

USDA Agricultural Projections to 2020

Interagency Agricultural Projections Committee

Introduction and Projections Overview

This report provides longrun projections for the agricultural sector through 2020. Major forces and uncertainties affecting future agricultural markets are discussed, such as prospects for long-term global economic growth and population trends. Projections cover production and consumption for agricultural commodities, global agricultural trade and U.S. exports, commodity prices, and aggregate indicators of the sector, such as farm income and food prices.

The projections are a conditional scenario based on specific assumptions about the macroeconomy, agricultural and trade policies, the weather, and international developments. The report assumes that there are no domestic or external shocks that would affect global agricultural markets. Normal weather is assumed. Provisions of current law are assumed to remain in effect through the projection period, including the Food, Conservation, and Energy Act of 2008 (the 2008 Farm Act), the Energy Independence and Security Act of 2007, and the Energy Improvement and Extension Act of 2008. Thus, the projections are not intended to be a forecast of what the future will be, but instead are a description of what would be expected to happen under these very specific external circumstances and assumptions. As such, the projections provide a neutral, reference scenario that can serve as 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 during October through December 2010 and reflect a composite of model results and judgment-based analyses. Short-term projections used as a starting point in this report are from the November 2010 *World Agricultural Supply and Demand Estimates* report. The macroeconomic assumptions were completed in October 2010.

Prospects for the agricultural sector in the near term reflect market adjustments to the supply-and-demand conditions underlying recent high prices for many farm commodities. In response, global agricultural production increases in 2011, particularly for grains. Production adjustments are made in the livestock sector during the first several years of the projections in response to high grain and soybean meal prices in 2011. The high prices underlie record projected levels of U.S. agricultural exports and U.S. net farm income in 2011.

Longrun developments for global agriculture reflect a resumption of steady world economic growth following the global recession and continued demand for biofuels, particularly in the United States and the European Union (EU). These factors combine to support longer run increases in consumption, trade, and prices for agricultural products. Thus, after near-term reductions from 2011 records, the value of U.S. agricultural exports and net farm income each rise through the rest of the decade. U.S. retail food prices increase faster than the general inflation rate in 2011 and 2012, reflecting higher food commodity prices and energy costs. Food prices rise less than the overall rate of inflation over the remainder of the projections, largely reflecting production increases in the livestock sector which limit meat price increases.

Key Assumptions and Implications

Major assumptions underlying the projections and selected implications include:

Economic Growth

- U.S. and world economic growth reflect a movement back toward long-run steady growth in the aftermath of the global financial crisis and economic recession.
- Global economic growth is assumed at a 3.4-percent average growth rate for 2011-2020. Continued high growth rates in emerging market countries, such as China and India, and a return to strong growth in other developing countries underpin world macroeconomic gains.
- The U.S. economy is projected to grow at an average rate of 2.6 percent over the next decade. With slower growth in the United States than in the world economy, the U.S. share of global gross domestic product (GDP) falls from over 26 percent currently to less than 25 percent at the end of the projection period. Employment gains are projected to be slow, with high rates of unemployment lasting for a number of years.
- In the longer run, the return to steady global economic growth supports longer term gains in world food demand, global agricultural trade, and U.S. agricultural exports. Economic growth in developing countries is especially important because food consumption and feed use are particularly responsive to income growth in those countries, with movement away from staple foods and increased diversification of diets.

Population

- Stronger global economic growth over the next decade contributes to the continued slowing of population gains around the world as birth rates decline. Growth in global population is assumed to average about 1 percent per year over the projection period compared with average annual rates of 1.7 percent in the 1980s, 1.4 percent in the 1990s, and 1.2 percent in the last decade.
- Population growth rates in most developing countries remain above those in the rest of the world. As a consequence, the share of world population accounted for by developing countries increases to 82 percent by 2020, up from 74 percent in 1980 and 77 percent in 1990.
- Population gains in developing countries along with increased urbanization and expansion of the middle class are particularly important for the projected growth in global food demand. Developing countries' populations, in contrast to those of more developed countries, are dominated by younger population cohorts who consume larger quantities of food of increasingly diverse types.

The Value of the U.S. Dollar

- The U.S. dollar is assumed to depreciate somewhat over the next decade. Although there has been a recent depreciation of the euro due to the sovereign debt problems in the EU, the longer term depreciation of the dollar relative to the euro and yen is part of an ongoing global rebalancing of international currency portfolios.
- The weaker dollar will remain a facilitating factor in projected gains in U.S. agricultural exports. Although trade competition will continue to be strong, the United States will remain competitive in global agricultural markets, with export gains contributing to increases in cash receipts for U.S. farmers.

Oil Prices

- Crude oil prices are assumed to increase over the next decade as global economic activity improves. Increases are expected to be faster than the general inflation rate, with the nominal refiner acquisition cost for crude oil imports projected to exceed \$110 per barrel by the end of the projection period.
- These increases in crude oil prices raise production costs in the agricultural sector.

U.S. Agricultural Policy

- Provisions of current law, particularly the 2008 Farm Act, are assumed to remain in effect through the projection period.
- Under the 2008 Farm Act, the maximum acreage enrolled in the Conservation Reserve Program (CRP) was reduced from 39.2 million acres to 32 million acres, beginning on October 1, 2009. Acreage enrolled in the program has fallen from more than 36 million acres to about 31.4 million acres and is projected to remain close to its legislated maximum throughout the projections. This reduction in CRP acreage provides some additional cropland for potential use in production.
- With high prices for many crops, price-dependent farm program benefits have become less important in overall Government payments to the U.S. agricultural sector. The CRP and fixed direct payments represent most payments to the sector throughout the projection period. As a consequence, Government payments have a smaller role and the sector relies on the market for more of its income.

U.S. Biofuels

- The projections assume that the 45-cents-per-gallon tax credit available to blenders of ethanol and the 54-cents-per-gallon tariff on imported ethanol used as fuel are in effect through the projection period. The \$1.00-per-gallon tax credit for blending biodiesel, which had expired at the end of 2009, was not assumed to be available since its retroactive reinstatement and extension through 2011 occurred after these projections were completed.
- Expansion in the U.S. ethanol industry is projected to continue. However, growth is projected to be slower than the rapid gains during 2005-09, despite some potential to increase into the E15 (15-percent ethanol blend) market for some vehicles. The projections reflect the October 2010 approval by the U.S. Environmental Protection Agency (EPA) of E15 for use in model year 2007 and newer passenger vehicles (including cars, sport utility vehicles, and light pickup trucks), but were completed before the more-recent EPA announcement of E15 approval for model years 2011-06.
- Corn is expected to remain the primary feedstock for U.S. ethanol production during the projection period, with about 36 percent of total corn use going to ethanol production over the next decade. Nonetheless, smaller gains for corn-based ethanol are projected, reflecting only moderate growth in overall gasoline consumption in the United States, limited potential for further market penetration of ethanol into the E10 (10-percent ethanol blend) market, constraints in the E15 market, and the small size of the E85 (85-percent ethanol blend) market. By the end of the projection period, corn-based ethanol production represents more than 10 percent of annual gasoline consumption.
- Biodiesel production in the United States is assumed to increase to 1 billion gallons by 2012. Almost half of this volume is assumed to be from domestic first-use vegetable oils, with animal fats and recycled vegetable oil accounting for the remainder.

Livestock and Meat Trade

- The projections assume continued policies in Russia that build toward self sufficiency in their poultry and pork sectors.
- Beef exports from competitor countries of Argentina, Australia, and Canada increase slowly as those countries rebuild breeding herds.
- The projections were completed before the recent outbreak of food and mouth disease in South Korea.

International Policy

- Trade projections assume that countries comply with existing bilateral and multilateral agreements affecting agriculture and agricultural trade. The report incorporates effects of trade agreements and domestic policies in place in November 2010.
- Domestic agricultural and trade policies in individual foreign countries are assumed to continue to evolve along their current paths, based on the consensus judgment of USDA's regional and commodity analysts. In particular, long-term economic and trade reforms in many developing countries are assumed to continue.

International Biofuels

- Demand for biofuel feedstocks is projected to continue growing in a number of countries. The largest markets—the United States, Brazil and the EU—will grow at a slower pace than in recent years. Continued expansion is largely due to biofuel policies, mainly use mandates and tax incentives.
- The projections assume that 60 percent of the EU 2020 mandate, that renewable fuels provide 10 percent of the energy used in the transportation sector, is achieved from annual agricultural crop feedstocks. Biodiesel accounts for 60 percent of total biofuel use in 2020 and ethanol accounts for 40 percent, compared with 69 percent for biodiesel and 31 percent for ethanol estimated for 2010.
- To boost biodiesel production, the EU is projected to increase oilseed production as well as imports of oilseeds and vegetable oil from countries in the former Soviet Union and non-EU Europe. EU wheat provides the feedstock for EU ethanol expansion in the early years but corn used as an ethanol feedstock grows more rapidly toward the end of the projections.
- The EU imports biodiesel from Argentina and ethanol from Brazil, and is the world's largest importer of both throughout the projection period. Overall, biofuel imports become increasingly important in the EU, rising to about one-fourth of total use.

Prices

- Prices for major crops are projected to decline in the near term as production globally responds to current high prices. Nonetheless, after near-term price declines, long-term growth in global demand for agricultural products, in combination with the continued presence of U.S. ethanol demand for corn and EU biodiesel demand for vegetable oils, holds prices for corn, oilseeds, and many other crops at historically high levels.
- Adjustments in the U.S. livestock sector to high feed costs continue in the near term, lowering production of total meat and poultry and raising livestock and meat prices. Improving net returns provide economic incentives for expansion later in the decade, with nominal livestock prices rising moderately over most of the rest of the projection period.
- Although farm income initially declines from a projected 2011 record, strengthening global food demand and sustained biofuel demand keep net farm income historically high.
- U.S. retail food prices rise faster than the general inflation rate in 2011 and 2012, reflecting higher food commodity prices, rising energy costs, and improved demand as the economic recovery continues. Food prices rise less than the overall rate of inflation over the remainder of the projections, largely reflecting production increases in the livestock sector which limit meat price increases.