

ERS Bioenergy Information and Research

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The Economic Research Service (ERS) is a primary source of economic information and research in the U.S. Department of Agriculture. The agency's research program is aimed at the information needs of USDA, other public policy officials, and the research community. ERS information and analysis is also used by the media, trade associations, public interest groups, and the general public.

ERS has a broad range of research on how agricultural markets and natural resources might be affected by the increased demand for bioenergy. ERS research on bioenergy encompasses all aspects of the ERS research mission, including economic and policy issues involving food, farming, natural resources, and rural development. The ERS Bioenergy Briefing Room [<http://www.ers.usda.gov/Briefing/Bioenergy/>] disseminates existing research and information sources and incorporates new research results as they emerge. Ongoing bioenergy research focuses on domestic and global agricultural markets; economywide, regional, and household effects; natural resource, environmental, and rural community impacts; and implications for food prices. Current research areas include:

Market Outlook and Baseline Analysis. ERS annually develops 10-year projections of commodity supply and demand in conjunction with the President's budget. In these projections, current and anticipated corn use for ethanol is being evaluated to determine impacts on crop prices and output, returns to livestock production, agricultural trade, and budget expenditures under current farm programs. The future adoption rate of ethanol as a petroleum substitute hinges on baseline assumptions about oil prices and ethanol production capacities. Analysis will consider a slowing in the growth of fuel ethanol production from baseline levels. ERS will also study market demand for ethanol under various crude oil price scenarios and examine how prices

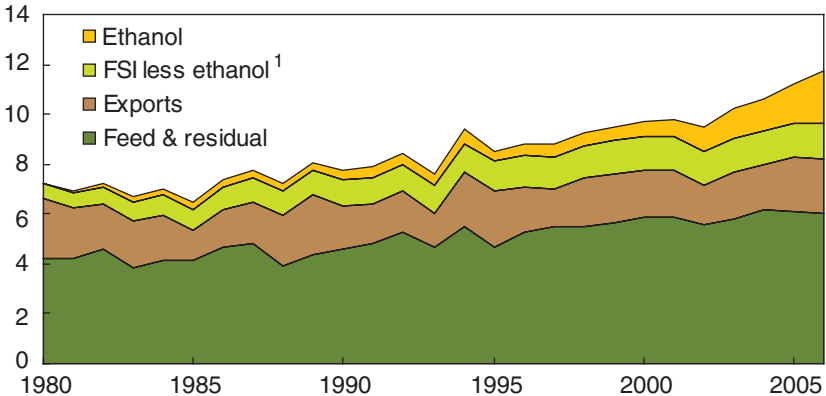
for ethanol versus gasoline and corn might interact to affect the volume of ethanol produced.

Domestic Feed and Livestock Implications. The current demand for ethanol is expected to dramatically raise the price of corn and affect the production and price of other crops. Livestock producers will thus face added pressures on returns. ERS research will examine not only immediate effects for producers, but likely secondary effects through production and food marketing chains. An associated issue is the volume of ethanol byproducts (distillers grains from corn-based ethanol) that can replace corn in the feed supply. Key research issues include how biofuel byproducts will be used in different livestock rations, the extent to which byproducts will replace corn and other protein meals, and how the relative profitability of swine, poultry, beef, and dairy industries will be affected.

An Overview of Global Bioenergy Developments, Policies, and Implications. While the U.S. is a major player in global biofuel production, other countries account for about half of global ethanol production and 90 percent of biodiesel output. ERS research will review the growth of global biofuel production and its impact on commodity supply, and anticipate future outcomes based on a current overview of biofuels policies in the U.S. and key foreign markets. ERS will examine the effects of both policy mandates for biofuels and different tariff

U.S. corn use

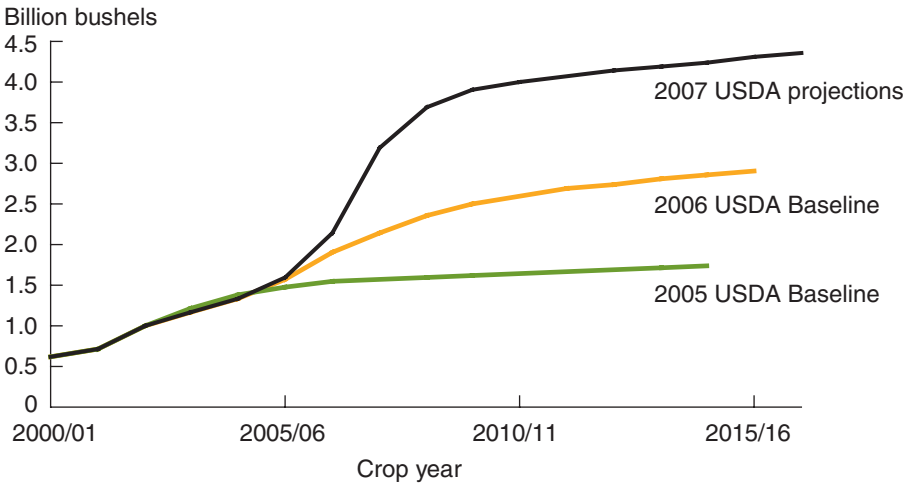
Billion bushels



¹Food, seed, and industrial.

Source: USDA WASDE, December 2006

Projections of corn used in ethanol production



policies on the world bioenergy and agricultural commodity markets. Separate analyses will focus on biofuels developments in countries such as China and Brazil, impacts on low-income developing countries, and the prospects for use of cellulosic biomass.

Bioenergy Policies: An Economywide Perspective. Understanding the national, regional, and farm household economic impacts of increased biofuel production is another focus of ERS research. A U.S. general equilibrium model linked to the Agricultural Resource Management Survey will be used to measure impacts at the farm household level, accounting for adjustments across all sectors. The analysis will distinguish between effects by production specialization and region to demonstrate/determine adjustments in crop and livestock production, consumption patterns, and income distribution. Separate analyses will focus on the potential long-term economywide gains of substituting biofuels for imported petroleum. Under different assumptions of technological progress, the model will be used to assess alternative scenarios depicting the Nation's gross domestic product, trade, and agricultural production impacts to the year 2020.

Bioenergy Production Impacts on Natural Resources and the Environment. Growing demand for agricultural products by biofuel producers will increase the demand for cropland. Increased corn production may have impacts on land use and other natural resources, and

these consequences are likely to vary regionally. ERS research using a regional simulation model will address how crop and livestock sectors respond to increased demand for biofuels over the next decade and the implications of those regional adjustments for environmental quality. Further research will analyze Federal policy mechanisms that could be applied to enhance production incentives, redistribute impacts among agricultural sectors, and limit adverse environmental outcomes.

Impacts of Bioenergy Development on Rural Communities. ERS research will assess the extent to which there is an association between ethanol plant location and population or employment change at the county level. Characteristics of the current ethanol plants will be explored with respect to ownership, employment numbers, labor skill requirements, and feedstock supply needs. The effect of ethanol plants on other rural businesses (the multiplier effect) will also be studied to assess potential linkages between ethanol production and the local economy.

Effects of Higher Corn Prices on Retail Food Prices. Corn prices are affected by higher demand for ethanol, so conventional users of corn may substitute other products as a production input. Higher corn prices and increased demand for corn substitutes may lead to higher producer costs and, ultimately, higher retail prices. ERS research will quantify the magnitude of these increases by using producer and consumer price data to model the impact of higher corn costs on producer prices and to forecast the range of possible changes in retail food prices.

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