

USDA Agricultural Projections to 2022

Interagency Agricultural Projections Committee

Introduction and Projections Overview

This report provides longrun projections for the agricultural sector to 2022. 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 with, in general, trend crop production yields is assumed. Provisions of 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 are assumed to be extended and remain in effect through the projection period. 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 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 2012 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 2012 *World Agricultural Supply and Demand Estimates* report. The macroeconomic assumptions were completed in October 2012.

Prospects for the agricultural sector in the near term reflect market adjustments to high prices for many farm commodities in recent years, in part due to weather such as the 2012 U.S. drought. In response, global agricultural production of most major crops will increase in 2013. Total U.S. red meat and poultry production is projected to fall in 2013 in response to high feed costs, reduced producer returns, and drought in the Southern Plains of the United States over the past two years. Meat production then increases in response to improved returns.

Longrun developments for global agriculture reflect steady world economic growth and continued global demand for biofuels. Those factors combine to support longer run increases in consumption, trade, and prices of agricultural products. Thus, following reductions from projected record levels in 2013, farm cash receipts and the value of U.S. agricultural exports grow beyond 2015. Although farm production expenses also increase beyond 2015, net farm income remains historically high. U.S. retail food prices are projected to rise at a rate that exceeds the general inflation rate in 2013, partly due to effects of the 2012 U.S. drought on agricultural commodity prices. Food prices increases then are projected to average less than the overall rate of inflation in 2014-22, as higher livestock production moderates future increases in consumer meat prices.

Key Assumptions and Implications

Major assumptions underlying the projections and selected implications include:

Economic Growth

- Global economic growth is assumed in the projections at a 3.3-percent average annual rate over the next decade. However, the assumptions reflect a dichotomy between relatively weak longrun economic growth in developed countries and stronger growth in developing countries. As a result, developing countries become a larger part of the world economy. Relatively high growth rates in China, India, and other areas of developing Asia, Africa, and Latin America underpin the anticipated macroeconomic gains for developing countries.
- Among developed countries, Japan's economic growth continues to face constraints from long-term structural rigidities, a political process that makes economic reform difficult, and an aging population. Growth in the European Union (EU) will be limited by the ongoing financial instability and adjustments in the Eurozone.
- The U.S. economy is projected to grow at an average rate of about 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 about 26 percent currently to 24 percent at the end of the projection period.
- 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 traditional 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 projected to average about 1.0 percent per year compared with an average annual rate of 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 2022, up from 80 percent in 2010.
- 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. Populations in developing countries, in contrast to those in more-developed countries, tend to be both younger and undergoing more rapid urbanization, factors that generally lead to the expansion and diversification of food consumption.

The Value of the U.S. Dollar

- The U.S. dollar is projected to continue to depreciate through the projection period. The dollar depreciation is part of a global rebalancing of trade and financial markets in the aftermath of the global financial crisis and recession.
- 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 longrun increases in cash receipts for U.S. farmers.

Oil Prices

- After declining in 2013, crude oil prices are assumed to increase over the next decade as global economic activity improves. Increases are somewhat faster than the general inflation rate in the latter part of the projections. By the end of the projection period, the nominal refiner acquisition cost for crude oil imports is projected to be over \$120 per barrel, compared with \$93.20 projected for 2013.
- Increases in crude oil prices raise production costs in the agricultural sector.

U.S. Agricultural Policy

- The 2008 Farm Act is assumed to be extended through the projection period. That assumed extension has a broader coverage of provisions than was subsequently included in the American Taxpayer Relief Act of 2012, which was enacted in January 2013 after these projections were completed.
- Acreage enrolled in the Conservation Reserve Program (CRP) is projected to decline to less than 28 million acres through 2014 before rising back to close to its legislated maximum of 32 million acres throughout the remainder of the projections.
- Direct Government payments to farmers are projected to be lower than during 2000-10. Consequently, the sector relies more on the market for its income. The CRP and fixed direct payments are the largest Government payments to the U.S. agricultural sector throughout the projection period, although payments under the Average Crop Revenue Election program jump to \$1.8 billion in 2015 following the decline in commodity prices from recent highs.
- Large crop insurance indemnities are paid to the sector in 2012 and 2013, mostly related to the effects of the 2012 U.S. drought.

U.S. Biofuels

- The 45-cents-per-gallon tax credit that had been available to blenders of ethanol and the 54-cents-per-gallon tariff on imported ethanol used as fuel expired at the end of 2011. The projections assume that these provisions are not reinstated.

- The \$1-per-gallon tax credit for blending biodiesel, which had expired at the end of 2011, was assumed to be unavailable in the projections—its retroactive reinstatement and extension through 2013 occurred in January 2013, after the projections were completed.
- High levels of domestic corn-based ethanol production continue over the next decade, with about 35 percent of total corn use projected to go to ethanol production. However, ethanol production gains are smaller than have occurred in recent years. The projected slower expansion reflects declining overall gasoline consumption in the United States (which is mostly a 10-percent ethanol blend (E10) market), infrastructural and other constraints on growth in the E15 (15-percent ethanol blend) market, and the small size of the E85 (85-percent ethanol blend) market.
- The biomass-based diesel use mandate, as administered by the U.S. Environmental Protection Agency, has risen to 1.28 billion gallons for 2013 and is assumed to remain at that level for subsequent years. Some biodiesel production above this mandate is assumed to meet a portion of the advanced biofuel mandate of the Renewable Fuel Standard of the Energy Independence and Security Act of 2007. Soybean oil, other first-use vegetable oils, animal fats, and recycled vegetable oil are used as feedstocks to produce biodiesel in the projections.

Livestock and Meat Trade

- World meat demand and imports continue strong growth, especially in many middle- and low-income countries. Projected growth for global meat consumption averages 1.8 percent annually over the next decade, with larger gains for poultry than for pork or beef. Africa and the Middle East account for more than 40 percent of the global increase in meat imports.
- The projections assume that Russia will continue to use policies to stimulate its domestic pork and poultry production and to limit its reliance on imports.

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 2012.
- 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.
- Mandatory marketing through the Canadian Wheat Board of wheat and barley produced in western Canada ended in August 2012 and is assumed to not be reinstated.

International Biofuels

- Continued expansion of global biofuel production is projected, largely due to biofuel policies. As a result, demand for biofuel feedstocks continues to grow, as well. The largest producers—the United States, Brazil, the EU, and Argentina—are projected to expand output, although at a slower pace than in recent years, mainly due to a projected slowdown

of U.S. ethanol production. Increases in biofuel output are also expected for many smaller producing countries, generally for their domestic use.

- The EU remains the world's largest importer of biofuels throughout the projection period. To boost biodiesel production, the EU increases oilseed production and imports of oilseeds and vegetable oil feedstocks, mainly from Ukraine, Russia, and Indonesia. About 80 percent of the expansion in EU ethanol production comes from increased use of wheat and corn feedstocks. The EU also increases imports of biofuels, particularly biodiesel from Argentina and ethanol from Brazil.
- Argentina and Brazil remain the world's dominant biofuels exporters—Argentina specializing in soybean oil-based biodiesel and Brazil in sugarcane-based ethanol. Exports from these countries grow steadily in the projections but are constrained as both countries increase their domestic use of biofuels.

Prices

- Prices for many major crops are projected to decline in the near term as global production responds to recent high prices. Nonetheless, after these initial price declines, long-term growth in global demand for agricultural products, a depreciating dollar, and continued biofuel demand, particularly in the United States, the EU, Brazil, and Argentina, hold prices for corn, oilseeds, and many other crops above pre-2007 levels.
- Increasing prices in the livestock sector initially reflect reduced total meat and poultry production. As feed costs fall from recent highs and meat demand strengthens, improved livestock-sector net returns provide economic incentives for expansion. Additionally, improved forage supplies encourage cattle herd expansion. Thus, after increasing through 2015, beef cattle prices decline for several years as production expands starting in 2016. Hog prices rise in the near term but then decline for several years as red meat production rises. Over the latter half of the projection period, livestock prices generally rise, reflecting a moderate pace of production expansion combined with increasing domestic use and export demand. After declining in 2012-15, nominal farm-level milk prices are projected to rise gradually over the rest of the projection period, with increases less than the overall rate of inflation largely due to efficiency gains in production.
- Farm income is projected to reach a record high nominal level in 2013 reflecting high commodity prices as well as large crop insurance indemnities paid to the sector. Although projected to decline from this record as commodity prices retreat, strengthening global food demand, a weaker dollar, and sustained biofuel demand keep net farm income historically high over the projection period.
- U.S. retail food prices are projected to rise faster than the overall rate of inflation in 2013 in part due to effects of the 2012 U.S. drought on farm commodity prices. For the remainder of the projection period, consumer food price increases average somewhat less than the general inflation rate, largely reflecting production gains in the livestock sector which limit consumer meat price increases. As the domestic economy continues to rebound and consumer demand strengthens, food expenditures for meals away from home rise faster than expenditures for food at home and account for a growing share of total food spending.