will remain the largest exporter of soybean oil because of its small domestic market, even though its trade growth slips to only 2.8 percent per year from nearly 18 percent during the 1980s. More gradual growth in Brazil's crush, together with rising internal consumption, will restrain future exportable soybean oil supplies. In the EU, CAP reform and the U.S.-EU Oilseed Agreement are expected to restrain expansion of EU oilseed production and exports.

The U.S. share of the global soybean oil market is projected to rise through 2002, but then slip somewhat through 2007. The U.S. soybean oil share of world vegetable oil trade is projected to decline. Reduced export subsidies, output gains in other vegetable oils, especially palm oil, and limited growth in domestic soybean oil production restrain the growth in U.S. market share. U.S. soybean oil exports rise to 1.4 million tons by 2007.

Cotton

Growth in foreign consumption and production both slowed to negligible rates during the last 10 years and, while both have begun to rebound, they are not expected to return to their long-term average growth of 2.2 percent per year during the forecast period. World cotton consumption is projected to expand approximately 1.7 percent annually during 1998-2007, underpinning the outlook for a relatively strong rate of import growth. However, a key uncertainty in the projection 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.

Foreign production stagnated between 1985 and 1995, as smaller harvests in China and the FSU 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 has hampered production in China. Further losses in these regions are not expected, and Central Asia's production is expected to resume growing, although not as quickly as elsewhere.

World cotton trade is expected to average 1.7 percent annual growth during 1998-2007, reversing much of the decline suffered during the previous 10 years. World cotton trade fell from a peak of 33.4 million bales in 1988 to as low as 25.6 million in 1992, in large part due to declining Russian imports. Import growth is foreseen in Russia and elsewhere after 1997 and, by 2007, world exports are projected at 31.6 million bales.

World trade contracted for two reasons beginning in the late 1980s--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, world cotton trade is likely to grow during the next 10 years. Also, 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 strengthens prospects for raw cotton demand by some cotton-importing textile exporters who will face less competition. Finally, several countries that were sources of cotton exports during the 1980s are have become importers instead. In past years, increasing consumption in Mexico, Brazil, and China 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 1998-2007, but remain below the long-term trend. By 2007, foreign exports are expected to total 23.6 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.

U.S. exports are also expected to trend up during 1998-2007, growing to 8 million bales by 2007. The U.S. share of world trade is likely to average a little more than 25 percent, just below its average share during 1990-1997. U.S. exports are expected to rise 1.6 percent annually during 1998-2007, about the same as world trade.

The rapid consumption growth of the 1980s, spurred by prolonged economic expansion and sharp share gains 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. However, the pace of this structural shift will depend on the implementation of the Multi-Fiber Arrangement's phaseout. While it is anticipated that the most significant changes will probably be delayed until the end of the implementation period in 2005, large uncertainties remain about the timing of liberalization and shifts in garment production both to and among developing countries.

Beef

World beef production is projected to rise about 1.4 percent per year through 2007. China has the fastest projected rate of production growth as demand for beef encourages expansion by producers. Increased incomes and initially low inventories in the former Soviet Union and Brazil also helps stimulate production. U.S. beef production is still recovering from the impacts of the poor grain crop in 1995/96. As a result of herd liquidation and the relative length of the biological cycle, U.S. beef production will decline through 2000 before increasing at a moderate rate through the end of the forecast period. Production in the EU is expected to decline gradually through the forecast period as beef consumption falls and stocks remain high.

Global per capita consumption of beef is projected to increase gradually as meat demand rises in response to income growth. However, in some important Pacific Rim markets, such as South Korea and Japan, there may be limited potential to further expand beef's role in the diet. Other Asian markets, such as China and the Philippines, may have more potential for increasing per capita beef demand. In Latin America, significant gains in per capita consumption are expected in Mexico and Brazil, but little growth is expected in Argentina. Increases in per capita beef consumption are expected in a number of Central and Eastern European countries but, for countries that have delayed liberalizing their economies, a longer period will be needed before income growth stimulates beef demand. In Russia, only gradual increases in beef demand are expected because of the availability of relatively cheaper pork and poultry. Per capita consumption in the United States is expected to increase slightly in the early 2000s as a result of the cattle cycle, but then decline as relative prices favor consumption of other meats. As a result of continuing concerns over BSE, demand for beef in the EU is projected to decline.

Traded beef, although growing in importance, remains a relatively small portion of global consumption. However, for a number of countries, especially those with increasing incomes and limited agricultural resources, imports have become an extremely important share of consumption. Increasing import demand in areas like the Pacific Rim, and in countries such as Russia where production has been adjusting to market forces, will mean growth opportunities for exporters. The major exporters will continue to increase production for export, while domestic production in the major importing countries is projected to stagnate, mainly because of the relatively lower cost of imported beef.

Much of the growth in beef and veal import demand is projected in the Pacific Rim countries, where increasing incomes and lower trade barriers will raise consumption beyond that which can be satisfied by their production base. While economic problems associated with the Asian currency crisis may slow Asian imports in the near term, significant growth is expected in the longer term. Larger imports are expected by Mexico and Russia, where income growth is expected to increase beef demand more rapidly than domestic production can respond. The proximity of Mexico and Russia to sources of relatively low priced imported product from the United States and Central and Eastern Europe is likely to stimulate increased trade.

Growth in global beef exports is projected to slow as subsidized exports by the EU fall, in keeping with Uruguay Round commitments. The EU, however, is the only major exporter projected to

show a decline in beef exports, as the United States, Australia, and Argentina are all projected to continue to increase export volumes through 2007. Australia and the United States will likely vie for the role of leading exporter of beef and veal. U.S. exports are expected to expand, although weakness in Pacific Rim imports may keep U.S. export growth more moderate in the near term than previously projected. U.S. exports to Mexico will continue to expand. With increased production and the potential to expand into formerly restricted markets, Argentina is projected to gradually expand exports and become the fourth largest exporter of beef. Concurrently, cutbacks in subsidized EU exports and a reduction in beef production in New Zealand will limit the expansion of these countries in the growing world beef market.

Pork

World pork production is projected to increase at a slower rate than in previous decades as environmental constraints limit expansion in many areas and large supplies of relatively lower cost poultry provide competition. Global production is projected to increase at an annual rate of nearly 2.4 percent during 1998-2007. Asia and the United States are the primary growth areas for pork production. More modest production increases are projected for Canada, Mexico, the FSU, Central and Eastern Europe, and the EU-15, while production in Japan declines.

Pork consumption is projected to grow about 2.3 percent per year between 1998 and 2007, somewhat slower than during the 1980s. Slower consumption growth is the result of moderate income gains in the developed economies, as well as declining relative prices for meats that easily substitute for pork, particularly poultry. The United States, Canada, and the EU-15 are in this category.

Stronger demand growth in Asia and Mexico partially offsets the moderate consumption growth in the United States, Canada, and the EU-15. Consumption in China and Korea is projected to rise 3 percent annually. Pork demand also grows moderately in Central and Eastern Europe and in the FSU, aided by modest economic growth, lower inflation, and higher disposable incomes.

World pork trade is projected to continue to expand, driven by rising demand in several of the major pork importers, including Mexico, Japan, and Hong Kong. The FSU and Central and Eastern Europe are expected to be significant, although somewhat variable, influences on the world market.

The United States is projected to assume a dominant export role in global pork trade in the baseline, increasing exports by almost 70 percent between 1998 and 2007. Robust U.S. export growth reflects a re-structured U.S. pork industry with greater export orientation and internationally competitive costs. The United States is expected to gain market share from Taiwan, whose exports of pork are assumed to cease until 2003 in the aftermath of the foot and mouth disease outbreak in 1997. By the end of the baseline in 2007, Taiwan's exports are expected to recover only about a third of their average level during 1990-96, as domestic

Effects of Taiwan's Hog Sector Foot-and-Mouth Disease Outbreak

The sudden and devastating outbreak of foot-and-mouth disease (FMD) on Taiwan's hog farms in March 1997 has had major impacts on Taiwan's pork sector and on global pork trade. Taiwan was the leading supplier of Japan's pork imports prior to the FMD outbreak. Taiwanese pork production is projected to recover gradually from the FMD shock. For this baseline, it is assumed that Taiwan will withdraw from the international pork market through the end of 2002. Pork exports will then gradually be resumed starting at relatively low levels in 2003.

Although the FMD epidemic is now basically under control, the outbreak of FMD has substantially depopulated Taiwan's 10.7 million hogs (as of November 1997). The Taiwan Government's objective is to become "FMD-free with immunization" by June 2000 and "FMD-free without immunization" by June 2001. It is likely that the Taiwanese pork industry will restructure during these intervening years. Taiwanese pork exports in 2003 and beyond, will be the product of an industry characterized by fewer, but larger operations. Long-run Taiwanese pork exports, however, are projected to be much smaller than pre-FMD levels.

In the baseline projections, the share of Japan's pork import market ceded by Taiwan because of the FMD outbreak is assumed to be divided largely between the United States and Europe, with lower levels of product being accounted for by Canada and Korea.

environmental concerns and source diversification by importers limit the recovery of the Taiwanese pork industry.

EU-15 pork exports are expected to increase by 6 percent during the baseline, as the EU-15 continues to be able to export unsubsidized pork over and above the Uruguay Round imposed limits on subsidized exports. EU exports are primarily of Danish origin. Export competitiveness is expected to be enhanced by the use of technical innovations to manage costs and improve product quality.

Poultry

World consumption of poultry meat is expected to continue to expand throughout the baseline period. Poultry's low cost relative to most other meats, coupled with projected economic growth in most areas, is expected to increase demand. In particular, rising disposable incomes in developing countries and health concerns in developed countries strengthen the demand outlook for poultry meat. The United States, as the world's largest poultry exporter, is expected to benefit from growth in world poultry consumption and trade by maintaining its share of world poultry meat exports.

Increases in poultry meat consumption, while well above the rates for beef and pork, are projected to be lower than during the 1980s. Consumption is expected to continue to expand rapidly in countries such as Mexico and China, where current levels of use are relatively low. Per capita poultry consumption remains relatively low in many countries, including Japan, Egypt, the FSU, and Eastern Europe, regardless of stage of development. Poultry consumption in Japan is expected to increase slowly, with gains coming from higher imports as domestic production declines. In Egypt, higher consumption is expected to be driven by stronger economic growth and less restrictive policies toward imports of poultry and feeds. In the FSU and CEE, domestic poultry production is expected to gradually increase during the forecast period, but these countries are likely to continue to be large poultry importers for some time. Low incomes continue to hold down poultry demand in many countries but, as incomes increase, poultry's low price relative to other proteins often make it a first choice to upgrade diets.

The United States is the world's largest poultry meat producer, accounting for nearly one-quarter of world production in 1997. Other large producers are the EU, China, and Brazil. Production in these countries is expected to continue to expand as domestic and global demand increase. The greatest gains are likely to occur in China where production is projected to expand sharply in response to growing domestic and export demand and government policies encouraging poultry production.

Global trade in poultry meat is projected to trend upwards to over 9 million tons by 2007. Imports are anticipated to rise in all the largest import markets, including the FSU, China, Japan, Hong Kong, Mexico, Canada, and the Middle East. Most of the growth in world trade is expected to come from expanded shipments of relatively low-priced poultry parts. This will especially be true in emerging markets in middle- and lower income countries, such as those in the Pacific Rim, the FSU, and CEE. In many cases, the preferred products in these countries are less-preferred and lower-valued products in the United States. As poultry trade expands many major exporters will attempt to use preferred products in their domestic market and export lower valued products. Exports of further processed products are expected to grow, but remain a relatively small percentage of total trade.

World trade in poultry products is expected to become less restricted over the baseline period. However, some countries, under pressure from domestic producers, are likely to use higher tariffs or other methods to restrict imports and favor local production, often based on imported feeds.

Table 37. Coarse grains trade baseline projections

	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
						Million metric tons						
Importers												
FSU 1/	1.9	1.8	1.8	2.3	2.7	2.8	3.0	3.2	3.5	3.8	3.9	4.1
Eastern Europe	1.6	0.9	1.3	1.1	1.1	1.1	1.3	1.4	1.5	1.6	1.5	1.6
Japan	20.6	20.8	20.7	20.7	20.8	20.8	20.6	20.5	20.3	20.2	20.0	19.8
South Korea	8.9	7.8	10.1	10.4	10.7	11.0	11.2	11.4	11.6	11.8	11.9	12.1
Taiwan	5.9	5.2	4.5	5.1	5.3	5.6	5.9	6.1	6.3	6.4	6.6	6.7
China	2.1	2.6	4.0	4.9	6.3	7.1	8.1	9.4	10.9	12.6	14.4	16.8
Mexico	5.4	6.6	7.9	8.4	8.8	9.3	9.9	10.3	10.7	11.1	11.5	11.8
European Union 2/	3.2	2.8	2.6	2.5	2.5	2.6	2.5	2.6	2.5	2.6	2.6	2.6
Latin America 3/	8.0	9.3	9.6	10.0	10.3	10.5	10.7	11.0	11.2	11.3	11.4	11.5
N. Africa & Middle East	20.4	20.4	20.0	20.5	21.0	21.6	22.4	23.2	24.0	24.7	25.4	26.3
Other Asia & Oceania	5.0	5.3	5.0	5.4	5.8	6.4	6.7	7.1	7.5	7.9	8.2	8.5
Sub-Saharan Africa 4/	2.2	2.1	1.6	1.5	1.4	1.3	1.3	1.4	1.3	1.3	1.2	1.1
Other foreign 5/	6.5	5.8	5.9	5.7	5.8	5.8	6.0	6.2	6.3	6.5	6.4	6.4
United States	2.9	3.0	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Total trade	94.7	94.2	98.2	101.6	105.8	109.0	112.8	116.7	120.7	124.7	128.1	132.4
Exporters												
European Union 2/	6.4	8.2	10.0	9.5	9.0	8.5	8.5	9.0	9.0	10.2	10.1	10.4
China	4.0	4.0	1.4	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1
Argentina	11.5	8.5	9.2	9.7	10.0	10.3	10.8	11.1	11.7	12.3	12.7	13.6
Australia	4.4	2.9	2.8	2.8	2.9	3.0	3.2	3.3	3.4	3.4	3.5	3.7
Canada	5.4	5.2	3.9	4.4	4.7	4.8	5.0	5.2	5.4	5.3	5.6	5.7
Rep. of South Africa	1.4	1.0	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Eastern Europe	1.5	2.7	2.7	3.2	3.0	3.0	3.0	3.0	3.0	3.0	3.5	4.2
FSU 1/	1.3	2.1	2.9	2.7	2.6	2.9	2.9	2.8	2.9	2.9	3.0	2.9
Other foreign	2.2	2.4	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.3
United States	51.5	53.4	61.3	64.7	68.9	71.7	74.6	77.4	80.2	82.3	84.5	86.5
						Percent						
U.S. trade share	54.4	56.8	62.4	63.6	65.1	65.8	66.1	66.3	66.4	66.0	66.0	65.4

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 1997 based on policy decisions and other information known at that time.

Table 38. Corn trade baseline projections

	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
						Million metric tons						
Importers												
FSU 1/	0.6	0.5	0.5	0.6	0.8	1.0	1.2	1.3	1.5	1.6	1.7	1.8
Japan	15.9	15.9	15.8	15.9	15.9	15.9	15.8	15.7	15.6	15.5	15.3	15.2
South Korea	8.5	7.5	9.4	9.9	10.4	10.7	10.9	11.1	11.3	11.5	11.7	11.8
Taiwan	5.7	5.0	4.2	4.8	5.0	5.3	5.6	5.7	5.9	6.0	6.2	6.3
China	0.1	0.3	2.1	2.9	4.3	5.1	6.0	7.3	8.6	10.2	11.9	14.2
Mexico	3.1	4.2	4.8	5.0	5.2	5.4	5.6	5.8	6.0	6.1	6.3	6.4
European Union 2/	2.6	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Latin America 3/	7.3	8.6	9.0	9.3	9.6	9.8	9.9	10.2	10.4	10.5	10.6	10.7
N. Africa & Middle East	11.1	10.7	11.0	11.4	11.9	12.3	12.8	13.3	13.7	14.1	14.5	15.0
Other Asia & Oceania	5.0	5.2	4.9	5.3	5.8	6.3	6.7	7.0	7.4	7.8	8.1	8.4
Sub-Saharan Africa 4/	2.1	2.0	1.5	1.3	1.3	1.2	1.2	1.3	1.2	1.2	1.1	1.0
Other 5/	3.7	3.8	3.5	3.5	3.6	3.7	3.9	3.9	4.1	4.0	4.0	4.0
Total trade	65.7	65.9	68.7	72.2	75.9	78.7	81.7	84.7	87.8	90.6	93.4	96.9
Exporters												
European Union 2/	0.2	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
China	3.9	4.0	1.3	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1
Argentina	10.5	7.7	8.5	8.9	9.2	9.5	9.9	10.3	10.9	11.6	11.9	12.8
Republic of South Africa	1.4	1.0	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Eastern Europe	1.4	2.2	2.0	2.4	2.1	2.0	2.0	2.0	2.0	2.2	2.7	3.4
FSU 1/	0.3	0.5	0.9	0.7	0.7	0.7	0.7	0.8	0.8	0.9	1.0	1.0
Other foreign	1.1	1.2	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
United States	45.6	46.4	54.0	57.1	61.0	63.5	66.0	68.6	71.1	73.0	74.9	76.8
						Percent						
U.S. trade share	69.4	70.3	78.6	79.2	80.3	80.7	80.8	81.0	81.0	80.6	80.2	79.3

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 1997 based on policy decisions and other information known at that time.

Table 39. Sorghum trade baseline projections

	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
						Million metric tons						
Importers												
Japan	2.6	2.7	2.6	2.7	2.7	2.6	2.6	2.6	2.6	2.5	2.5	2.5
Mexico	2.1	2.2	3.0	3.2	3.5	3.8	4.1	4.3	4.5	4.7	5.0	5.1
Other N. Africa/M. East	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5
Other S. America	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saudi Arabia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
South Korea	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sub-Saharan Africa 1/	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Taiwan	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6
Total trade	6.3	6.4	6.9	7.2	7.5	7.8	8.1	8.3	8.5	8.7	8.9	9.1
Exporters												
Argentina	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5
Australia	0.1	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1
Sub-Saharan Africa 1/	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 foreign	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
United States	5.2	5.1	5.7	6.0	6.3	6.6	7.0	7.2	7.5	7.7	8.0	8.1
						Percent						
U.S. trade share	82.4	79.1	82.4	82.9	84.1	84.8	86.1	87.0	88.0	89.1	89.4	89.8

1/ Includes South Africa.
The projections were completed in November 1997 based on policy decisions and other information known at that time.

Table 40. Barley trade baseline projections

	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
						Million metric tons						
Importers												
FSU 1/	0.9	1.0	0.8	1.0	1.2	1.1	1.1	1.1	1.1	1.3	1.2	1.3
Japan	1.6	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.7
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	0.3	0.3	0.3	0.3	0.3
China	2.0	2.3	1.9	1.9	1.9	1.9	2.0	2.1	2.1	2.3	2.3	2.5
European Union 2/	0.1	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.3	0.3	0.3
Latin America 3/	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Algeria	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Saudi Arabia	5.8	6.0	5.1	5.4	5.4	5.5	5.7	5.8	6.1	6.4	6.6	6.9
Morocco	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Tunisia	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Iran	0.5	0.6	0.5	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.4
Iraq	0.0	0.0	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
Turkey	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2
Other N. Africa/M. East	2.1	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.2	2.2
Other foreign 4/	1.6	0.9	1.5	1.2	1.2	1.2	1.2	1.3	1.3	1.6	1.5	1.5
United States	0.8	0.9	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Total trade	16.5	17.1	16.8	16.8	16.9	17.1	17.4	18.0	18.3	19.2	19.4	20.0
Exporters												
European Union 2/	4.0	6.0	8.1	7.7	7.3	7.0	6.9	7.4	7.4	8.6	8.5	8.7
Australia	4.0	2.4	2.4	2.4	2.6	2.7	2.9	3.0	3.2	3.2	3.2	3.5
Canada	3.4	3.3	2.1	2.3	2.5	2.5	2.6	2.7	2.8	2.7	2.9	3.1
FSU 1/	0.7	1.5	1.0	1.0	1.1	1.2	1.3	1.2	1.2	1.1	1.1	1.0
Eastern Europe	0.1	0.5	0.7	0.8	0.8	0.9	0.9	0.9	0.9	0.8	0.8	0.8
Turkey	0.5	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6
Other foreign	0.8	0.6	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8
United States	0.7	2.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
						Percent						
U.S. trade share	4.1	11.5	9.1	9.1	9.0	8.9	8.8	8.5	8.3	7.9	7.9	7.6

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 1997 based on policy decisions and other information known at that time.

Table 41. Wheat trade baseline projections

	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
						Million metric tons						
Importers												
FSU 1/	6.3	4.9	6.3	6.3	6.1	7.0	7.7	8.0	8.4	8.4	8.4	8.1
China	2.8	2.0	4.8	5.7	6.2	6.8	7.4	7.9	8.8	9.6	10.3	11.2
Egypt	7.0	7.2	7.2	7.3	7.4	7.5	7.7	8.0	8.2	8.4	8.6	8.8
Iran	7.0	5.8	4.4	5.1	5.3	5.5	5.7	5.9	6.1	6.3	6.5	6.7
Other N. Africa/M. East	15.7	19.2	18.6	19.4	20.2	20.9	21.6	22.4	23.3	24.1	24.8	25.6
Sub-Saharan Africa 2/	5.2	5.0	5.4	5.0	5.0	4.9	4.9	5.0	5.0	5.0	5.0	5.1
Japan	6.3	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.1
South Korea	3.5	3.8	3.0	3.0	2.8	2.8	2.7	2.7	2.7	2.6	2.6	2.6
Brazil	5.2	5.4	6.2	6.3	6.3	6.3	6.4	6.5	6.6	6.7	6.8	6.9
Indonesia	4.2	4.5	4.7	5.0	5.3	5.6	5.9	6.2	6.6	6.9	7.3	7.7
Pakistan	3.0	3.5	3.5	3.7	3.8	4.1	4.3	4.5	4.8	5.1	5.4	5.8
Mexico	1.9	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.2	2.3	2.4
Other	30.8	29.0	28.5	28.9	28.9	28.8	29.0	29.3	29.6	30.0	30.4	30.9
Total trade	98.8	97.9	100.5	103.4	105.4	108.4	111.5	114.5	118.4	121.4	124.5	127.9
Exporters												
United States	27.3	29.3	32.7	35.4	36.7	37.4	37.4	38.1	39.5	40.1	40.8	42.2
European Union 3/	18.7	15.5	18.3	17.8	16.7	17.8	18.9	19.8	21.0	21.9	23.2	24.3
Canada	19.5	18.0	17.5	17.9	18.0	18.1	18.1	18.1	18.2	18.2	18.2	18.2
Australia	19.0	13.0	14.2	14.3	14.6	15.0	15.3	15.6	15.8	16.0	16.3	16.4
Argentina	10.5	8.7	7.8	7.9	8.3	8.8	9.3	9.8	10.2	10.6	11.0	11.4
FSU 1/	3.5	4.6	5.7	5.6	5.9	6.1	6.4	6.7	6.9	7.1	7.4	7.7
Central/East Europe	0.7	2.9	2.5	2.6	2.8	2.8	3.3	3.6	4.0	4.5	4.6	4.8
Other	4.3	2.9	1.9	1.9	2.4	2.5	2.7	2.8	2.8	2.9	3.0	2.8
						Percent						
U.S. trade share	27.6	29.9	32.5	34.2	34.8	34.5	33.5	33.3	33.3	33.0	32.8	33.0

1/ Includes intra-FSU trade.
2/ Includes South Africa.
3/ Excludes intra-EU trade, covers EU-15.
The projections were completed in November 1997 based on policy decisions and other information known at that time.

Table 42. Rice trade baseline projections

	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
						Million metric tons						
Importers												
Canada	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
Mexico	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4
C. America/Caribbean	0.9	1.0	0.9	1.0	1.0	1.0	1.1	1.1	1.2	1.2	1.2	1.3
Brazil	1.0	1.5	1.5	1.5	1.5	1.6	1.6	1.7	1.7	1.7	1.8	1.8
Other South America	0.6	0.6	0.5	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.9	0.9
European Union 1/	0.6	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6
FSU 2/	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
Other Europe 3/	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	0.6	1.0	1.0	1.1	1.2	1.2	1.3	1.3	1.4	1.4	1.5	1.5
Japan	0.6	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
South Korea	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Indonesia	0.6	1.5	1.5	0.9	0.8	0.8	1.0	1.1	1.2	1.3	1.3	1.4
Malaysia	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7
Philippines	0.7	1.1	1.0	0.9	1.0	1.0	1.1	1.2	1.3	1.3	1.4	1.5
Other Asia & Oceania	1.8	1.6	1.9	2.0	2.1	2.1	2.2	2.3	2.3	2.4	2.4	2.4
Iraq	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.8	0.8	0.9
Iran	1.0	1.3	1.2	1.3	1.3	1.4	1.4	1.5	1.6	1.7	1.8	1.9
Saudia Arabia	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.1
Turkey	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4
Other N. Afr. & M. East	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	1.0
Sub-Saharan Africa	2.5	2.7	3.2	3.0	3.0	3.0	2.9	2.8	2.7	2.7	2.6	2.5
Republic of South Africa	0.7	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.7
Total foreign	15.7	17.9	18.3	18.2	18.4	19.1	19.6	20.3	20.8	21.4	21.9	22.4
Unaccounted	2.0	1.5	1.4	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.7
United States	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5
World	18.0	19.7	20.0	20.1	20.4	21.1	21.6	22.3	22.9	23.5	24.0	24.6
Exporters												
Australia	0.7	0.7	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Argentina	0.6	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.1	1.2	1.3	1.4
Other South America	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
European Union 1/	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2
China	0.8	1.0	0.9	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5
India	1.8	1.8	1.7	1.7	1.8	2.0	2.2	2.3	2.5	2.7	2.8	3.0
Pakistan	1.8	1.8	1.8	1.9	1.9	2.0	2.0	2.1	2.1	2.1	2.2	2.2
Burma	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.5
Thailand	4.8	5.3	5.8	6.0	6.3	6.5	6.7	6.9	7.1	7.3	7.5	7.7
Vietnam	3.3	3.5	3.8	3.6	3.4	3.5	3.5	3.7	3.8	3.9	3.9	4.0
Other foreign	0.7	0.5	0.6	0.5	0.4	0.5	0.4	0.4	0.4	0.5	0.5	0.5
Total foreign	15.6	16.4	17.4	17.4	17.6	18.3	18.9	19.5	20.1	20.8	21.2	21.9
United States	2.5	2.8	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8
World	18.1	19.1	20.0	20.1	20.4	21.1	21.6	22.3	22.9	23.5	24.0	24.6
						Percent						
U.S. trade share	13.8	14.1	13.4	13.5	13.4	13.0	12.7	12.3	12.1	11.7	11.5	11.3

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

2/ Includes intra-FSU trade.

3/ Other Western Europe and Eastern Europe.

The projections were completed in November 1997 based on policy decisions and other information known at that time.

Table 43. All Cotton trade baseline projections

	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
						Million bales						
Importers												
European Union 1/	4.6	4.6	4.4	4.3	4.2	4.2	4.1	4.0	4.0	3.9	4.0	3.9
FSU 2/	1.6	1.7	1.6	1.8	2.0	2.0	2.0	2.0	2.3	2.3	2.3	2.5
Indonesia	2.1	2.1	2.3	2.4	2.4	2.5	2.6	2.6	2.7	2.8	2.8	2.9
Thailand	1.4	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2
Brazil	2.3	2.0	2.1	2.2	2.3	2.3	2.5	2.5	2.6	2.7	2.9	2.9
Eastern Europe	1.3	1.4	1.5	1.6	1.6	1.6	1.7	1.7	1.8	1.8	1.9	1.9
Other Asia & Oceania	4.1	3.9	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.3	4.3	4.4
Japan	1.3	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.0	1.0	0.9	0.8
South Korea	1.5	1.4	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.1	1.1
China	3.6	2.2	2.6	2.6	2.6	2.6	2.7	2.8	2.9	3.0	3.1	3.2
Mexico	0.9	1.3	1.2	1.2	1.3	1.3	1.4	1.4	1.5	1.6	1.7	1.7
Other	3.9	4.0	3.9	4.1	4.2	4.4	4.7	4.9	5.0	5.2	5.3	5.4
Total imports	28.7	26.9	27.4	27.9	28.4	28.8	29.3	29.8	30.3	30.8	31.4	31.9
Exporters												
FSU 2/	6.2	6.4	6.1	6.5	6.7	6.6	6.6	6.7	6.8	6.9	6.9	7.0
West Africa-10	3.4	3.5	3.8	3.8	3.9	3.9	4.0	4.1	4.1	4.2	4.3	4.3
Australia	2.4	2.5	2.6	2.7	2.7	2.8	2.8	2.9	2.9	2.9	2.9	3.0
Argentina	1.3	1.4	1.4	1.5	1.5	1.6	1.6	1.7	1.7	1.8	1.8	1.9
Pakistan	0.1	0.7	0.6	0.5	0.6	0.6	0.8	0.9	1.0	1.1	1.1	1.2
India	1.3	0.3	0.4	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.6
China	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turkey	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
Egypt	0.2	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Other Latin America	0.8	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.9	1.0	1.0
Other S.-Saharan Africa 3/	1.0	1.0	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5
Other foreign	2.9	2.7	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Total foreign	19.8	19.9	20.2	20.6	21.0	21.3	21.7	22.1	22.5	22.8	23.2	23.6
United States	6.9	7.0	6.9	7.0	7.1	7.2	7.3	7.4	7.5	7.7	7.9	8.0
Total exports	26.7	26.9	27.1	27.6	28.1	28.5	29.0	29.5	30.0	30.5	31.1	31.6
						Percent						
U.S. trade share	25.7	26.0	25.6	25.4	25.3	25.3	25.3	25.2	25.1	25.2	25.3	25.3

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

2/ Includes intra-FSU trade.

3/ Includes Republic of South Africa.

Note: Imports exceed exports by 300,000 bales each year due to statistical differences across countries' reported trade. The projections were completed in November 1997 based on policy decisions and other information known at that time.

Table 44. Soybean trade baseline projections

	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
						Million metric tons						
Importers												
European Union 1/	15.4	15.5	16.3	16.6	15.8	15.6	15.4	15.5	15.5	15.4	15.4	15.3
Japan	5.0	4.9	4.9	4.9	5.0	5.0	5.0	5.1	5.1	5.1	5.1	5.1
South Korea	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.7
Taiwan	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.8	2.8	2.9	2.9	3.0
Mexico	3.1	3.1	3.5	3.6	3.8	3.9	4.1	4.2	4.3	4.5	4.6	4.8
FSU 2/	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Eastern Europe	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
China	2.3	3.0	3.5	3.6	3.9	4.1	4.3	4.5	4.7	4.9	5.2	5.4
Malaysia	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.9	0.9	0.9
Indonesia	0.8	0.9	1.0	1.0	1.1	1.1	1.2	1.2	1.3	1.3	1.3	1.4
Other	6.4	5.1	5.1	5.0	5.4	5.4	5.4	5.5	5.7	5.9	6.0	6.4
Total imports	37.9	37.6	39.3	39.8	40.2	40.5	40.9	41.5	42.2	42.8	43.5	44.3
Exporters												
United States	24.0	26.7	26.9	27.1	27.4	27.4	27.8	28.2	28.6	29.0	29.4	29.9
Argentina	0.8	2.1	1.8	1.6	1.7	1.8	1.9	2.0	2.2	2.3	2.4	2.5
Brazil	8.3	7.0	7.3	7.8	7.7	7.9	7.7	7.7	7.9	8.0	8.0	8.1
China	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Other foreign	3.0	3.5	3.2	3.2	3.3	3.3	3.4	3.4	3.4	3.5	3.5	3.6
Total exports	36.3	39.4	39.3	39.8	40.2	40.5	40.9	41.5	42.2	42.8	43.5	44.3
						Percent						
U.S. trade share	66.2	67.6	68.5	68.0	68.1	67.5	67.9	67.9	67.7	67.6	67.6	67.6

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

2/ Includes intra-FSU trade.

The projections were completed in November 1997 based on policy decisions and other information known at that ti

Table 45. Soybean meal trade baseline projections

	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
						Million metric tons						
Importers												
European Union 1/	14.8	15.2	15.5	15.5	15.7	15.6	15.5	15.4	15.4	15.4	15.8	16.0
FSU 2/	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.7
Eastern Europe	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.5	2.5	2.6
Canada	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Japan	0.8	0.8	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4
China	3.8	4.5	4.6	4.8	5.1	5.3	5.6	5.9	6.3	6.5	6.8	7.1
Southeast Asia	3.6	3.6	3.9	4.1	4.2	4.4	4.6	4.8	5.1	5.3	5.5	5.8
Latin America	3.0	3.1	3.1	3.1	3.1	3.1	3.2	3.2	3.3	3.4	3.4	3.5
N. Africa/Middle East	3.3	3.4	3.6	3.7	3.8	3.9	4.1	4.2	4.3	4.4	4.5	4.6
Other	2.0	2.0	2.1	2.1	2.2	2.4	2.6	2.8	2.9	3.0	2.9	2.8
Total imports	34.1	35.6	36.6	37.3	37.9	38.7	39.5	40.3	41.2	42.2	43.1	44.1
Exporters												
United States	6.4	6.8	6.9	7.0	6.9	6.8	6.7	6.7	6.8	6.8	6.9	7.0
Argentina	8.1	9.2	9.7	9.8	10.1	10.3	10.6	10.9	11.2	11.5	11.8	12.1
Brazil	10.1	10.9	11.0	11.3	11.6	12.0	12.3	12.7	13.1	13.4	13.8	14.3
India	2.5	3.0	3.1	3.4	3.6	3.8	4.0	4.1	4.4	4.5	4.7	4.9
China	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
European Union 1/	4.2	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
Other	1.5	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.8	1.8	1.8
Total exports	32.8	35.5	36.6	37.3	37.9	38.7	39.5	40.3	41.2	42.2	43.1	44.1
						Percent						
U.S. trade share	19.7	19.0	19.0	18.9	18.2	17.6	17.0	16.7	16.4	16.1	16.0	15.8

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

2/ Includes intra-FSU trade.

The projections were completed in November 1997 based on policy decisions and other information known at that time.

Table 46. Soybean oil trade baseline projections

	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
						Million metric tons						
Importers												
European Union 1/	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
China	1.7	1.8	1.9	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Other Asia	1.0	1.1	1.0	1.0	1.0	1.1	1.1	1.2	1.2	1.2	1.3	1.3
Latin America	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
North Africa & Middle East	1.1	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.5	1.5
FSU & Eastern Europe 2/	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other	0.4	0.4	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total imports	5.9	6.3	6.4	6.7	6.7	6.8	6.9	7.0	7.0	7.2	7.3	7.4
Exporters												
United States	0.9	1.1	1.2	1.2	1.3	1.4	1.4	1.3	1.3	1.4	1.4	1.4
Argentina	1.7	1.9	2.0	2.1	2.1	2.2	2.3	2.3	2.3	2.4	2.5	2.5
Brazil	1.2	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.6	1.6	1.6
European Union 1/	1.2	1.2	1.3	1.4	1.3	1.2	1.2	1.1	1.1	1.1	1.1	1.1
Other	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
Total exports	5.7	6.2	6.4	6.7	6.7	6.8	6.9	7.0	7.0	7.2	7.3	7.4
						Percent						
U.S. trade share	16.3	17.6	18.3	18.7	19.6	20.2	19.7	19.4	19.0	19.0	19.0	19.0

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

2/ Includes intra-FSU trade.

The projections were completed in November 1997 based on policy decisions and other information known at that ti

Table 47. Beef trade baseline projections

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
						Thousand metric tons, carcass weight						
Importers												
United States	940	1,083	1,216	1,107	1,105	1,107	1,106	1,104	1,099	1,094	1,085	1,077
Japan	899	872	914	956	986	1,011	1,038	1,064	1,084	1,108	1,125	1,140
South Korea	191	225	255	278	304	306	336	366	396	425	455	485
Taiwan	59	66	68	68	72	77	82	87	93	99	105	111
European Union 1/	351	332	341	350	350	350	350	350	350	350	350	350
Russia	480	500	510	586	531	558	591	613	615	625	639	649
Eastern Europe	57	74	67	46	48	51	53	59	61	68	75	84
Mexico	100	138	150	178	208	220	232	242	251	262	278	295
Canada	237	235	240	208	204	200	196	192	188	184	181	177
Major importers	3,314	3,525	3,761	3,777	3,808	3,880	3,984	4,077	4,137	4,215	4,293	4,368
Exporters												
United States	851	897	950	961	1,012	1,036	1,073	1,112	1,144	1,180	1,217	1,254
Australia	1,016	1,095	1,075	1,144	1,148	1,154	1,167	1,177	1,179	1,192	1,196	1,203
New Zealand	515	500	480	484	493	501	508	511	513	512	511	510
European Union 1/	913	876	880	877	817	817	817	817	817	817	817	817
Eastern Europe	92	86	87	73	80	78	79	85	100	112	125	139
Ukraine	200	76	70	175	178	180	185	191	200	204	207	209
Argentina	470	430	450	437	462	483	521	538	560	572	597	623
Brazil	277	240	240	225	234	234	240	252	262	275	285	296
Canada	286	360	380	373	382	384	386	390	396	399	399	396
Major exporters	4,620	4,560	4,612	4,749	4,806	4,867	4,976	5,073	5,171	5,263	5,354	5,447

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

The projections were completed in November 1997 based on policy decisions and other information known at that time.

Table 48. Pork trade baseline projections

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	Thousand metric tons, carcass weight											
Importers												
United States	280	281	279	276	272	268	264	260	256	252	248	244
Japan	933	728	822	894	919	944	968	992	1,015	1,038	1,060	1,080
Hong Kong	145	153	150	160	174	184	195	206	217	230	240	247
South Korea	49	106	213	217	231	236	245	255	265	275	283	291
Russia	450	470	470	538	515	506	510	515	519	518	514	508
Mexico	41	48	50	62	84	104	114	122	128	135	140	148
Canada	39	50	50	47	47	48	49	49	50	50	51	51
Major importers	1,937	1,836	2,034	2,194	2,242	2,290	2,345	2,399	2,450	2,498	2,536	2,569
Exporters												
United States	431	483	522	554	588	623	660	700	742	786	834	884
Canada	369	395	430	456	464	477	488	498	509	518	525	530
European Union 1/	757	801	794	811	816	824	828	832	836	840	844	848
Eastern Europe	345	377	334	436	472	474	484	480	477	484	484	480
Taiwan	388	69	50	0	0	0	0	20	40	60	80	100
China	192	150	90	245	247	251	254	258	261	264	268	271
Major exporters	2,482	2,275	2,220	2,502	2,587	2,649	2,714	2,788	2,865	2,952	3,035	3,113

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

The projections were completed in November 1997 based on policy decisions and other information known at that time.

Table 49. Poultry trade baseline projections

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	Thousand metric tons, ready to cook											
Importers												
Russia	1,053	1,206	1,311	1,324	1,344	1,348	1,383	1,411	1,433	1,461	1,473	1,481
European Union 1/	284	308	323	300	300	300	300	300	300	300	300	300
Japan	559	560	562	597	629	650	678	702	725	749	772	794
Hong Kong	799	909	1,035	1,108	1,189	1,271	1,359	1,454	1,555	1,663	1,778	1,902
China	900	950	1,100	1,191	1,301	1,402	1,520	1,644	1,777	1,927	2,086	2,257
South Korea	57	58	60	63	69	72	76	81	84	89	92	96
Saudi Arabia	288	247	245	245	258	266	272	278	280	278	280	278
Egypt	2	4	20	5	6	7	5	11	13	16	21	25
Mexico	189	210	218	227	230	232	234	237	241	245	250	251
Canada	115	129	137	153	155	158	160	162	165	167	169	172
Major importers	4,246	4,581	5,011	5,213	5,481	5,706	5,987	6,280	6,573	6,895	7,221	7,556
Exporters												
United States	2,324	2,540	2,591	2,761	2,887	2,992	3,103	3,285	3,431	3,580	3,705	3,851
Brazil	582	670	720	760	789	829	864	903	945	982	1,023	1,065
European Union 1/	916	941	963	963	973	982	992	1,002	1,012	1,022	1,032	1,043
Hungary	109	112	114	133	120	124	122	126	133	139	145	150
China	450	550	650	660	682	718	757	800	845	886	930	975
Hong Kong	568	658	766	787	843	915	992	1,076	1,166	1,263	1,368	1,481
Thailand	169	187	200	211	214	223	221	221	222	221	220	220
Saudi Arabia	25	35	35	36	38	41	44	47	50	54	57	61
Major exporters	5,143	5,693	6,039	6,311	6,546	6,824	7,095	7,460	7,804	8,147	8,480	8,846

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

The projections were completed in November 1997 based on policy decisions and other information known at that time.

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