USDA Agricultural Baseline Projections to 2009

Interagency Agricultural Projections Committee

Introduction

This report provides long-run baseline projections for the agricultural sector through 2009. 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 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 October through December 1999, in conjunction with the fiscal year 2001 President's Budget analysis. 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 1999 and includes short-term projections from the November 1999 *World Agricultural Supply and Demand Estimates* report.

Summary of Projections

The initial years of the baseline reflect the effects of a number of factors which have combined to weaken agricultural commodity prices. Global supplies for many agricultural commodities are initially large as sizable crops have been produced both in the United States and abroad over the past several years, partly in response to high prices in the mid-1990s. Additionally, in the late 1990s, world agricultural demand was weakened by the global financial crisis. As a result, the U.S. agricultural sector has faced strong foreign competition in a weakened global trade setting, reducing the value of U.S. agricultural exports. Marketing loan benefits and additional funds provided to the sector through appropriations legislation have offset some of the reduction in market cash receipts that has resulted. With economic recovery underway in most of the crisis-affected countries, global demand and trade are strengthening and gains in U.S. agricultural exports are projected to resume in 2001. Nonetheless, the buildup of global supplies is projected to keep agricultural prices under pressure over the next several years, with marketing loan benefits continuing to have an important role in the U.S. farm sector. U.S. farm income initially declines, largely reflecting a reduction in direct government payments to the sector from recent high levels.

Longer run developments in the agricultural sector reflect continuing macroeconomic improvement. Structural reform in countries most affected by the global financial crisis of the late 1990s leads to strengthening global economic growth, particularly in developing countries, providing a foundation for further gains in trade and U.S. agricultural exports. Expanding production potential in a number of foreign countries, however, results in continued strong export competition throughout the baseline. Nonetheless, improved trade growth leads to rising market prices, increases in farm income, and stability 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. Trends in consumer food expenditures towards a larger share for meals eaten away from home are expected to continue.

Macroeconomic Assumptions

The outlook for the world economy over the next 10 years reflects recovery from the global financial crisis, with the global economy moving back to a period of sustained growth. Thus, there are two distinct parts of the forecast. In the near- to midterm, the crisis recovery dominates the outcome, while in the longer-term structural reform leads to renewed sustained economic growth in the crisis countries, but at a lower rate than previously recorded. The outlook for the crisis countries is for moderate growth in the next few years, moving back to sustainable long-term growth rates by 2002. OECD countries are experiencing better than average growth. With the crisis moderating, world real GDP growth is projected to average about 3.2 percent annually between 2004 and 2009, compared with 2.8 percent between 1998 and 2003 and 2.5 percent during 1992-97.

Overall economic growth for developing economies was slowed by the financial crisis. This slowdown is important for global agricultural demand because many developing countries have incomes at levels where consumers diversify their diets and include more meats and other higher valued food products. Projected economic growth in Asia, while still strong, is significantly affected by the crisis and its aftermath. Growth between 1998 and 2003 is projected at 4.7 percent, increasing to 6.1 percent in 2004-2009. This is a reduction in the underlying growth rate for the region of almost 2 percent from the 8-percent GDP growth rate experienced between 1992-1997. The crisis in Brazil is assumed to be short-lived and no other significant disruption is assumed to emerge in South America over the projection period. Thus, strong growth is projected for the area, particularly in the out years, reflecting reduced debt, less government intervention in the private sector, growing intra-regional trade, and heavier foreign direct investment. Growth is also projected to increase in Africa, although not at rates which will translate into significant increases in per capita income.

For transition economies, growth is expected to remain strongest among the countries that are further along in the transformation from centrally planned to market economies. Countries of Central and Eastern Europe, particularly Poland and Hungary, are expected to show relatively strong growth. In contrast, major countries of the former Soviet Union, such as Russia and Ukraine, are once again faced with little or no growth in the near term and only modest growth later in the baseline. Although benefits of privatization and market-based pricing were beginning to contribute to production gains and more widespread consumption, the crisis set progress back by several years.

Developed countries were relatively unaffected by the financial crisis as structural adjustments undertaken throughout the second part of the 1980s and early 1990s created a foundation for growth. Developed economies, including the United States, are projected to grow at an annual average rate of 2.5 percent over the entire baseline, higher than the 2.1 percent rate in 1992-1997. Low inflation and interest rates also characterize the outlook for developed economies.

Overall, the U.S. economy was positively affected by the world financial crisis, as large capital inflows from trade-deficit countries reduced U.S. interest rates and slowed world growth pushed oil prices lower. Nonetheless, U.S. agriculture, as a trade-dependent sector, is generally sensitive to conditions in the international economy and was hurt by a strong dollar and weak overseas economic growth. U.S. GDP growth is expected to average 2.6 percent for most of the baseline, reflecting growth of the labor force and strong gains in productivity. U.S. productivity will remain high because of the rising share of business fixed investment and world trade in GDP. Investment made in the 1990s improved both the quantity and quality of the Nation's capital stock. Increased trade has facilitated higher productivity by opening markets, thereby stimulating increased investment spending, greater economies of scale in production, and greater economic specialization in areas of U.S. comparative advantage. Inflation is projected at under 3 percent as monetary policy is assumed to be relatively stringent, tightening when significant inflationary pressures are expected.

Agricultural Policy Assumptions

The baseline incorporates provisions of the 1996 Farm Act and assumes a continuation of current agricultural law through the end of the projections. The baseline also includes policy decisions as of mid-November 1999.

Nearly complete planting flexibility is provided under the 1996 Farm Act, allowing producers to respond to market prices and returns, augmented by marketing loan benefits in low price years. Marketing loan/loan deficiency payment provisions of the 1996 Farm Act provide an effective per-unit revenue floor at the loan rate, with a countercyclical effect occurring through marketing loan gains or loan deficiency payments when the price is below the loan rate. These benefits are particularly important in the early years of the baseline when many crop prices are low. The baseline assumes that marketing assistance loan rates for corn, wheat, upland cotton, and oilseeds will be determined based on formulas in the 1996 Farm Act, subject to minimum and maximum levels specified in the law. However, for crop year 2000/01, loan rates are assumed to remain at $5.26 a bushel for soybeans and $0.5192 per pound for upland cotton. Production flexibility contract payments are largely decoupled because they generally are not related to current plantings or to market prices.

The 1999 and the 2000 Appropriations Acts provided additional funds to the farm sector in fiscal years 1999 and 2000, including market loss assistance for contract crops. The 2000 Appropriations Acts also reinstated funding for cotton user marketing certificates (the Step 2 program) and extended the dairy price support program an additional year through the end of calendar 2000.

The baseline assumes that the Conservation Reserve Program (CRP) will gradually build from its recent level of about 32.5 million acres to its maximum authorized level of 36.4 million acres by 2003, with program authority extended to allow enrollment to remain at that level. New CRP enrollments reflect periodic regular signups and continuous signups, with a competitive selection process is used for CRP enrollments.

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 Uruguay Round (UR) Agreement on Agriculture. The baseline assumes no accession to the World Trade Organization (WTO) by the former Soviet Union (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 reductions in the UR agreement. The baseline assumes that no EEP expenditures occur in fiscal 2000, with EEP expenditures then assumed to resume for the rest of the baseline. P.L. 480 program levels are assumed to increase at the general inflation rate from their fiscal 2001 levels. Program levels projected for the GSM-102 and GSM-103 credit guarantee programs are constant in nominal dollars.

Crops

In the initial years of the baseline, many crops are adjusting to a period of low prices resulting from a number of years of large global production, foreign competition, and weak international demand. In these years, marketing loan benefits provide some safety net assistance to producers, augmenting market returns. In the longer run, more favorable global economic growth supports increases in trade and U.S. agricultural exports, although gains are somewhat muted by continued strong export competition and only moderate growth in import demand in some markets, such as for grains to China.

Planted acreage for the eight major U.S. field crops (corn, sorghum, barley, oats, wheat, rice, upland cotton, and soybeans) declines somewhat over the next few years before turning upward for the remainder of the baseline. By 2009, aggregate plantings for these crops approaches the recent high level of plantings for these crops 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 many prices are relatively low, but projected acreage gains in the longer term reflect land drawn into production based on strengthening market incentives. Yield gains for many crops mitigate some of the pressure on total land use.

Export markets continue to be important in projected consumption growth for many U.S. field crops. Gains in disappearance for U.S. wheat and cotton are driven by exports, with U.S. trade showing larger absolute gains and growth rates than domestic demand. U.S. wheat exports rise steadily in the baseline but face greater competition from the European Union (EU) starting in 2004/05 when the EU is projected to be able to export wheat without subsidies. Cotton exports benefit from the resumption of Step 2 payments. Increases in use for feed grains and soybean oil also have growth rates for exports higher than for domestic markets, although absolute increases in domestic use are larger than trade gains, reflecting the relative sizes of the utilization categories. Strong competition in global corn trade from Argentina as well as moderate world import demand growth, particularly for China, which is projected to be a net corn exporter in the baseline, combine to mute U.S. corn export gains somewhat. Projected consumption increases for soybeans, soybean meal, and rice are primarily driven by domestic demand, with larger absolute increases and growth rates in domestic use than exports. Exports of soybeans and products have stronger gains in the first half of the baseline as low market prices discourage foreign production and encourage domestic crushing. Later in the baseline when prices strengthen, foreign production rises and increased competition lead to declines in U.S. soybeans exports. U.S. rice exports are expected to decline slowly throughout the baseline 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 slightly faster than population. Growth in domestic use of rice reflects a greater emphasis on dietary concerns and an increasing share of domestic population from Asia and Latin America. Gains in corn used for ethanol production, in part reflecting an assumed industrial usage program, and increases in corn sweetener use also exceed population growth rates. Increases in domestic soybean crush are largest in the first half of the projections when soybean prices are low, but continue to reflect strong growth in poultry production and demand for soybean meal throughout the baseline. Domestic wheat use, however, is nearly flat as declining feed use offsets food use gains. Additionally, increases in cotton textile imports in the second half of the baseline, reflecting liberalization of restrictions on cotton textile import quotas, lead to declining domestic mill use of cotton.

The ratios of ending stocks to use decline over the baseline for corn, wheat, soybeans, and rice, with nominal prices rising. Stocks-to-use ratios for cotton fall over the next few years from relatively high current levels, and then stabilize for the rest of the baseline.

Livestock

Expanded meat production over the past few years, following the sharp decline in grain and soybean prices from high levels in 1995/96, have pressured producer returns despite continued low feed costs. In response, production of red meats declines early in the baseline while increases in poultry production slow. In the longer run, moderate feed prices through much of the baseline, replenishment of forage supplies, low inflation, domestic demand strength, and gains in meat exports are expected to contribute to producer returns that encourage higher total red meat and poultry production, with a growing proportion being poultry.

The cattle herd is projected to contract over the next several years as cow-calf returns have been under drought-induced pressure and more heifers have been placed in feedlots rather than retained for calving. The cattle herd then builds up only slightly from a cyclical low near 95 million head in 2002, remaining below 97 million head at its peak in 2004 before turning downward again as producer returns provide economic incentives for only a brief and moderate expansion. Additionally, 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 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, with generally less desirable quality beef competing with pork and poultry in retail markets. The United States remains the primary source of high-quality, fed beef for export, including exports for hotel-restaurant trade. 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, allowing pork to increasingly challenge beef in the hotel-restaurant market as well as at retail. Larger, more efficient pork producers will market a greater percentage of the hogs over the next 10 years. With a more vertically coordinated industry structure, the hog cycle is dampened. As a result, a slow expansion in pork production begins in 2002 and continues for the remainder of the baseline. 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. However, projected gains in U.S. pork exports are somewhat muted by reduced market growth prospects for exports to Russia.

Continued technological advances and improved production management practices are expected in the broiler and turkey industries. However, further gains are not anticipated to hold down production costs as significantly as in the past 10 years when benefits particularly reflected economies of size achieved through increasing horizontal and vertical integration. The poultry sector continues to compete with other meats through developing new products and marketing practices, including home meal replacement in grocery stores. Competition in global poultry markets holds U.S. poultry exports to moderate gains. Asian imports are projected to continue to expand throughout the baseline, despite short-term setbacks in some markets in 1997-1999 due to the financial crisis. Russian imports, however, dropped sharply in 1998 and 1999, and only a slow and gradual recovery is projected.

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. Poultry gains a larger proportion of both total meat consumption and total meat expenditures. On a retail weight basis, poultry consumption is projected to exceed red meat consumption by the end of the baseline.

Per capita consumption of eggs rises moderately in the baseline as greater use of eggs in processed foods, reflecting consumer use of more convenience foods, offsets declining shell egg use per person.

High milk-feed price ratios and dairy productivity gains push milk output per cow higher. Milk production grows despite slowly declining cow numbers. Lower real milk prices continue to push weaker operations out of dairying. Milk production will expand in the West as well as on large-scale dairy farms in the North. Expansion in commercial use of dairy products will be led by sales of cheese and dairy ingredients for processed foods, while fluid milk sales are stagnant.

Farm Income and Farm Financial Conditions

Farm income initially declines in the baseline as the agricultural sector goes through a period of weak commodity prices over the next few years and Government payments decline from recent high levels. Despite near-term cash flow difficulties, 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 large stocks are reduced, exports strengthen, and prices rise, leading to gains in farm income and greater stability in aggregate financial conditions.

Net farm income declines in the first years of the baseline, falling below $35 billion in 2001. Farm cash receipts improve marginally as commodity prices begin to recover from recent low levels. Production expenses also change only moderately in the initial years as the sector adjusts to lower incomes. However, direct government payments, which rose sharply over the last several years to bolster farm incomes, are projected to decline, reflecting reduced production flexibility contract payments, loan deficiency payments, and market loss assistance and crop loss assistance payments.

Beyond 2001, as large global supplies are reduced and as demand and trade strengthen, net farm income gradually moves upward for the rest of the baseline, exceeding $50 billion for the last few years 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 almost 10 percent of gross cash income in 1999, account for about 2 percent of gross cash income in the last few years 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 to 79-80 percent of gross cash income over the next few 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. In the longer run, increasing 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 initially level off for a few years but then increase through the rest of the baseline, mostly reflecting movements in agricultural land values. Farm debt rises less rapidly than asset values. As a result, debt-to-asset ratios continue the downward trend of the last 15 years from the high levels of over 20 percent in

the mid-1980s, declining to about 13 percent by the end of the baseline. With asset values increasing more than debt, farm equity rises significantly. Increasing farm income in the baseline, combined with rising farm equity, means relative stability in the financial condition of the farm sector.

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. 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 almost half of total food spending toward the end of the baseline.

Agricultural Trade

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

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

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

The baseline shows improved trade growth for several bulk commodities during 2000-09, compared with the 1980s and 1990s. Projected growth in wheat, coarse grain, and cotton trade is particularly strong compared with recent performance. The expansion of grain trade is broad-based, driven by rising incomes in developing regions, diet diversification, and increased demand for livestock products and feeds. For raw cotton, developing country demand, boosted by the phase-out of the Multi-Fiber Agreement by 2005, is also key to the outlook for stronger growth in demand and trade.

Global trade in soybeans and products is, by contrast, projected to slow significantly compared with the rapid growth of the 1990s. Continued strong gains in developing-country demand for feed protein is projected to be mostly offset by reduced demand in the EU 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 slower than the very high rate achieved in the 1990s due to somewhat slower growth in developing country imports and competition from other oils, particularly palm oil.

U.S. export volume is projected to strengthen for wheat, coarse grain, and cotton, but to slow for rice and soybeans and products. U.S. wheat and coarse grain exports expand along with world trade, although competition is expected in both markets. By the middle of the projection period, U.S. wheat export growth is slowed when price conditions permit unsubsidized EU wheat to enter the market. Argentina and China are expected to remain strong competitors for coarse grain market share. U.S. raw cotton exports strengthen throughout the baseline, benefiting from both rising demand and reduced competition. U.S. rice exports are expected to fall during 2000-09 as domestic demand outpaces U.S. production. U.S. exports of soybeans and products slow sharply compared with the 1990s, reflecting projected trends in world trade, coupled with strong competition from Argentina and Brazil.

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

The total value of U.S. agricultural exports is projected to be unchanged in fiscal 2000 from 1999 at $49 billion, but then increases to almost $76 billion by 2009. Despite growth in export volume from 1998 levels, large global agricultural supplies and foreign competition have combined with weak international demand to push commodity prices lower, keeping the value of U.S. bulk and high-value product exports down through fiscal 2000. Thereafter, both bulk and high-value product exports are projected to strengthen for the rest of the baseline. Projected U.S. imports rise from $37 billion in fiscal 1999 to $51 billion, boosting the agricultural trade surplus to $25 billion by 2009.