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BEFORE THE U.S. HOUSE COMMITTEE ON ENERGY AND COMMERCE,

SUBCOMMITTEE ON ENERGY AND POWER

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Chairman Whitfield, Ranking Member Rush, and Members of the Subcommittee, thank you for the opportunity to be at today's hearing to address the question of how the Renewable Fuel Standard (RFS) has affected U.S. agriculture. Corn ethanol production increased dramatically over the past decade, from just over 2 billion gallons in 2002 to almost 14 billion gallons in 2011. Driven by a combination of favorable market forces and government biofuel policies, including the RFS, the increase has spurred corn production and corn use for ethanol and has been one of the factors in the recent grain price boom and overall improvements in farm balance sheets including record farm incomes over the past few years.

Strong demand for agricultural commodities, combined with global supply shortfalls, have reduced global stocks and increased price volatility. We have seen three price spikes since 2006. Moreover, driven in part by tight feed supplies and high feed costs, low operating margins have characterized the livestock, dairy and poultry industry over the past few years. Corn ethanol production has been a factor; however, the rise in commodity prices over the past few years has been due to a variety of factors, such as increasing global demand, key production shortfalls due to droughts, as well as increasing energy prices, and any increase in farm prices for corn and soybeans due to increased biofuels production has likely had only a small effect on U.S. retail food prices.

Looking forward, with corn use for ethanol slowing due to constraints on domestic ethanol consumption (the so-called “blend wall”) and prospects for record corn and soybean harvests this fall, stock levels are anticipated to rise and prices moderate, which should lead to stronger profits in the livestock and dairy sectors. The outlook over the next 10 years calls for moderate productivity growth and flat to declining real prices for commodities. However, as we have seen over the past 7 years, an unexpected supply shortfall due to adverse weather could precipitate higher prices.

In my testimony today I will review trends in corn ethanol production and how those trends have affected agricultural markets. I will discuss their effects on agricultural markets, grain and food prices, agricultural land use, and farm income. I will then give a brief overview of how the U.S. Department of Agriculture (USDA) views the 10-year outlook for agricultural markets given projected ethanol use from the Energy Information Administration (EIA). Lastly, I will also discuss next generation biofuels and projections for ethanol made from non-food feedstocks going in the future.

Expanding ethanol production

Since the late 1970s, there have been many federal and State policies that have influenced ethanol production, including tax credits to encourage blenders to include ethanol in gasoline formulations, tariff and duties on imported ethanol, State incentives for biofuel production and consumption, and regulations requiring the blending of oxygenates like ethanol and methyl tertiary butyl ether (MTBE) to meet reformulated gasoline requirements under the Clean Air Act Amendments (see for example, CBO 2009). Yet, ethanol production grew slowly from 1980 to 2000. Existing production capacity was less than 1.8 billion gallons in 2000 (see table 1).

However, from 2000 to 2005, ethanol production increased by about 400 million gallons annually.

A number of factors were responsible for that rapid growth in ethanol. From 2000 to 2005, the price of imported oil grew by over 75 percent (and by over 55 percent even adjusting for inflation). High oil and gasoline prices relative to the cost of producing ethanol increased the attractiveness of blending ethanol with gasoline. The net effect of higher energy prices and policies that encouraged ethanol production was to increase operating margins for ethanol producers (see figure 1). Liability issues over the use of MTBE because of water quality concerns resulted in its phaseout as an octane enhancer and oxygenate in 2006. With the phaseout of MTBE, ethanol experienced a surge in demand as the most cost effective and readily available oxygenate replacement and achieved a premium over gasoline prices. Energy prices, blending subsidies and limited production capacity relative to MTBE replacement demand contributed to production margins of up to $3 per gallon for producers in 2006, which helped quickly build refining capacity (Babcock 2011). Ethanol production capacity grew by almost 700 million gallons in 2006 and by January 1, 2007, planned expansion of existing and new facilities exceeded existing production capacity.

The Energy Policy Act of 2005 established the RFS, which mandated blending 7.5 billion gallons of renewable fuel with gasoline annually by 2012. The Energy Independence and Security Act of 2007 (EISA) expanded the RFS program, by setting a target of 36 billion gallons of biofuels to be produced or imported by the United States annually by 2022. EISA also established separate categories for renewable fuels based on greenhouse gas reduction criteria and set limits on the amount of corn-based ethanol that could be used to satisfy RFS requirements rising to 15 billion gallons by 2015 (see the RFS requirements under EISA in table 2).

From 2005 to 2012, annual ethanol production grew from 3.9 billion gallons to almost 14 billion gallons, an average increase of about 1.4 billion gallons per year. As of January 1, 2013, ethanol production capacity was estimated at 14.7 billion gallons. However, expansion has slowed over the past three years for several reasons: (1) margins have weakened with high feedstock prices; (2) production levels are approaching the 15-billion gallon cap on corn-based ethanol that can be applied towards meeting the RFS; and (3) ethanol production is limited in part by the amount that can be blended and sold into the domestic fuel supply.

Impacts on corn production and use

The rapid expansion of corn-based ethanol production has had significant impacts on U.S. corn production and use over the period 2000/01 to 2013/14 (see figure 2). From 2005/06 to 2010/11, corn use for ethanol increased by about 700 million bushels per year, rising to about 5 billion bushels by 2010/11. The sharp increase in the demand for corn for ethanol was a factor behind the increase in corn prices over the period from 2005 to 2010. From January 2000 to December 2005 the monthly average price paid to corn producers averaged $2.10 per bushel. Over the period January 2006 to December 2010, corn prices averaged $3.61 per bushel, a 72 percent increase (see figure 3). Higher prices encouraged producers to plant more corn to meet the increased demand. Corn planted acreage, which had averaged 79 million acres between 2000 and 2006, averaged over 90 million acres between 2007 and 2012. Increased plantings, combined with increased yields resulted in corn production of 13.1 billion bushels in 2009, an increase of 2.8 billion bushels over average production levels over the period from 2000 to 2006.

Despite the increase in corn production since 2006, other uses for corn have declined as more corn has been diverted for use in ethanol production (see table 3). Corn feed and residual disappearance declined by 26 percent from marketing year 2005/06 to 2011/12 while corn exports declined by 28 percent over the same period. However, the decline in corn use for feed has been partially offset by the increased availability of protein feeds such as distillers' dried grains (DDGs), a co-product of the ethanol dry milling process. Nearly one-third of a bushel of corn used for ethanol production is returned in the form of DDGs. The decline in U.S. corn exports have been offset in world markets by increased exports from foreign suppliers, principally Brazil (see figure 4). Over (the trade marketing) years 2000/01 to 2005/06, the United States exported, on average, 47.8 million metric tons of corn (1.9 billion bushels) and accounted for over 60 percent of total world corn exports. By 2011/12, U.S. corn exports had fallen to 38.4 million tons and accounted for 37 percent of total world exports. With drought-reduced supplies in 2012/13, U.S. corn exports are expected to fall to 18.5 million tons, less than 20 percent of total world exports, and while U.S. corn exports are projected to recover to 33 million tons in 2013/14, they are projected to account for only 32 percent of total world exports.

Ethanol production and commodity prices

Agricultural prices declined in real terms (that is, adjusting for inflation) throughout most of the 50 or so years following the end of World War II (see figure 5) reflecting strong gains in agricultural productivity over the period. Prices began to increase in real terms around 2000 with increasing population growth, rapid economic expansion in developing countries, and rising per capita meat consumption globally along with rising energy prices (see Trostle 2008). Those factors coupled with the rapid expansion of ethanol production following the phaseout of MTBE increased demand for corn, for conversion into ethanol and for animal feed and pushed prices for corn higher (see Collins 2006).

Prices spiked in 2007/08, in 2010/11, and most recently in 2012 as supply shortfalls coupled with strong global demand saw inventory levels for major grains and oilseeds fall to low levels. Some studies suggested that the main factor for those spikes was increased ethanol production. For example, Mitchell (2008) attributed almost 75 percent of the increase in commodity prices during the 2007/08 price spike to the increase in biofuel production. Studies also examined whether corn demand for ethanol production is less price responsive (under current economic and policy conditions), compared to other uses such as feed use or to meet export demand, which could exacerbate price volatility, particularly when stock levels are low (see for example Collins, 2006 and Wright, 2010). Other studies pointed out that there were numerous factors contributing to the overall rise in price levels during that period including production shortfalls due to adverse weather, biofuel production, strong global economic growth, rising energy prices (see for example, Trostle 2008 and Trostle et al. 2011). Still others suggested that the rapid rise in commodity prices during that period was tied to other macroeconomic conditions at the time, such as fiscal expansion and lax monetary policy in many countries, depreciation of the US dollar, and increased investment fund activity (see for example, Baffes and Haniotis 2010, and Roache 2010).

Even though corn planted acres jumped by more than 10 million acres between 2006/07 and 2007/08, corn prices still jumped by more than $1 per bushel on average. In 2008, my office was asked to examine the impact of biofuels on food prices and in testimony before the Senate Energy Committee I reported our findings that increased ethanol production accounted for about

30 percent of the increase in corn prices over 2007 to 2008 accounting for the increased production needed to meet the rise in ethanol production (Glauber 2008). More recently, the increase in U.S. ethanol production was estimated to account for about 36 percent of the increase in corn prices over the period from 2006 to 2009 (see Babcock and Fabiosa 2011).

More recent studies have found similar results (see recent reviews of econometric analyses of the impact of ethanol on corn prices can be found in Condon et al. 2013 and Hochman et al. 2013). Studies in general draw distinct differences between the short run where the effects are larger and the long run impact on corn prices after the market has an opportunity to adjust. Those effects form the basis for the discussion of the effect of biofuels and biofuel policy on issues of food security and poverty. For net sellers of corn and closely related commodities, the increase in prices offers an opportunity to improve farm incomes. However, on balance, the increase in commodity prices is expected to increase the number of food insecure people worldwide but the short run impacts of yield variation (drought, etc.) and unanticipated shifts in policy will remain a significant threat to low income consumers and net-importing countries (the U.S. is a net exporter of corn) (Condon et al. 2013).

As I noted in 2008, the increase in the farm prices for corn and soybeans due to increased biofuels production has likely had only a small effect on U.S. retail food prices. The farm component of most food sales is relatively small—about 14 percent of the overall food dollar. Higher corn and soybean prices are passed through to the consumer largely through higher fat and oil prices and indirectly through higher feed costs. Analysis of the price spike of 2007/08 suggests that ethanol had a small role in raising food inflation compared to other factors such as energy costs. The Department's estimates for food prices show average levels of food price inflation in 2013 down from a peak in 2011, despite record high commodity prices.

Impacts on farm incomes

Increases in the prices received by farmers for row crops due to growing demand abroad, higher energy prices, and increased biofuel production, have changed farming patterns and management in many ways since 2005. In general, higher commodity prices over the past few years have strengthened farm balance sheets by raising farm receipts and produced record farm incomes. Over the period from 2000 to 2006, cash receipts for the farm sector averaged $217 billion (see table 4). However, over the period 2007 to 2013, cash receipts are projected to average $339 billion, an increase of almost 56 percent. Net cash income increased from an average $68.7 billion per year over 2000 to 2006 to a projected $105 billion over 2007 to 2013, an increase of 53 percent.

Based on analysis of farm business data, net cash income for grain and oilseed producers have shown significant increases since 2005, with net cash income levels up by more than 78 percent for corn, wheat and soybean producers By contrast, livestock, dairy and poultry producers have faced more uneven, and in some cases, declining returns since 2005 (see table 5). In general, higher feed grain prices have helped net cash income for row crop producers, but have also raised feed costs that lowered profit margins for livestock, dairy and poultry producers. Feed costs make up 51 percent of expenses for dairy, 19 percent for beef cattle, 42 percent for hogs, and 35 percent for poultry farm business. Price-feed ratios for most species show a decline throughout most of the period since 2005/06 (see figure 6).

Productivity gains, such as increased pigs per litter and increased milk production per cow, have helped offset higher feed costs, along with increased availability of DDGs as mentioned previously. Moreover, feeding of DDGs has replaced as much as 80 percent of the calories lost through the reduction of corn fed to livestock, while adding to the overall protein content of feeds (Ferris 2013). Those co-products and the ability of farmers to adjust feed rations to increase feeding efficiency have helped mitigate the impact of higher feed grain prices and loss of some corn as feed.

Biofuel policies and increasing ethanol production

One distinction that is important to consider when evaluating the effect of ethanol production on commodity prices and agricultural production is the extent to which high energy prices or other macroeconomic factors have driven biofuel production as a petroleum substitute and the extent to which various State and federal policies encouraged expansion in the biofuel sector. Studies have shown, for example, that biofuel policies over the past decade could have accounted for about 80 percent of the increase in ethanol production (see Ferris 2013). Others argue that high energy prices accounted for the majority of the impetus behind expanded ethanol production (see for example, Babcock and Fabiosa 2011).

However, with a large production capacity now in place, a more relevant question today is what might be the effect of adjusting biofuel policies? Many analyses last fall examined petitions of state governors for EPA to waive the RFS. The likely impact of a short-term waiver was found to be small (see Babcock 2012, and Irwin and Good 2012, and EPRINC 2012). At the time, researchers cited the need to stockpile production credits as a compliance strategy for the blend wall, the importance of ethanol as octane enhancer, and the current prices of ethanol and gasoline, which favor blending ethanol.

The impact of a longer-term waiver, just as long-run production levels, depends on energy prices. So long as ethanol is priced less than gasoline, it is unlikely that there will be much reduction in ethanol usage from current levels. Most studies that examined a longer term waiver on mandates forecasted a larger impact on corn ethanol production than under a short-term waiver (see for example, FAPRI 2013). Further, if oil prices were to fall and/or ethanol production costs to rise over the longer term, it is likely that the refining sector could be reconfigured to meet octane requirements in gasoline using other additives (EPRINC 2012). In that case demand for ethanol could fall to levels equal to previous usage of MTBE, or about 4 billion gallons. We note, however, that waivers of the required RFS volumes are subject to statutory authorities granted to EPA under the Clean Air Act. The waiver authority under Clean Air Act Section 211(o)(7), for example, limits the duration of a waiver to one year.

Non-agricultural economic activity

The growth of the ethanol industry has brought jobs to rural America and has contributed to economic growth. Ethanol production is primarily concentrated in the corn producing states of the Midwest and much of it is transported to the coasts which represent the bulk of motor fuel demand. Estimation of the job impact of ethanol production requires a careful segregation of net new productivity from productivity that already existed in the region before the plant was built. For example, ethanol plants do not necessarily create new farm production jobs. In a recent analysis of the Iowa economy, Swenson (2012) estimates that ethanol plants contributed 5,995 jobs to the Iowa economy in 2011, a modest increase to a workforce of 1.7 million. Total value added was estimated at $1.06 billion, of which $280 million was labor income. The net additions to the Iowa economy for each 100-million gallon plant was equal to 525 jobs and a total value added of $92.8 million, of which $24.5 million was labor income. Similar job impacts were found in Illinois (Low and Isserman 2009) and Nebraska (Petersan 2002).

Outlook

In February, USDA released its projections for crop production and farm prices for the next 10 years (see the USDA Agricultural Projections to 2022, February 2013) and earlier this month updated the projected production levels and prices for the 2013 crop (see the World Agricultural Supply and Demand Estimates Report, June 2013). A rebound in yields is expected to push U.S. corn and soybean production to record levels this year. Assuming moderate yield growth over the next 10 years, crop prices are projected to fall from recent record highs but remain above pre-2007 levels (see figure 7), providing some reduction in feed costs for livestock producers. Lower feed costs will increase profitability in the sector and encourage expansion.

Although the production of corn-based ethanol in the United States is projected to rebound from 2012's decline, the pace of further expansion is expected to slow considerably. After 2015, continued strong corn export demand will offset slowing demand from ethanol producers to support prices and moderate declines in corn planted area (see table 6). Yield growth and supply response both in the U.S. and abroad will help moderate crop prices in the long run, but for the near term, tight supplies will keep markets volatile with much attention paid to growing conditions worldwide. The combination of world economic growth and higher oil prices supports continued expansion of biofuels production outside of the United States as well as longer run gains in world consumption and trade of crops.

While USDA's baseline does not foresee significant expansion of corn-based ethanol over the next 10 years, over the longer term, much will depend on the level of energy prices relative to corn. As we saw in 2005 and 2006, large margins will foster biofuel expansion. If prices of biofuels remain low relative to gasoline, there will be incentives to blend higher percentages. However, several factors will likely hinder further growth in corn use for ethanol over the next few years. One, U.S. gasoline consumption has been declining since 2008. At the time the Energy Act of 2007 was passed, forecasts by the EIA for gasoline consumption implied almost 150 billion gallons of blended gasoline by 2014. Increased fuel efficiency and fewer miles driven due to the slow economic recovery have caused gasoline consumption to decline. Current EIA forecasts of blended gasoline fuel consumption in 2013 are less than 134 billion gallons, 16 billion less than forecasts made in 2008. Two, ethanol penetration rates remain near 10 percent as growth in higher blends, such as E15 and E85 (blends of up to 15 percent and 85 percent ethanol, respectively), remains limited. Current penetration rates would imply a blend wall of less than 13.4 billion gallons for ethanol. Ethanol produced in excess of that amount must be held as stocks or exported. Lastly, while export markets have in the past welcomed U.S. ethanol production, current export prospects are reduced because of increased competition from Brazil and anti-dumping duties imposed on U.S. exports to the European Union. Indeed, EIA projects net imports of ethanol increasing over the next 5 years, rising to 1 billion gallons in 2018. Projecting trade of ethanol between the U.S. and Brazil remains highly uncertain and will depend on biofuel policies in both countries as well as fuel prices.

Looking forward, as the quantity of conventional biofuels produced from corn which qualifies for the RFS reaches its maximum, "next generation" advanced fuels created from non-food feedstocks will be needed to achieve the goals outlined in EISA. Examples of next generation fuels from materials that are not associated with food production include biomass, algae, and crop residues. Demonstration plants have been constructed to assess various conversion technologies that can produce next generation biofuels, such as cellulosic ethanol, butanol, biojet fuel, and Fischer-Tropsch diesel. While the production costs associated with the development of these fuels remains high, they are falling quickly and increasing volumes of next generation fuels are expected to reach commercial scale in the next few years. Since 2009, USDA has invested about $320 million to accelerate research on renewable energy ranging from genomic research on bioenergy feedstock crops to development of biofuel conversion processes.

Challenges remain however to bringing sufficient next generation advanced fuels in a form which can be absorbed into existing infrastructure, to the market quickly enough to meet the rapidly rising mandates in EISA (see for example Coyle 2010 and USDA 2010). Many of those challenges are surmountable, such as acquiring sufficient biomass to ensure stable production volumes, and securing financing through the early years of development. The USDA, for example, has a number of initiatives to support growers, landowners, and producers of renewable energy feedstocks to move beyond corn-based ethanol. To encourage feedstock production for renewable energy, USDA manages the Biomass Crop Assistance Program to provide biomass to energy conversion facilities. USDA offers insurance coverage for farmers growing biofuel crops like switchgrass and camelina.

However, the most immediate challenge is the blend wall, which must be overcome to reach the future goals of the RFS. In order to get beyond the blend wall, there has been considerable investment in drop-in fuels, which are substantially similar to gasoline, diesel and jet fuels and therefore have less blending constraints than ethanol and can help, along with additional biodiesel use, overcome the blend wall. These fuels can be made from a variety of biomass feedstocks and are designed to "drop-in" to existing infrastructure. The Department has entered a partnership with the Department of Energy and U.S. Navy to invest up to $510 million during the next three years to produce advanced, drop-in aviation and marine biofuels to power military and commercial transportation. The Department has also forged partnerships with the FAA and the aviation industry to promote aviation biofuels to help meet our nation’s energy needs. The national work is being expanded at the regional and state level, and two commercial airlines have flown their first domestic flights powered by biofuels.

Mr. Chairman, that concludes my statement.

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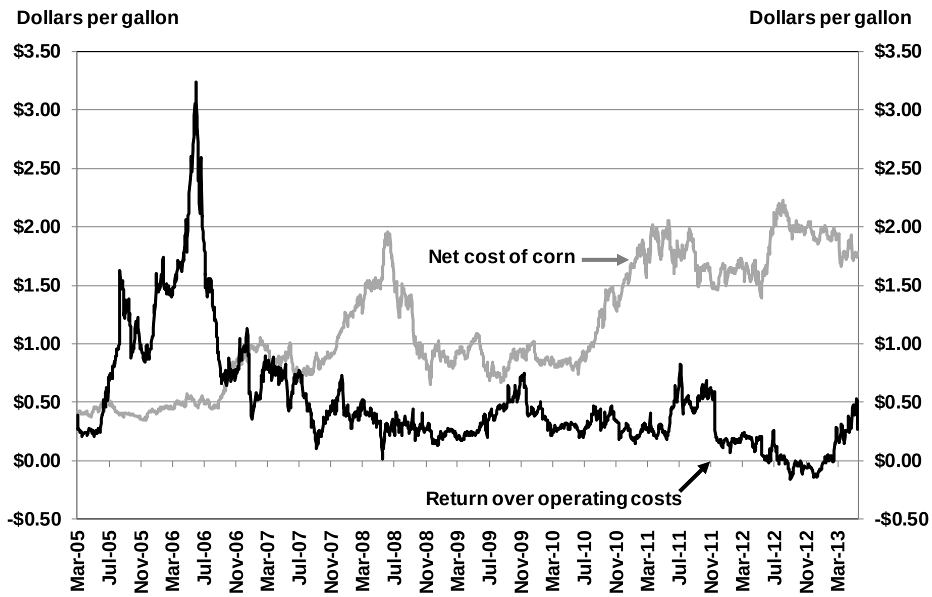
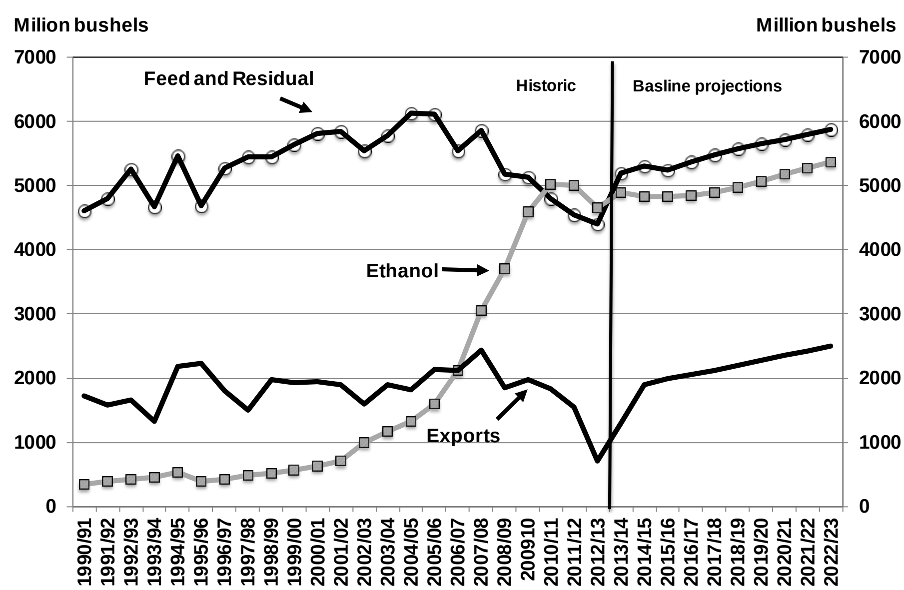
Figure 1: Ethanol Margins



Source: Iowa State University (2013; www.card.iastate.edu/research)

Figure 2: Corn Use, Marketing Year



Source: History: USDA-NASS, Forecast: USDA-WAOB (2013/14 updated to June 2013 WASDE).

Figure 3: Monthly corn farm prices

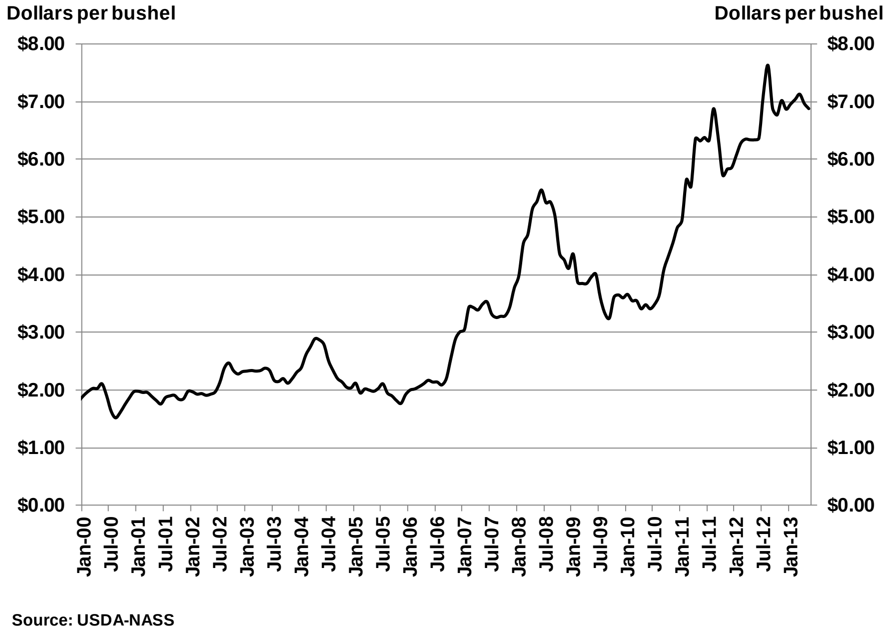


Figure 4: US and Rest of World corn exports, Trade marketing year (October- September)

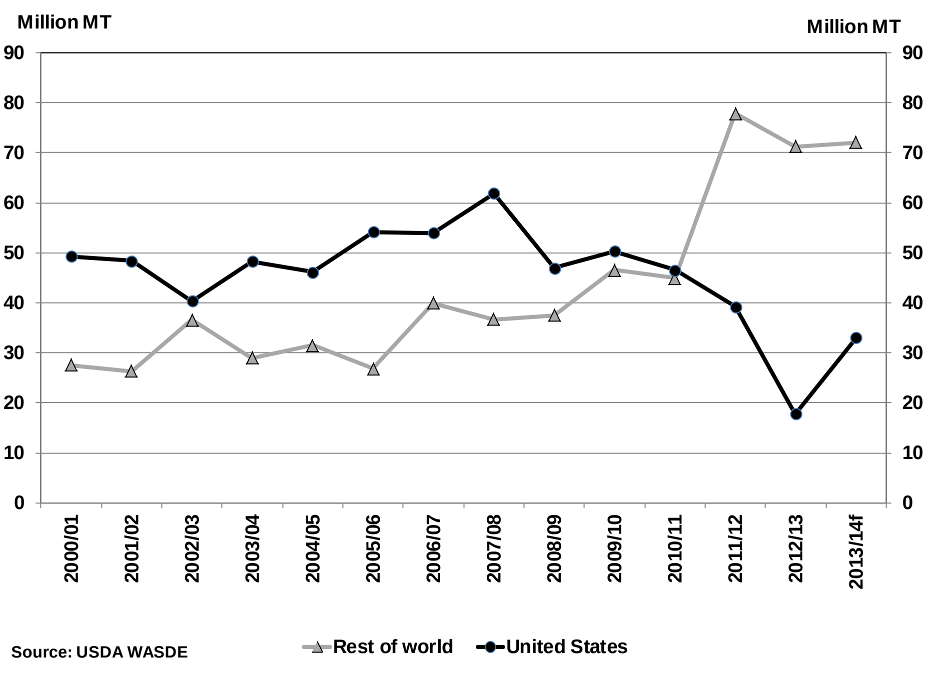
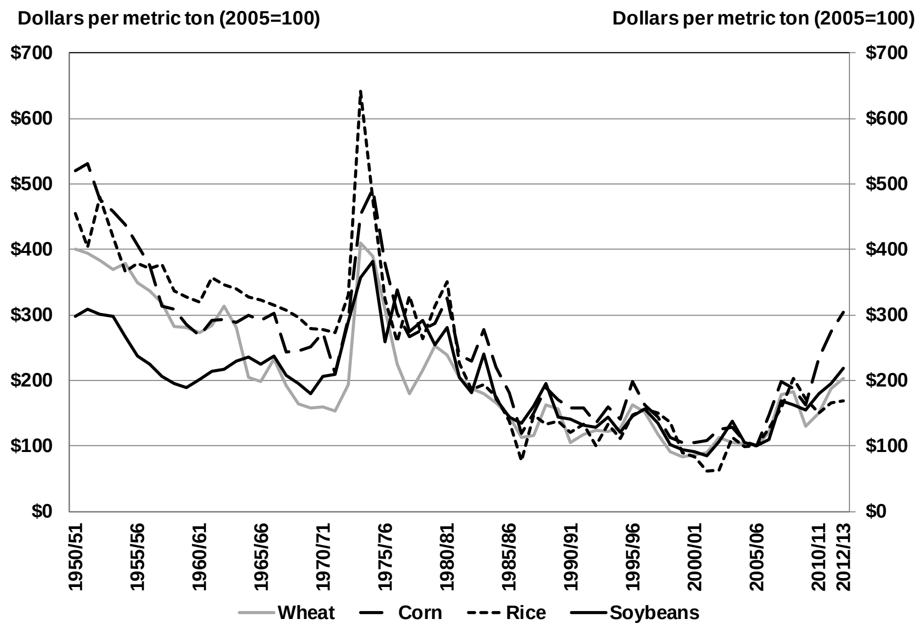
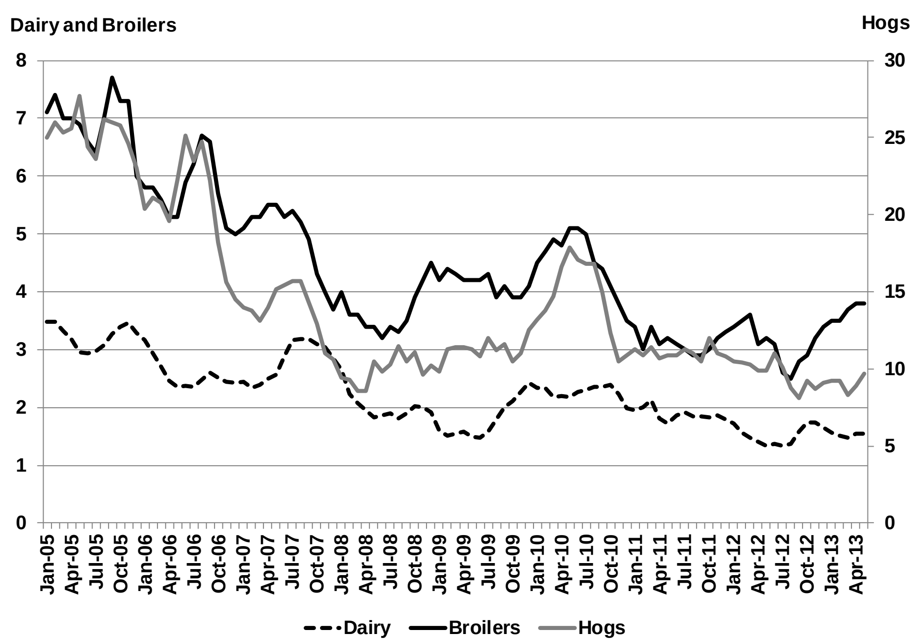


Figure 5: Annual crop prices, in 2005 dollars



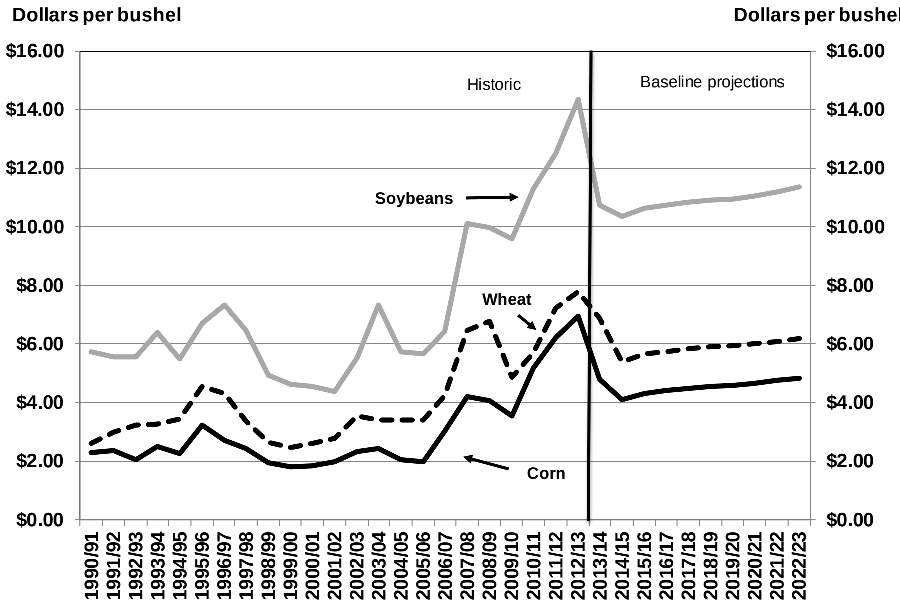
Source: USDA-NASS Quickstats (prices received by farmers)

Figure 6: Livestock price to feed price ratio, Monthly



Source: USDA-ERS

Figure 7: Commodity Prices, History and Forecast, Marketing Year



Source: History: USDA-NASS, Forecast: USDA-WAOB (2013/14 updated to June 2013 WASDE)..

Table 1: Ethanol existing capacity, capacity under construction and ethanol production, Calendar year

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013F
	(million gallons)													
Existing capacity (nameplate)	1,749	1,922	2,347	2,707	3,101	3,644	4,336	5,493	7,888	10,569	11,877	13,508	14,907	14,712
Under construction/expansion	92	65	391	483	598	754	1,778	5,636	5,536	2,066	1,432	522	140	158
Production	1,622	1,765	2,140	2,804	3,402	3,904	4,884	6,521	9,309	10,938	13,298	13,929	13,300	13,396

Source: Ethanol production (Energy Information Administration); Capacity as of January 1 (Renewable Fuels Association)

Table 2: Renewable Fuel Standard Mandates, Energy Independence and Security Act of 2007, Calendar year

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	(million gallons)													
Renewable fuels (T)	11,100	12,950	13,950	15,200	16,550	18,150	20,500	22,250	24,000	26,000	28,000	30,000	33,000	36,000
of which advanced fuels (A)	600	950	1,350	2,000	2,750	2,150	5,500	7,250	9,000	11,000	13,000	15,000	18,000	21,000
of which cellulosic biofuels (S)	0	100	250	500	1,000	1,750	3,000	4,250	5,500	7,000	8,500	10,500	13,500	16,000
of which bio-based diesel (B)	500	650	800	1,000	1,280	≥1,000	≥1,000	≥1,000	≥1,000	≥1,000	≥1,000	≥1,000	≥1,000	≥1,000
Renewable fuel gap (C) = (T-A)	10,500	12,000	12,600	13,200	13,800	16,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000

Source: Energy Independence and Security Act of 2007 (EISA)

Table 3 Corn Supply and Demand Balance Sheet (September-August marketing year)

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
							(million bushels)							
Beginning stocks	1,718	1,899	1,596	1,087	958	2,114	1,967	1,304	1,624	1,673	1,708	1,128	989	769
Production	9,915	9,503	8,967	10,087	11,806	11,112	10,531	13,038	12,092	13,092	12,447	12,360	10,780	14,005
Imports	7	10	14	14	11	9	12	20	14	8	28	29	150	25
Supply, total	11,639	11,412	10,578	11,188	12,775	13,235	12,510	14,362	13,729	14,774	14,182	13,516	11,919	14,799
Feed and residual	5,822	5,849	5,548	5,781	6,135	6,115	5,540	5,858	5,182	5,125	4,795	4,545	4,400	5,200
Food, seed & industrial	1,977	2,062	2,355	2,549	2,707	3,019	3,541	4,442	5,025	5,961	6,426	6,439	6,050	6,350
Ethanol for fuel	630	707	996	1,168	1,323	1,603	2,119	3,049	3,709	4,591	5,019	5,011	4,650	4,900
Domestic, total	7,799	7,911	7,903	8,330	8,842	9,134	9,081	10,300	10,207	11,086	11,221	10,985	10,450	11,550
Exports	1,941	1,905	1,588	1,900	1,818	2,134	2,125	2,437	1,849	1,980	1,834	1,543	700	1,300
Use, total	9,740	9,815	9,491	10,230	10,661	11,268	11,207	12,737	12,056	13,066	13,055	12,527	11,150	12,850
Ending stocks	1,899	1,596	1,087	958	2,114	1,967	1,304	1,624	1,673	1,708	1,128	989	769	1,949
CCC inventory	8	6	4	0	1	0	0	0	0	0	0	0	0	0
Free stocks	1,891	1,590	1,083	958	2,113	1,967	1,304	1,624	1,673	1,708	1,128	989	769	1,949
Outstanding loans	253	213	277	164	280	171	116	106	171	147	48	41	50	50
							(dollars per bushel)							
Avg. farm price	1.85	1.97	2.32	2.42	2.06	2.00	3.04	4.20	4.06	3.55	5.18	6.22	6.95	4.80

Source: WASDE, June 2013

Table 4: Income statement for the U.S. farm sector, 2000-2013F

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012F	2013F
	(billion dollars)													
Cash income statement														
a. Cash receipts	192	200	195	216	238	241	241	289	316	289	321	374	391	393
Crops 1/	93	93	101	110	114	116	122	150	175	169	180	208	220	216
Livestock	100	107	94	106	123	125	118	138	142	120	142	166	172	177
b. Direct Government payments 2/	23	22	12	17	13	24	16	12	12	12	12	10	11	11
c. Farm-related income 3/	12	13	13	14	16	14	17	18	21	22	18	26	31	36
d. Gross cash income (a+b+c)	227	235	220	247	267	280	273	318	350	323	352	411	433	440
e. Cash expenses 4/, 5/	170	173	169	175	183	193	205	241	261	248	252	276	298	317
f. Net cash income (d-e)	57	62	51	72	84	87	68	77	89	76	99	135	136	123

Source: USDA-ERS

Numbers may not add due to rounding.

F = forecast

1/ Includes CCC loans.

2/ Note: Government payments reflect payments made directly to all recipients in the farm sector, including landlords. The nonoperator landlords' share is offset by its inclusion in rental expenses paid to these landlords and thus is not reflected in net farm income or net cash income.

3/ Income from custom work, machine hire, recreational activities, forest product sales, and other farm sources.

4/ Excludes depreciation and perquisites to hired labor.

5/ Excludes farm households.

Note: This farm income forecast reflects USDA's assessment of the outlook for commodities as reflected in the latest WASDE report.

Table 5: Average net cash income by farm business specialty, 2005-2013F

	2005	2006	2007	2008	2009	2010	2011	2012F	2013F
					(dollars/farm)				
Wheat	50,080	42,060	59,083	50,546	73,503	108,158	117,848	150,204	139,052
Corn	95,186	63,915	115,156	143,770	128,425	126,904	165,873	169,616	152,584
Soybeans	58,548	32,861	55,160	66,152	82,514	85,148	87,790	103,766	95,293
Cattle	44,298	25,319	28,112	15,081	16,833	22,349	29,936	35,919	31,660
Hogs	186,918	202,932	240,876	97,370	170,594	306,883	204,895	174,618	161,361
Poultry	81,054	68,675	139,875	76,761	78,266	93,401	89,172	97,385	95,280
Dairy	129,258	101,608	190,585	151,603	70,110	158,112	190,533	98,079	83,872

Source: ERS, USDA Agricultural Resource Management Survey estimates

Table 6: Corn, wheat and soybean planted area, history and forecast, Crop marketing year

	Wheat	Soybeans	Corn
	(million planted acres)		
2000/01	62.5	74.3	79.6
2001/02	59.4	74.1	75.7
2002/03	60.3	74.0	78.9
2003/04	62.1	73.4	78.6
2004/05	59.6	75.2	80.9
2005/06	57.2	72.0	81.8
2006/07	57.3	75.5	78.3
2007/08	60.5	64.7	93.5
2008/09	63.2	75.7	86.0
2009/10	59.2	77.5	86.4
2010/11	53.6	77.4	88.2
2011/12	54.4	75.0	91.9
2012/13	55.7	77.2	97.2
2013/14	56.4	77.1	97.3
2014/15	54.0	74.0	90.0
2015/16	51.0	75.0	86.0
2016/17	51.0	75.5	88.0
2017/18	51.0	76.0	89.0
2018/19	50.5	76.0	90.0
2019/20	50.5	76.0	90.5
2020/21	50.5	76.0	91.0
2021/22	50.5	76.0	91.5
2022/23	50.0	76.0	92.0

Source: History: USDA-NASS Quickstats
Forecast: USDA-ERS Outlook