USDA Agricultural Baseline Projections to 2011

Interagency Agricultural Projections Committee

Introduction

This report provides long-run baseline projections for the agricultural sector through 2011. 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 incorporates provisions of the Federal Agriculture Improvement and Reform Act of 1996 (1996 Farm Act) and assumes that current farm legislation remains in effect through the projections period. 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 a continuation of 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 domestic or international assumptions.

The projections in this report were prepared in September through November 2001 in conjunction with the fiscal year 2003 budget analysis. Projections reflect a composite of model results and judgment-based analysis. Normal weather is assumed. The baseline assumes no accession to the World Trade Organization by China or Taiwan. Also, the baseline does not reflect effects of the recent currency devaluation in Argentina. Short-term projections included in the baseline are from the October 2001 *World Agricultural Supply and Demand Estimates* report.

Summary of Projections

In the initial years of the baseline projections, slow U.S. and global economic growth and a continued strong U.S. dollar provide a weak backdrop for the agricultural sector. In addition, large world production and increasing global stocks have pressured prices for some agricultural commodities, such as soybeans and cotton. In contrast, a reduction in global stocks of wheat and coarse grains since the late 1990s has strengthened prices for those grains. U.S. agricultural export value and market cash receipts to U.S. farmers have improved since the late 1990s when large global production and weak global demand pushed prices and trade down. Government payments to the sector, through marketing loan benefits and additional funds provided through emergency and disaster assistance legislation, have added to farm income during this period. However, lower farm income is projected over the next several years, largely due to a reduction in direct government payments from the high levels of the past several years, reflecting the baseline's assumption of no further ad hoc government assistance to the sector.

Longer run developments in the agricultural sector reflect strengthening domestic and international macroeconomic growth. While export competition and a strong U.S. dollar are projected to continue, improving world economic growth, particularly in developing countries, provides a foundation for gains in trade and U.S. agricultural exports. This results in rising market prices, increases in farm income, and improvement in the financial condition of the U.S. agricultural sector. Consumer food prices are projected to continue a long-term trend of rising less than the general inflation rate. The trend in consumer food expenditures towards a larger share for meals eaten away from home is expected to continue.

Macroeconomic Assumptions

The outlook for the world economy assumed in the baseline is characterized by a significant U.S. and global economic slowdown through 2002, followed by a return to stronger growth for subsequent years. World real GDP growth in the baseline is at 1.6 percent for 2001 and 2.0 percent for 2002, compared with an annual average of 2.7 percent in the previous decade, before strengthening to over 3 percent a year in 2003-2011. These global economic growth assumptions mirror growth for the United States and reflect the increasing dependence of the world economy on the United States, the largest economy and the largest single market for foreign goods. The U.S. economy, therefore, is crucial for U.S. agricultural prospects through its role in spurring world growth, global agricultural demand and trade, and U.S. agricultural exports.

Most regions of the world are projected to register economic growth above long-term averages. A significant narrowing is projected in the differential between the high growth regions, such as Asia, and the lower growth regions of Latin America, Africa, and the transition economies, providing a broad base for global economic gains.

Importantly for agricultural demand, overall economic growth in developing countries rebounds to over 4 percent for most of the baseline. This pickup is important for global agricultural demand because many developing countries have incomes at levels where consumers diversify their diets to include more meats and other higher valued food products, and where consumption and imports of food and feed are particularly responsive to income changes. Projected growth in the transition economies (countries of the former Soviet Union and Central and Eastern Europe) of about 3.8 percent over 2003-2011 is significant in comparison to the economic contraction of the 1990s. Economic growth in developed countries is projected to rebound to 2.6 percent for the second half of the baseline, although relatively sluggish growth continues for Japan. U.S. growth reflects increases in the labor force and strong gains in productivity because of continued benefits from telecommunications- and information-related technology.

The U.S. dollar is projected to remain strong throughout the baseline, a negative factor for U.S. agricultural exports. Typically, a slowdown in the U.S. economy, as occurred in 2001, would be expected to result in a depreciation of the dollar. However, because the U.S. dollar is a reserve currency in so many countries and because of the critical role of the U.S. economy in the world, the global slowdown has resulted in continued inflows of capital to the United States as a safe haven, keeping the dollar strong. As U.S. and global economic activity rebound in the baseline, the dollar stays strong as capital flows into the United States are attracted by relatively high financial returns.

Oil prices are assumed to decline in the initial years of the baseline from the high levels reached in 2000, reflecting reduced demand associated with the global economic slowdown. Moderate gains in oil prices at slightly more than the general inflation rate are then assumed from 2004 through the remainder of the baseline based on the assumption that new oil discoveries along with new technologies for both finding and extracting oil will allow for substantial growth in demand without significant energy inflation. Also, economic growth has become less directly dependent on energy as the economy has changed from producing goods to a process much more dependent on information and communication technologies, particularly in North America and Western Europe. While projected growth of real world oil prices should not notably hinder global GDP growth, the agricultural sector is more negatively affected by higher oil prices because of its relatively higher use of fuel and energy-based inputs such as fertilizer.

Crops

Baseline projections for crops reflect an assumption of a continuation of current farm policy, primarily provisions from the 1996 Farm Act. Under an extension of current law, several major U.S. field crops continue to receive marketing loan benefits during the projection period. Soybeans receive these benefits in the early years of the baseline, and rice and cotton receive benefits for the entire period.

Slow global economic growth through 2002 and a strong U.S. dollar provide a weak backdrop for the agricultural sector early in the baseline. In the longer run, more favorable global economic growth supports increases in consumption, trade, and exports for most U.S. field crops, although gains in exports are constrained by a strong U.S. dollar and by continued strong trade competition.

Planted acreage for the eight major U.S. field crops (corn, sorghum, barley, oats, wheat, rice, upland cotton, and soybeans) rises to about 257 million acres by 2011, somewhat less than the recent high level of plantings of 260.5 million acres attained in 1996. Planting flexibility of current agricultural legislation facilitates acreage movements by allowing producers to respond to market prices and returns, augmented by marketing loan benefits in low price years. Marketing loan benefits influence the aggregate level of plantings as well as the cropping mix in the early years of the baseline when prices for some crops are relatively low. Projected acreage gains in the longer term reflect land drawn into production based on strengthening market incentives as world demand grows. Yield gains for many crops mitigate some of the need for increasing total land use. The baseline assumes that the amount of land enrolled in the Conservation Reserve Program will gradually build from 33.7 million acres in fiscal year 2001 to its maximum level authorized in the 1996 Farm Act of 36.4 million acres in 2005 and remain at that level for the rest of the projection period.

The domestic market is the main component of use for most major field crops. However, the export market is projected to increase in importance for several commodities. Gains in projected disappearance for wheat and sorghum are driven by exports, with U.S. trade showing larger absolute increases and growth rates than domestic demand. After an initial decline, U.S. wheat exports rise steadily in the baseline, although continued competition holds the U.S. trade share below levels of the late 1990s. Sorghum export gains reflect increasing trade with Mexico. Exports of corn grow at faster rates than its domestic use, but absolute increases in domestic corn use are larger than trade gains, reflecting the relative size of these utilization categories. The corn sector faces strong competition in global trade from Argentina, muting U.S. corn export gains somewhat.

Projected consumption increases for soybeans, soybean oil, and soybean meal, rice, barley, and oats are driven mainly by domestic use. Growth in domestic consumption for these crops and crop products is larger than exports in both absolute and percentage terms. Exports of soybeans and products have larger gains in the initial years of the baseline as low market prices slow foreign production somewhat and encourage domestic crushing, with U.S. producers receiving marketing loan benefits. As prices strengthen, however, foreign production rises further, particularly in South America, and increased competition leads to smaller gains in U.S. soybean exports. U.S. rice exports remain strong in the early part of the baseline, a result of declining price differences over major competitors in the global market and abundant U.S. supplies, but exports decline in the second half of the projections as U.S. rice prices increase faster than world prices, making U.S. rice exports less competitive in some markets.

Domestic demand for many crops is projected to grow faster than population. Strong projected gains in corn used for ethanol reflect bans on MTBE in many States. Increases in domestic soybean crush continue to reflect growth in poultry production and demand for soybean meal throughout the baseline. Growth in domestic use of rice reflects a greater emphasis on dietary concerns and an increasing share of the U.S. population of Asian and Latin American descent. In contrast, gains in domestic food use of wheat in the baseline are generally consistent with population growth.

Cotton disappearance rises in the early years of the baseline as global consumption expands, but then declines through the end of the projections. Domestic mill use falls, in part due to the full phaseout of the Multi-Fiber Arrangement's textile and apparel import quotas scheduled for 2005. Cotton exports benefit from Step 2 payments and remain well above mill use. Nonetheless, after initially holding at 10 to 10.5 million bales, cotton exports decline for the rest of the projections due to strong foreign competition.

The ratios of ending stocks to use decline in the baseline for corn, wheat, soybeans, and rice, with nominal prices rising. The stocks-to-use ratio for cotton declines from recent high levels and becomes relatively stable towards the end of the projections.

Livestock

Trends toward larger and more commercialized livestock and dairy systems continue throughout the baseline. Relatively low grain and soybean meal prices in the initial years of the projections encourage livestock sector expansion, although biological lags in the production process and poor forage conditions of recent years delay higher output for beef in the near term. In the longer run, moderate feed price increases through much of the baseline, replenishment of forage supplies, low inflation, domestic demand increases, and gains in meat exports are expected to contribute to producer returns that encourage higher total red meat and poultry production. Although a growing proportion of production will be poultry, poultry production gains will slow due to maturity of the sector.

Beef cattle inventories have been held down by droughts and poor forage conditions over the past several years, which have encouraged more heifers to be placed in feedlots rather than retained for calving even as cattle returns have improved. The length of the biological lag is likely to prevent beef cow herd expansion before 2004-2005. The cattle herd rises from a cyclical low near 96 million head in 2003-2004 to about 104 million head by the end of the projections. Shifts toward a breeding herd of larger-framed, higher-grading cattle and heavy slaughter weights partially offset the need for further expansion of cattle inventories. The beef production mix continues to shift toward a larger proportion of higher-quality fed beef, with almost all steers and heifers being feedlot fed. Beef production also continues to move toward a higher graded product being directed toward the export and domestic hotel-restaurant markets. The United States remains the primary source of high quality, fed beef for export, largely to Pacific Rim nations. The United States becomes a net beef exporter near the end of the baseline.

The pork sector will continue to transform into a more vertically coordinated industry with a mix of production and marketing contracts. Increased vertical coordination in pork production will lower production costs and improve pork quality and product consistency, resulting in timely production of pork products with characteristics desired by domestic and foreign consumers. Larger, more efficient pork producers will market a greater percentage of the hogs over the next 10 years. The restructuring of the Canadian and U.S. pork sectors will continue the development of an integrated North American pork industry. With a more vertically coordinated industry structure, the hog cycle is dampened. Pork production rebounds in 2002 and 2003 with moderate expansion through the rest of the baseline. The United States is an important net pork exporter, in part reflecting land availability and environmental constraints in a number of competing countries that limit their production gains. Prospects for long-term growth markets for U.S. pork exports remain focused on Pacific Rim nations and Mexico. Canada will increasingly compete for trade in these markets.

Broiler production grows steadily throughout the baseline, but gains slow to only slightly more than population increases by the end of the projections due to the maturity of the sector. The broiler and turkey industries have kept production costs from increasing at the full rate of inflation through technological advances and improved production management practices, including taking advantage of economies of size through increasing horizontal and vertical integration. Although further technological improvements are expected to occur, efficiency gains are likely to be smaller than in the past. Processed products and fast food markets are important sources of domestic growth for the poultry sector. Competition in global poultry markets, where the focus is on low-valued products, holds U.S. poultry exports to moderate gains. Asian imports are projected to expand through the baseline, even with growing domestic broiler production in China. Exports to Mexico and Russia are also expected to increase.

Decreases in real prices of meats combined with increases in real disposable income allow U.S. consumers to purchase more total meat with a smaller proportion of disposable income. Small declines in per capita consumption are projected for beef and pork, while increases continue in per capita consumption of relatively lower priced poultry. Thus, poultry gains a larger proportion of both total meat consumption and total meat expenditures.

Per capita consumption of eggs rises moderately in the baseline. Processed egg products become an increasing part of the egg market, in part due to fast food establishments expanding breakfast items which often incorporate egg products.

Milk production grows despite slowly declining cow numbers as strengthening milk-feed price ratios, improved management, and dairy productivity gains push milk output per cow higher. Productivity gains in the dairy sector will reflect the continued structural shift to larger-sized operations as many traditional dairy farms, particularly smaller operations, will experience income stress and will exit the industry. Domestic dairy demand is expected to show slow growth in the baseline.

Farm Income and Farm Financial Conditions

Over the last several years, net farm income has been maintained at levels near the average of the 1990s mostly because of large marketing loan benefits and additional funds provided by emergency and disaster assistance legislation. With the baseline assuming no further ad hoc government assistance and with production flexibility contract payments scheduled to decline, farm income is initially lower as gains in commodity prices and cash receipts in the sector do not match the reduction in government payments and steady increases in production expenses. Despite some cash flow difficulties in the sector, a strong financial position achieved during the 1990s will help farmers through this period.

In the longer run, the outlook for the sector improves as agricultural demand and exports strengthen and prices rise, leading to gains in farm income and greater stability in aggregate financial conditions. After holding relatively flat in 2002 through 2005, net farm income gradually moves upward for the rest of the baseline to more than $57 billion by the end of the projections. As direct government payments fall and then level off, the agriculture sector increasingly relies on the marketplace for its income. Government payments, which represented nearly 10 percent of gross cash income in 2000, account for only about 2.5 percent of gross cash income in the latter part of the projections. 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 tighten somewhat early in the projections, with cash expenses increasing from 75 percent of gross cash income in 1998-2001 to 78-79 percent over the next several years, before falling back to 76 percent later in the baseline.

With reduced farm income and cash flow over the next few years, debt management will be crucial to the financial condition of the agricultural sector, as farm asset values will rise only moderately in the near term. Lenders will factor farmers' reduced cash flows available for debt repayment into more restrained lending decisions, and farmers will be less willing to undertake credit-financed expansion. In the longer run, increasing farm incomes and relatively low interest rates assist in asset accumulation and debt management, thus leading to improvement in the financial condition of the farm sector. Farm asset values strengthen in response to improving farm income prospects. Farm debt rises as well, but at a slower rate than asset values. Thus, the debt-to-asset ratio for the sector declines after 2003, falling to about 15 percent at the end of the baseline, which compares to the high levels of over 20 percent in the mid-1980s.

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. Retail prices of these foods 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 nearly 50 percent of total food spending by the end of the baseline.

Agricultural Trade

Global trade and U.S. agricultural exports are projected to grow during the next 10 years as stronger U.S. and international economic growth starting in 2003 leads to improving long-run demand prospects and as continued progress is made toward freer trade.

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

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

U.S. export volume is projected to increase for wheat, coarse grains, soybeans, and soybean products, but decline for rice and cotton. For wheat, continued competition holds the U.S. trade share below levels of the late 1990s. For coarse grains and soybean and soybean products, U.S. exports expand more slowly than world trade, due in part to strong competition in these markets. U.S. cotton export volumes remain strong through the baseline, but decline gradually in the second half of the decade due to tighter U.S. exportable supplies and rising foreign production. U.S. rice exports are expected to fall over the baseline period as domestic demand outpaces U.S. production. U.S. exports of soybeans and products grow at a slower rate than in the 1990s, reflecting projected smaller growth in world trade and increasing competition from Argentina and Brazil.

Global meat trade and U.S. meat exports are projected to grow only moderately in the near term, partly a result of the slowdown in world economic growth. All meats benefit from a strengthening of global economic growth after 2002. Japan, Mexico, and Russia show large increases in meat imports over the projection period.

The total value of U.S. agricultural exports is projected to rise to $77 billion by fiscal year 2011, up from about $53 billion in 2001. Both bulk and high-valued products are expected to show strong export growth. High-valued products continue to account for about two-thirds of total U.S. exports, by value. The growth expected in bulk-export value lends strength to total export earnings, in contrast to the average annual decline in bulk commodity export value in the 1990s. U.S. agricultural imports are forecast to grow from $39 billion in fiscal year 2001 to $52.5 billion in 2011, reflecting the expansion of the domestic economy and the dollar's exchange value. The resulting agricultural trade surplus rises to $24.2 billion in fiscal year 2011, up from $13.9 billion in 2001 but still well below the record export surplus of 1996.