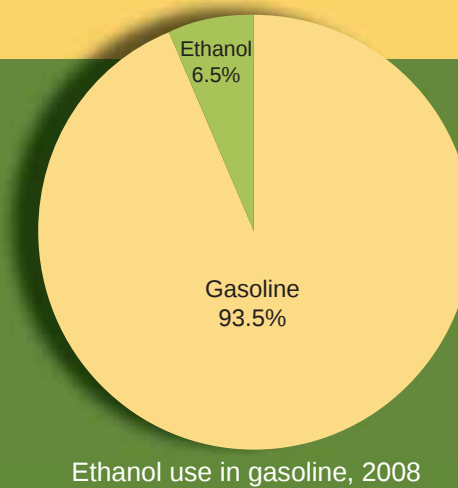


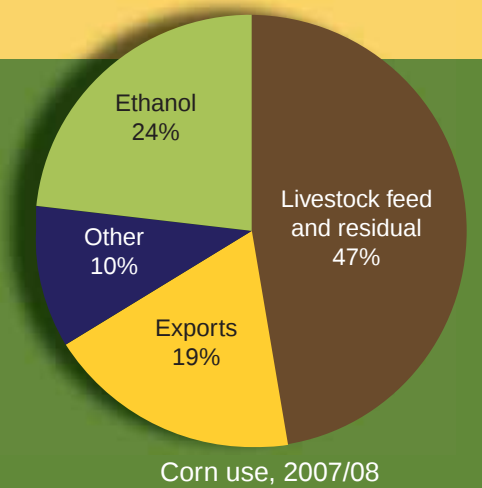
Biofuels and Agriculture

High oil prices and supportive energy policies have encouraged biofuel production in the United States. U.S. ethanol production could reach 9 billion gallons in 2008 which, when blended, would contribute about 6.5% to total U.S. gasoline consumption. Agricultural products that can be used as feedstocks for biofuel production, such as corn and soybean oil, are in much greater demand as a result. Ethanol production accounted for about 24% of total corn use in 2007/08; 14% of U.S. soybean oil use went to biodiesel production.

Ethanol is a larger factor for corn demand than for gasoline supply



Ethanol use in gasoline, 2008



Corn use, 2007/08

Interactions with Agriculture & Food Markets

1 Supply adjustments & resource issues

- Land
- Fertilizer
- Water

Higher demand raises feedstock prices

2 Non-biofuel demand adjustments

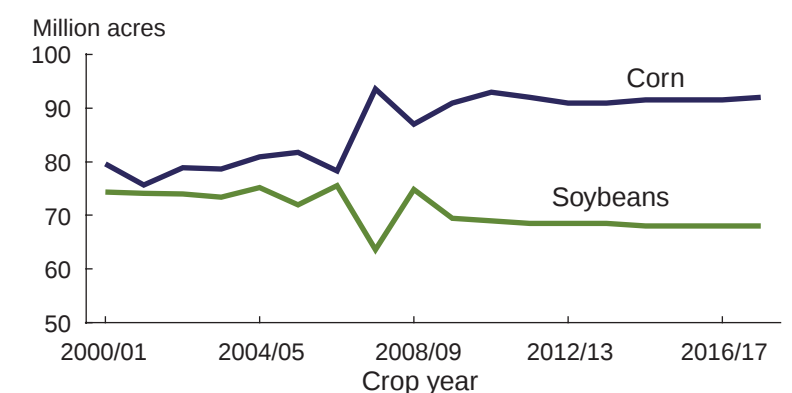
- Exports
- Livestock feed

3 Implications for consumers

1 Supply adjustments & resource issues

Higher prices are leading to increased total plantings of crops, with the mix of acreage shifting more toward corn. Corn production uses a lot of fertilizer, increasing U.S. fertilizer imports and raising environmental concerns. Feedstock and biofuel production also increase the demand for water and other resources.

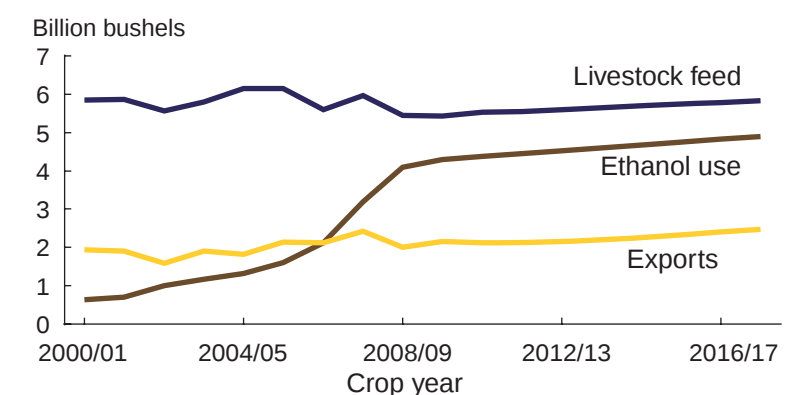
Corn and soybean projected plantings: Much of the corn area expansion comes from soybeans



2 Non-biofuel demand adjustments

Ethanol contributes a small share to the U.S. gasoline supply, but diverts corn away from other uses. With ethanol's expansion, U.S. corn exports are expected to decline to a 55-60% global market share compared with a typical historical share of 60-70%. And higher corn feed costs lowered returns for U.S. livestock producers, leading to projected declines in total red meat and poultry production in 2009-2011. Growth in global biofuels production contributed to higher grain and oilseed prices, raising food security concerns.

Corn use continues shift toward ethanol



3 Implications for consumers

Retail food prices in the U.S. are rising faster, up 4-6% annually during 2007-09, compared to an average 2.5% in 1990-2006. Demand for biofuel feedstocks is one factor. Pressures on agricultural markets and food prices could be reduced if alternative feedstocks become commercially viable. Cellulosic crops and residues, like switchgrass and corn stover, are potentially abundant and diverse biofuels feedstocks.

U.S. food price inflation

