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U.S. Farm Income Outlook for 2017

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Summary

According to USDA's Economic Research Service (ERS), national net farm income—a key indicator of U.S. farm well-being—is forecast at $62.3 billion in 2017, down nearly 9% from last year. The 2016 forecast represents the fourth consecutive year of decline from 2013's record high of $123.7 billion and would be the lowest since 2002 in both nominal and inflation-adjusted dollars. Net farm income is calculated on an accrual basis. Net cash income (calculated on a cash-flow basis) is projected up slightly in 2017, driven largely by sales from previous years' inventory, to $93.5 billion.

The forecast for a fourth year of lower net farm income is primarily the result of the outlook for continued weak prices for most crop and livestock products compared with the period of 2011-2013, when prices for many major commodities experienced record or near-record highs. Net farm income is down 50% since 2013. Farm sector production expenses have also fallen over the period (-3%) but not nearly as fast, thus contributing to lower aggregate income totals.

Partially offsetting the decline in farm revenues is a rise in government payments since 2013 (+13%). In 2017 payments are projected at $12.5 billion, down slightly (-4%) from 2016. The Price Loss Coverage (PLC) and Agricultural Risk Coverage (ARC) revenue support programs are expected to trigger payments of nearly $9 billion in 2017 following an $8 billion payout in 2016. However, payments for conservation, disaster assistance, and marketing loan benefits are all projected slightly lower in 2017.

U.S. farm income experienced a golden period during 2011 through 2014, due to strong commodity prices and agricultural exports. In 2017 agricultural exports are forecast up 3% at $134 billion, well below 2014's record $152.3 billion—due largely to a strong U.S. dollar coupled with a continued weak economic outlook in several major foreign importing countries. U.S. agricultural exports are projected to account for 33% of farm sector gross earnings in 2017.

In addition to the outlook for lower net farm income in 2017, farm wealth is projected to decline for a third consecutive year (down about 1% from 2016) to $2,836 billion. Farm asset values reflect farm investors' and lenders' expectations about long-term profitability of farm sector investments. The outlook for lower commodity prices and the expected decline from the past four years' strong outlook for the general farm economy have reversed the growth of farmland values. Because they comprise such a significant portion of the U.S. farm sector's asset base (81%), change in farmland values is a critical barometer of the farm sector's financial performance.

At the farm-household level, average farm household incomes have been well ahead of average U.S. household incomes since the late 1990s. In 2015 (the last year for which comparable data were available), the average farm household income (including off-farm income sources) of $119,880 was about 51% higher than the average U.S. household income of $79,263.

The outlook for a fourth year of lower net farm income, coupled with a third year of lower farm wealth, suggests a weakening financial picture for the agricultural sector as a whole heading into 2017, with substantial regional variation. Relatively weak prices for most major program crops signal tougher times ahead. Low prices are expected to trigger substantial payments under the new safety net programs of the 2014 farm bill; however, eventual 2017 agricultural economic well-being will hinge on crop prospects and prices, as well as both domestic and international macroeconomic factors, including economic growth and consumer demand.

This report is updated to include USDA's February 7, 2017, farm income update and the November 25, 2016, U.S. agricultural trade outlook update.

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Introduction

The U.S. farm sector is vast and varied. It encompasses production activities related to traditional field crops (such as corn, soybeans, wheat, and cotton) and livestock and poultry products (including meat, dairy, and eggs), as well as fruits, tree nuts, and vegetables. In addition, U.S. agricultural output includes greenhouse and nursery products, forest products, custom work, machine hire, and other farm-related activities. The intensity and economic importance of each of these activities, as well as their underlying market structure and production processes, vary regionally based on the agro-climatic setting, market conditions, and other factors. As a result, farm income and rural economic conditions may vary substantially across the United States.[1] However, this report focuses singularly on aggregate national net farm income and the status of the farm debt-to-asset ratio as reported by the U.S. Department of Agriculture's (USDA's) Economic Research Service (ERS).[2]

Annual U.S. net farm income is the single most watched indicator of farm sector well-being, as it captures and reflects the entirety of economic activity across the range of production processes, input expenses, and marketing conditions that have persisted during a specific time period. When national net farm income is reported together with a measure of the national farm debt-to-asset ratio, the two summary statistics provide a quick indicator of the economic well-being of the national farm economy.

Measuring Farm Profitability

Two different indicators measure farm profitability: net cash income and net farm income.

Net cash income compares cash receipts to cash expenses. As such, it is a cash flow measure representing the funds that are available to farm operators to meet family living expenses and make debt payments. For example, crops that are produced and harvested but kept in on-farm storage are not counted in net cash income. Farm output must be sold before it is counted as part of the household's cash flow.

Net farm income is a more comprehensive measure of farm profitability. It measures value of production indicating the farm operator's share of the net value added to the national economy within a calendar year, independent of whether it is received in cash or noncash form. As a result, net farm income includes the value of home consumption, changes in inventories, capital replacement, and implicit rent and expenses related to the farm operator's dwelling that are not reflected in cash transactions. Thus, once a crop is grown and harvested it is included in the farm's net income calculation, even if it remains in on-farm storage.

Key Concepts

- Net cash income is generally less variable than net farm income. Farmers can manage the timing of crop and livestock sales and of purchase of inputs to stabilize the variability in their net cash income. For example, farmers can hold crops from large harvests to sell in the forthcoming year, when output may be lower and prices higher.
- Off-farm income and crop insurance subsidies, both of which have increased in importance in recent years, are not included in the calculation of aggregate farm income.
- Off-farm income is included in the discussion of farm income at the household level at the end of this report.

[1] For information on state-level farm income, see "U.S. and State Farm Income and Wealth Statistics," available as part of the Farm Income and Wealth Statistics, Farm Income and Costs, Farm Economy Topics, Economic Research Service (ERS), USDA, at http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics.aspx.

[2] For a more detailed discussion of the issues in this report, see ERS, "Farm Sector Income and Finances: 2016 Farm Sector Income Forecast," August 30, 2016, at http://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/2016-farm-sector-income-forecast.aspx.

USDA's 2017 Farm Income Forecast

According to ERS, net farm income is forecast lower in 2017, for a fourth consecutive year of decline. U.S. net farm income is forecast at $62.3 billion in 2017, a drop of $6 billion (-8.7%) from 2016's level (**Figure 1** and **Table 1**). This represents the lowest net farm income forecast since 2002 in both nominal and inflation-adjusted dollars (**Figure 2**). Measured in cash terms, net cash income in 2017 is projected up slightly at $93.5 billion (+1.8%) from the previous year. Since the record highs of 2013, net farm income and net cash income have fallen by 50% and 31%, respectively (**Figure 1**).

The new safety net programs—Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC)—of the 2014 farm bill made substantial payments in 2016 ($7.9 billion) and are expected to do so again in 2017 ($8.7 billion) as a result of relatively low commodity prices. Outlays under these programs are intended to provide some relief for participating producers from the market downturn.

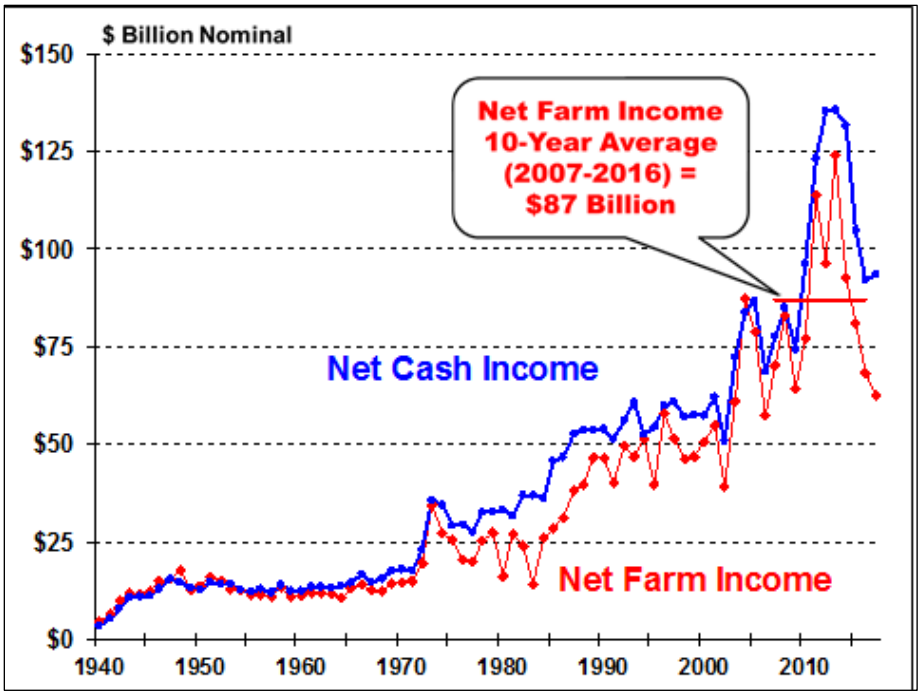
Selected Highlights

- The downward trend in farm income since 2013 is primarily a result of the dramatic decline in most farm commodity prices since the 2013-2014 period.[3]
- Farm prices for most feedstuffs—feed grains (corn, sorghum, barley, and oats), hay, and wheat—declined during both 2015 and 2016 as U.S. and global grain stocks rebuild (**Table 4** and **Figure 28** to **Figure 31**). Cotton and soybean prices showed surprising resilience in 2016.
- Cattle, poultry, and hog prices have also turned sharply lower from their record 2014 highs (**Figure 32** to **Figure 35**). Prices for cattle and hogs are projected lower in 2017 (**Table 4**), while milk and egg prices are projected higher.
- Government payments in 2017 are projected down (-4%) to $12.5 billion (**Figure 13**). Lower commodity prices are expected to trigger payments of nearly $9 billion under the PLC and ARC programs, up from about $8 billion in payments under these same two programs in 2016.
- Total production expenses, at $350 billion, are projected unchanged in 2017, held in check by continued low costs for replacement animals, fertilizer, and fuel.
- Global demand for U.S. agricultural product exports is expected to rise to $134 billion (+3%) in 2017, well below the record of $152 billion set in 2014 as a stronger U.S. dollar has combined with struggling international economies to slow growth in demand for U.S. agricultural exports.[4]
- Farm asset values are also expected to decline a third straight year to $2,836 billion (-1%) in 2016 driven by continued weaker land values. A rise in farm debt to $395 billion (+5%) is expected to result in a rise in the debt-to-asset ratio to 13.9%, the highest level since 2002.

[3] The material presented in the report is drawn primarily from the 2017 Farm Sector Income Forecast of ERS at http://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/2017-farm-sector-income-forecast.aspx.

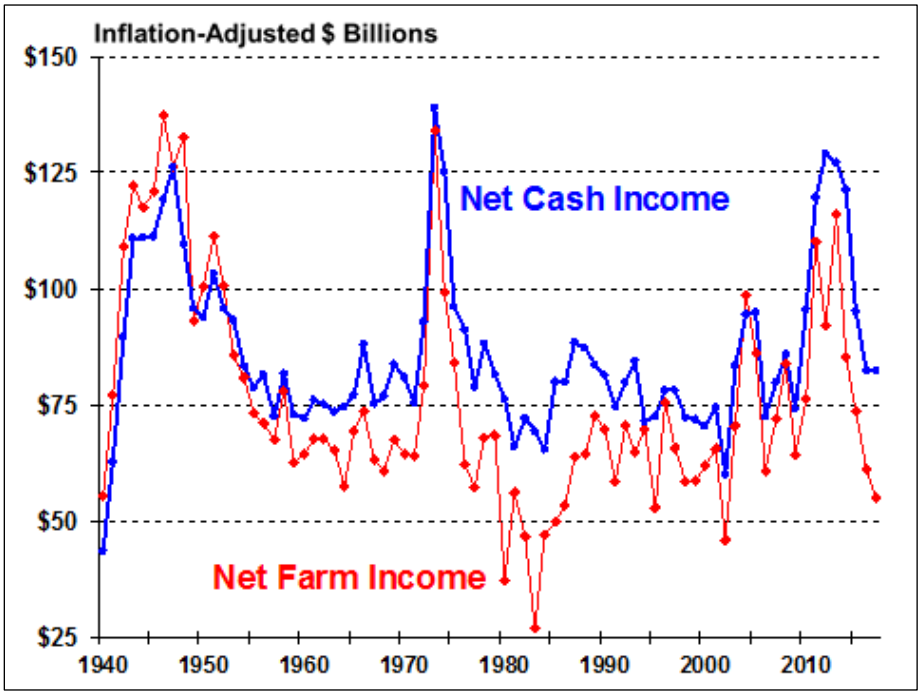
[4] ERS, *Outlook for U.S. Agricultural Trade*, AES-97, November 25, 2016.

Figure 1. Annual U.S. Farm Sector Nominal Income, 1940 to 2017F



Source: ERS, "2017 Farm Income Forecast," February 7, 2017. All values are nominal, that is, not adjusted for inflation. 2017 is forecast. All values are nominal.

Figure 2. Annual U.S. Farm Sector Inflation-Adjusted Income, 1940 to 2017F



Source: ERS, "2017 Farm Income Forecast," February 7, 2017. All values are adjusted for inflation using the chain-type gross domestic product (GDP) deflator, where 2009 = 100, Office of Management and Budget (OMB), Historical Tables, Table 10.1, https://www.whitehouse.gov/omb/budget/Historicals; 2017 is forecast.

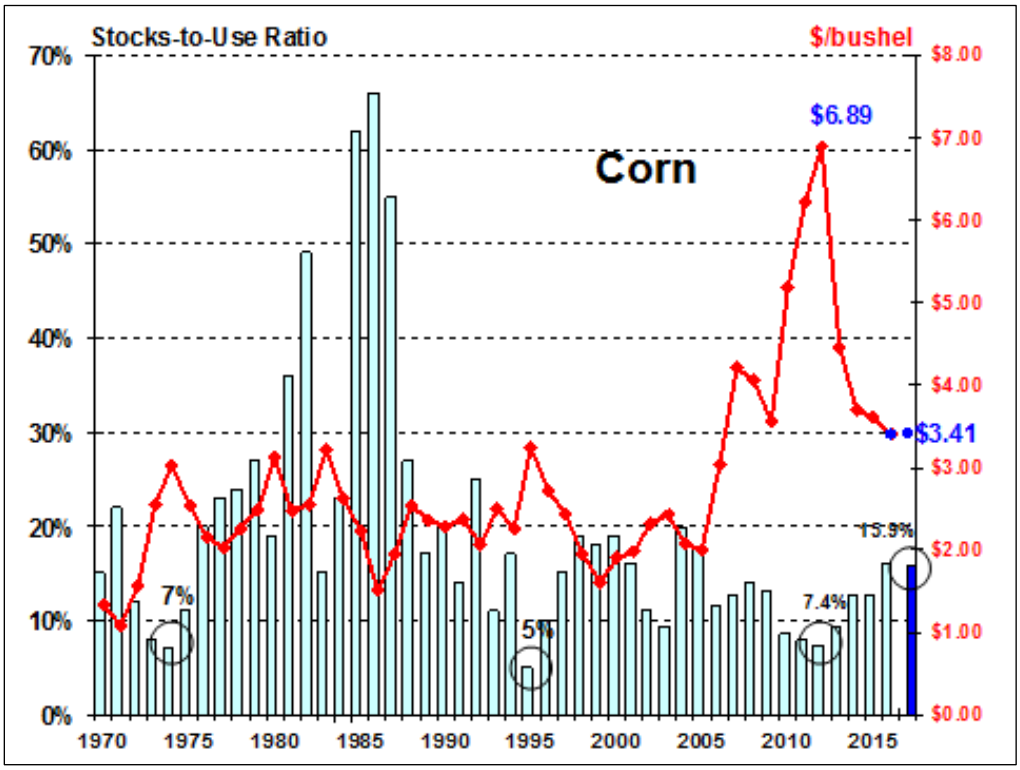
Wrap-Up of U.S. Agriculture for 2016, Setting the Stage for 2017

Crop Outlook

Normal weather conditions prevailed in most major growing regions around the world in 2016, with the exception of Brazil and Argentina—two major competitors in international corn and soybean markets. In early 2016, midway through their 2015/2016 growing season, Brazil experienced unusual dryness, while Argentina suffered heavy late-season rains. These unexpected weather conditions trimmed South American corn and soybean crops and boosted planting-time prices in the United States. In response, U.S. producers planted record soybean acreage (83.7 million acres) and large corn acreage (94.5 million acres) in 2016. Widespread good growing conditions—plentiful moisture and lack of extreme heat—resulted in record U.S. corn and soybean yields of 175.3 and 52.5 bushels/acre, respectively, in 2016.

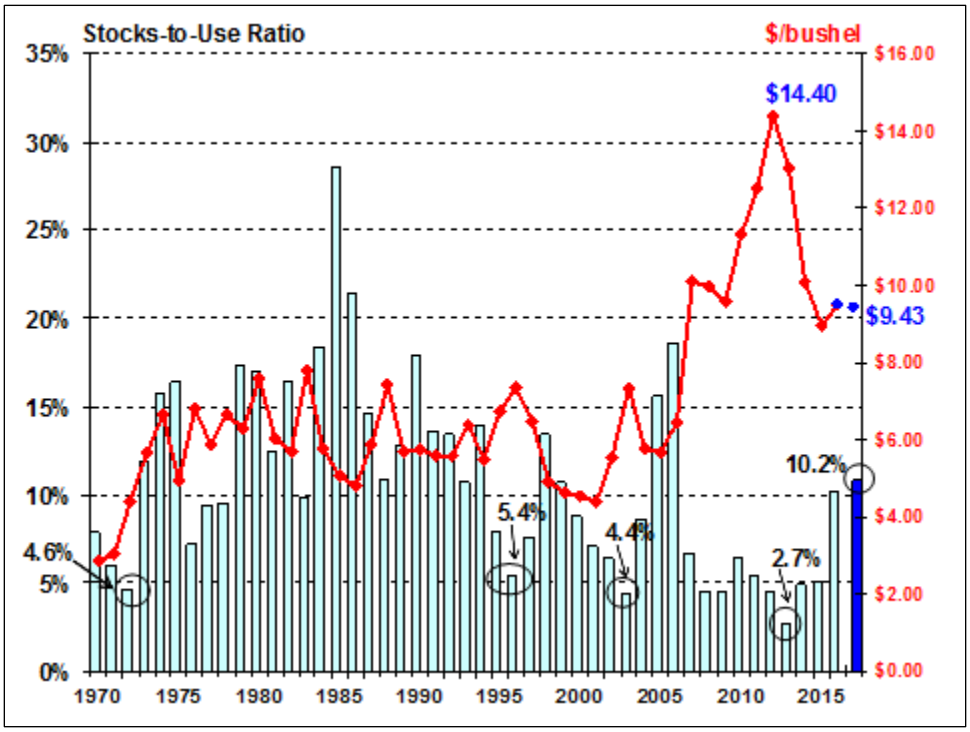
Corn and soybeans are the two largest U.S. commercial crops in terms of both value and quantity. These crops provide important inputs for the domestic livestock, poultry, and biofuels sectors. In addition, the United States has traditionally been one of the world's leading exporters of corn, soybeans, and soybean products—vegetable oil and meal. As a result, the outlook for these two crops is critical to both farm sector profitability and regional economic activity across large swaths of the United States as well as in international markets. The past three years, U.S. corn and soybean crops have experienced remarkable growth in both productivity and output. Both crops had record harvests in 2014, above-average harvests in 2015, and record harvests again in 2016, thus helping to build stocks (**Figure 3** and **Figure 4**) and pressure prices lower in U.S. and international markets (**Figure 28** through **Figure 31**) in 2016. This trend is projected to continue going into 2017.

Figure 3. U.S. Corn Stocks Relatively Abundant, Price Level in 2017



Source: See Source and Notes for **Figure 4**.

Figure 4. U.S. Soybean Stocks-to-Use Share Up, Price Level in 2017



Source: World Agricultural Outlook Board, USDA, *World Agricultural Supply and Demand Estimates (WASDE)*, February 9, 2017. 2017 is forecast by the Congressional Budget Office, January 2017. All values are nominal.

Notes: Stocks-to-Use equals the ratio of season-ending stocks relative to the season's total usage.

Livestock Outlook

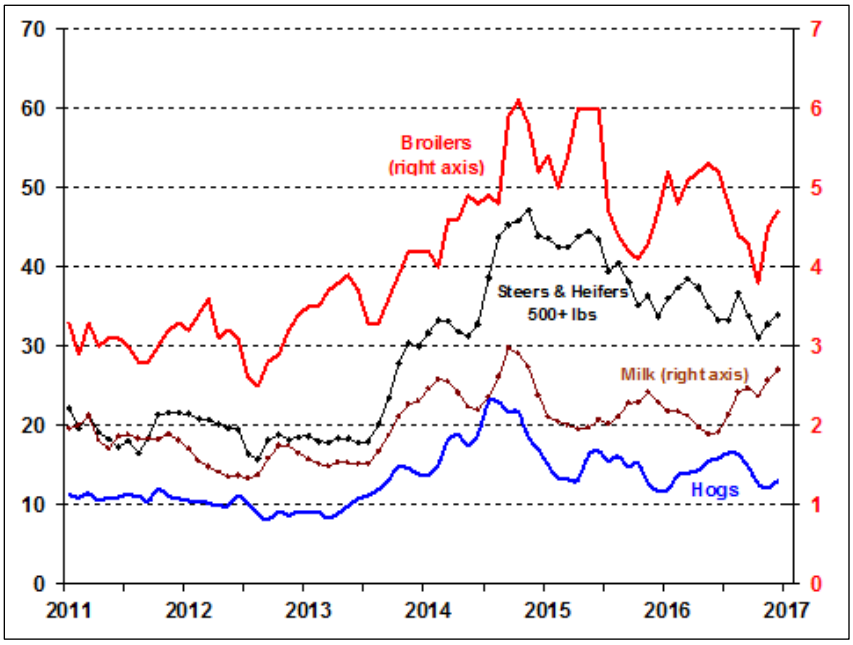
The changing conditions for the U.S. livestock sector may be tracked by the evolution of the ratios of livestock output prices to feed costs (**Figure 6** and **Figure 5**)—a higher ratio suggests greater profitability for producers.[5] In general, after showing some strength early in 2016, the cattle-, hog-, and broiler-to-feed margins turned sharply downward in mid-year and are projected to remain under pressure heading into 2017. This suggests lower profitability and perhaps financial difficulties for marginal producers. Milk prices and the milk-to-feed ratio showed surprising resilience in mid-2016 but are likely to come under pressure in 2017 as both U.S. and global milk production are projected to continue growing. Similarly, U.S. hog and cattle herds and poultry flocks are expected to continue to expand into 2017. Cattle and hog expansion is primarily the result of a substantial lag in the biological response to the strong market price signals of late 2014.

The U.S. cattle sector has been expanding since 2014. During the 2007 to 2014 period, high feed and forage prices, plus widespread drought in the Southern Plains—the largest U.S. cattle production region—had resulted in an 8% contraction of the U.S. cattle inventory (**Figure 7**). Reduced beef supplies led to higher producer and consumer prices, which in turn triggered the slow rebuilding phase in the cattle cycle that started in 2014 (see the price-to-feed ratio for steer and heifers, **Figure 5**). The resulting continued expansion of beef supplies is now weighing on market prices (**Figure 32**).

[5] Feed costs—at 30% to 80% of variable costs—are generally the largest cost component in livestock operations.

Figure 5. Heading into 2017, Farm-Price-to-Feed Ratios Are Trending Up for Milk, Broilers, and Cattle but Lower for Hogs

(Ratio of national average farm price received per 100 lbs. of meat to per-unit feed cost)

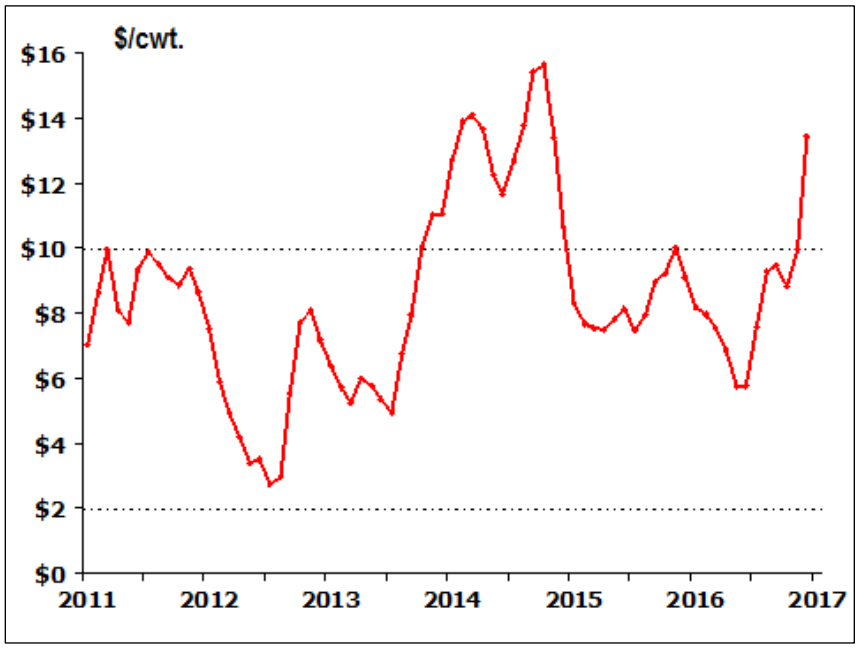


Source: USDA, NASS, *Agricultural Prices*, January 31, 2017. All values are nominal.

Notes: Cattle and hog feed cost is 100% corn; broilers feed cost is 58% corn, 42% soybeans.

Figure 6. The Milk-to-Feed Margin Rises Above $8/cwt. into 2017

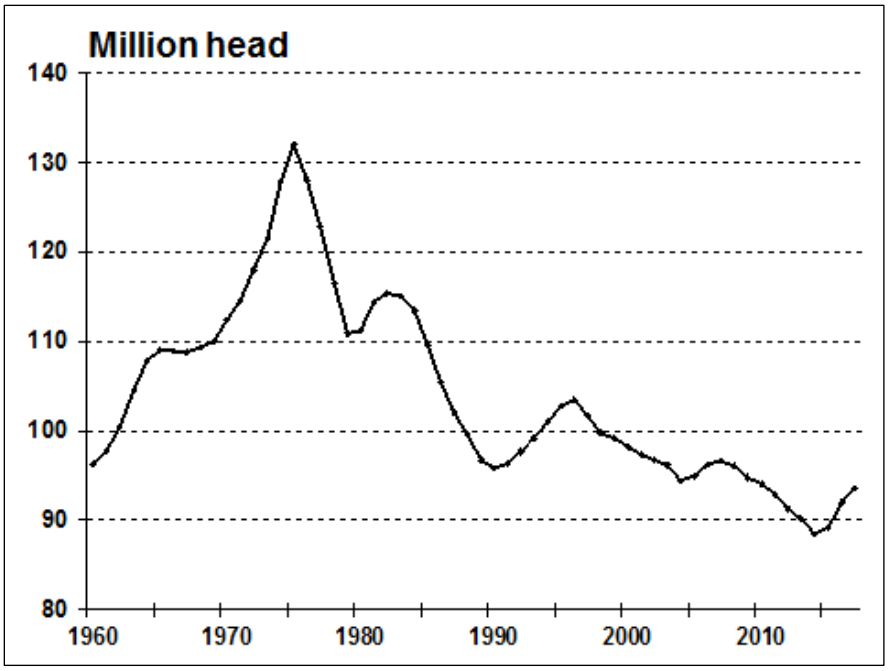
(National average farm price of milk less average feed costs per 100 lbs.)



Source: USDA, NASS, *Agricultural Prices*, January 31, 2017; calculations by CRS. All values are nominal.

Note: Based on the feed price formula used by the Margin Protection Program of the 2014 farm bill (P.L. 113-79); see CRS Report R43465, *Dairy Provisions in the 2014 Farm Bill (P.L. 113-79)*, by (name redacted)

Figure 7. The U.S. Beef Cattle Inventory (Including Calves) Since 1960



Source: USDA, NASS, *Cattle*, January 31, 2017.

Notes: Inventory data are for January 1 of each year.

In 2014, the U.S. hog sector was hit by the rapid outbreak and spread of the porcine epidemic diarrhea virus (PEDv), which caused market worries related to U.S. pork production. The incidence of PEDv since the winter of 2014/2015 has declined, and initial market fears have subsided. However, the related 2014 surge in hog prices elicited substantial producer response, and the resulting continued expansion of pork supplies through 2016 is now weighing on market prices (**Figure 34**).

Similarly, a poultry-related disease emerged during spring 2015, when the U.S. poultry industry experienced a severe outbreak of highly-pathogenic avian influenza (HPAI),[6] but the outbreak ended by early summer 2015. More than 48 million chickens, turkeys, and other poultry were euthanized to stem the spread of the disease. Turkey and egg-laying hen farms in Minnesota and Iowa were the hardest hit. Commercial broiler farms were not affected. USDA estimates that egg production declined over 5% in 2015, pushing egg prices up 28% that year. In 2016, broiler and egg prices are projected down 7% and 54%, respectively, as supply concerns subside.

In sum, production of beef (+6%), pork (+2%), broilers (+2%), and eggs (+6%) expanded robustly in 2016. Meat and egg supplies are projected to continue growing in 2017 at 2% to 4% rates. This output growth is likely to maintain pressure on beef and pork prices and profit margins in 2017. In contrast, broiler and egg prices are projected to rebound slightly in 2017 (**Table 4**).

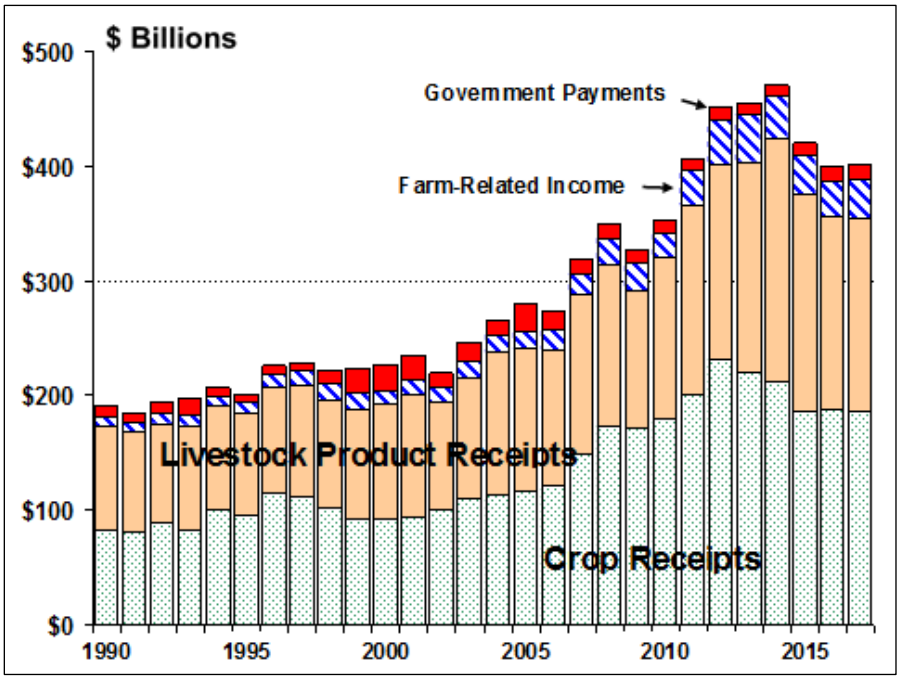
Gross Cash Income Highlights

Total farm sector gross cash income for 2017 is projected up slightly (+1%) to $401.8 billion but well below 2014's record $470.5 billion (**Figure 8**), driven by higher farm-related income

[6] CRS Report R44114, *Update on the Highly-Pathogenic Avian Influenza Outbreak of 2014-2015*, by (name redacted)

(+12%). Record yields helped to offset lower crop prices, leaving total crop revenues down slightly (-0.3%) at $186.7 billion in 2017. Similarly, larger animal product output offset lower prices and left livestock cash receipts unchanged at $168.2 billion. Farm sector revenue sources and shares include crop revenues (44% of sector revenues), livestock receipts (45%), government payments (3%), and other farm-related income, including crop insurance indemnities, machine hire, and custom work (8%).

Figure 8. Farm Cash Receipts by Source, 1990 to 2017F



Source: ERS, "2017 Farm Income Forecast," February 7, 2017. All values are nominal, that is, not adjusted for inflation. 2017 is forecast. All values are nominal.

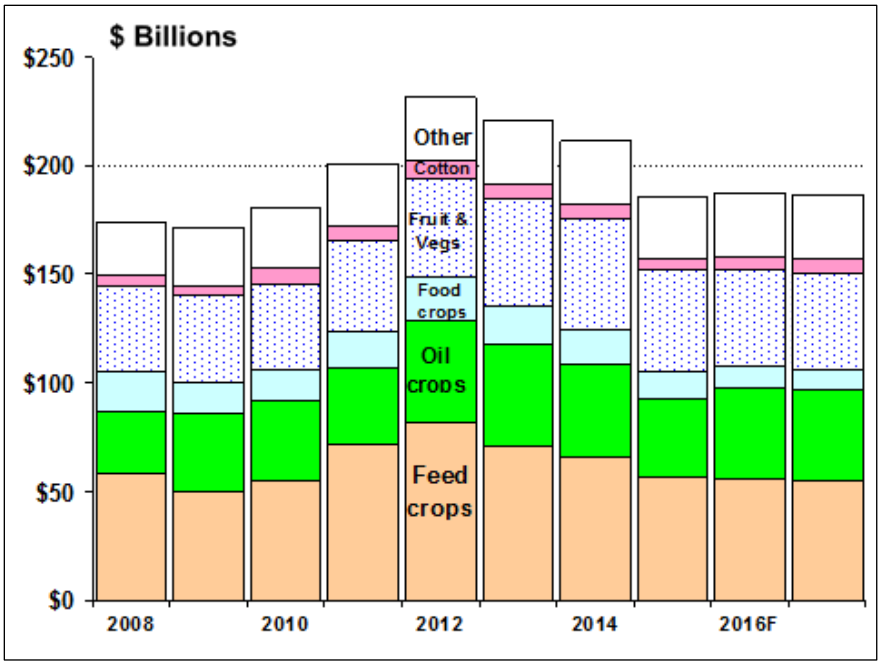
Notes: Receipts from crop and livestock product sales, and government payments, are described in more detail below. Farm-related income includes income from custom work, machine hire, agri-tourism, forest product sales, insurance indemnities, and cooperative patronage dividend fees.

Crop Receipts

Total crop sales peaked in 2012 at a record $231.6 billion when a nationwide drought pushed commodity prices to record or near-record levels. In 2017, crop sales are projected down slightly from 2016 at $186.7 billion as record yields offset lower prices (**Figure 9**). The crop sector includes 2017 projections (and percentage changes from 2016) for

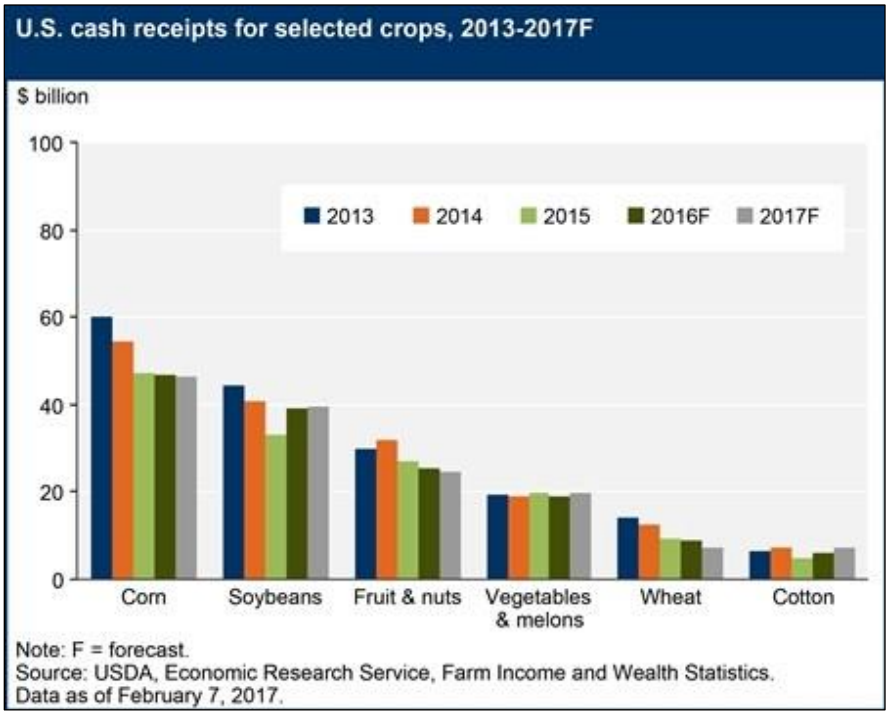
- feed crops—corn, barley, oats, sorghum, and hay—of $54.9 billion (-2%);
- oil crops—soybeans, peanuts, and other oilseeds—of $41.4 billion (+0.5%);
- food grains—wheat and rice—of $9.7 billion (-12.2%);
- fruits and nuts of $24.4 billion (-3.2%);
- vegetables and melons of $19.7 billion (+5%);
- cotton of $7.2 billion (+21.5%); and
- all other crops—including tobacco, sugar, greenhouse, and nursery crops—of $28 billion (+1.6%).

Figure 9. Crop Cash Receipts by Source, 2008 to 2017F



Source: ERS, "2017 Farm Income Forecast," February 7, 2017. All values are nominal, that is, not adjusted for inflation. 2017 is forecast. All values are nominal.

Figure 10. Cash Receipts for Selected Crops, 2012-2017F



Source: See Source and Notes for **Figure 9**.

The length and severity of the California drought has important national implications for retail food prices—California accounts for about one-third of U.S. vegetable production, almost two-

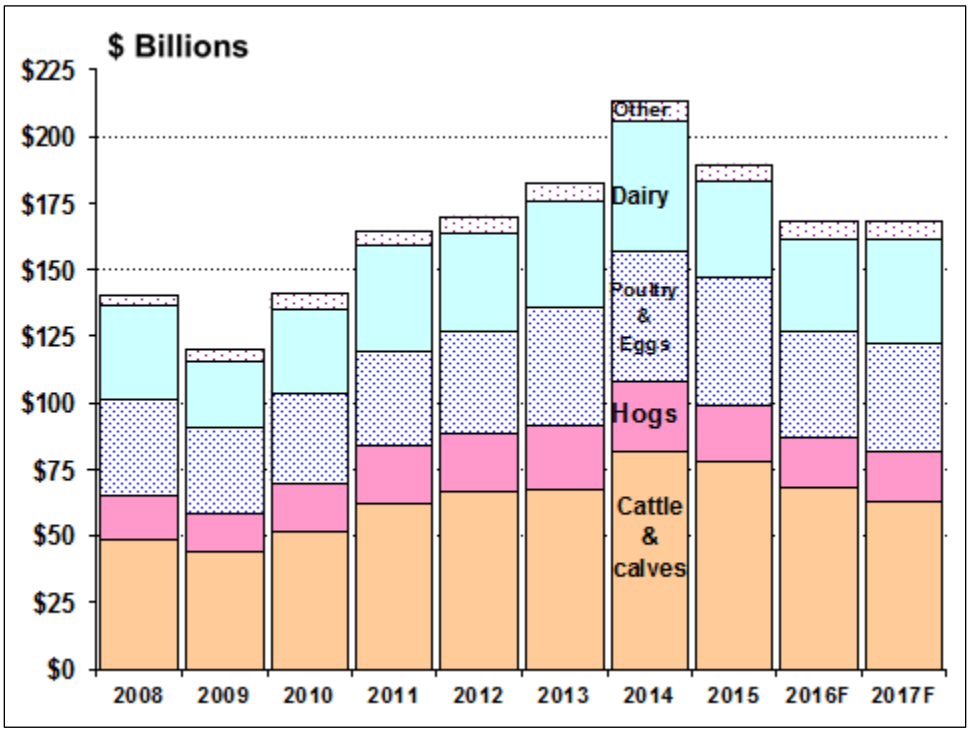
thirds of U.S. fruit and nut production, about 20% of U.S. milk, and a substantial portion of wine production.[7] Abundant precipitation this past winter has alleviated drought conditions in much of the northern portions of the state. However, the drought remains ongoing in the lower third of the state since 2012.

Livestock Receipts

The livestock sector includes cattle, hogs, sheep, poultry and eggs, dairy, and other minor activities. Cash receipts for the livestock sector grew steadily from the severe downturn of 2009 through 2014, when they peaked at a record $212.8 billion. However, the sector turned downward in 2015 (-10.8%) and again in 2016 (-12.3%)—driven largely by projected year-over-year price declines across all major livestock categories (**Table 4**). In 2017, livestock sector cash receipts are projected unchanged year-to-year at $168.2 billion. Highlights include 2017 projections (and percentage changes from 2016) for

- cattle and calf sales of $63 billion (-6.7%),
- hog sales of $18.8 billion (-4.7%),
- poultry and egg sales of $40.3 billion (+1.4%), and
- dairy sales, valued at $38.9 billion (+13.7%).

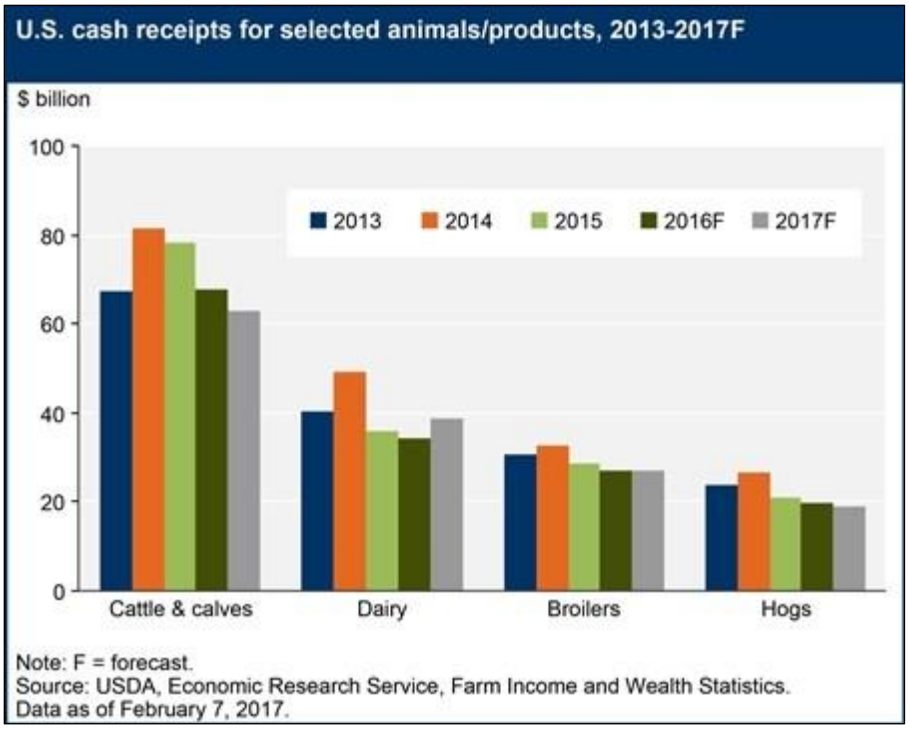
Figure 11. U.S. Livestock Product Cash Receipts by Source, 2008 to 2017F



Source: ERS, "2017 Farm Income Forecast," February 7, 2017. All values are nominal, that is, not adjusted for inflation. 2017 is forecast. All values are nominal.

[7] See CRS In Focus IF10133, *California Drought: Water Supply and Conveyance Issues*, by (name redacted)and CRS Report R44093, *California Agricultural Production and Irrigated Water Use*, by (name redacted) and (name redacted)

Figure 12. Cash Receipts for Selected Animal Products, 2012-2017F



Source: See source and notes for **Figure 11**.

Government Payments

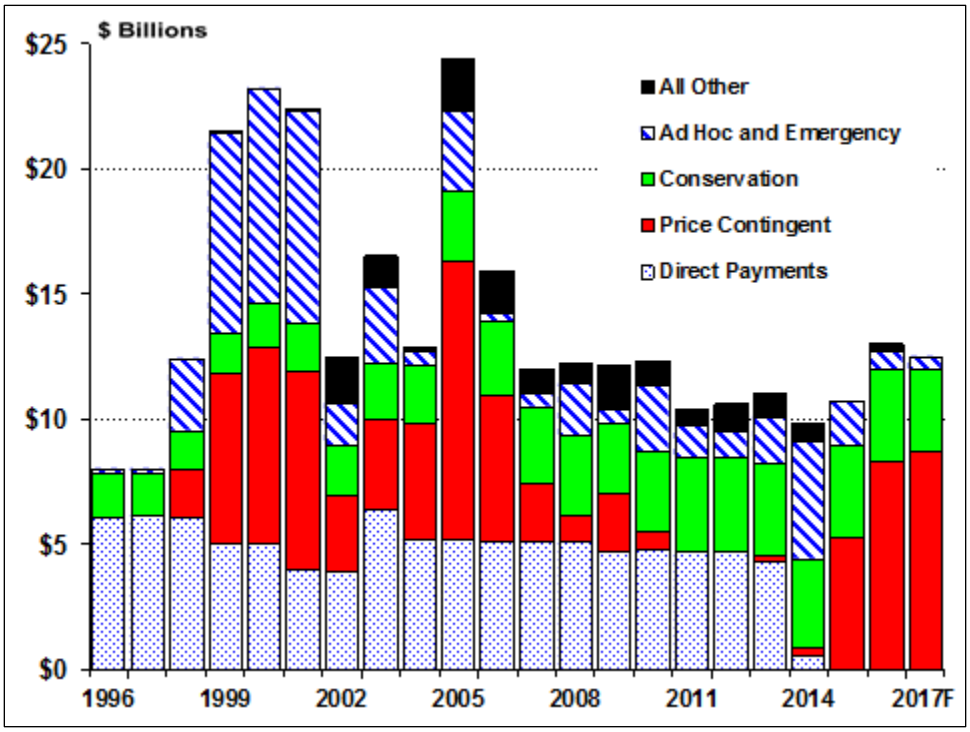
Government payments in 2017 are projected down by 4% from 2016 at $12.5 billion, but they still represent the second-highest level since 2006. Plunging farm prices are expected to trigger substantial payments under the price-contingent programs—the Price Loss Coverage (PLC) and the Agricultural Risk Coverage (ARC) programs (**Figure 13**). The 2014 farm bill (Agricultural Act of 2014; P.L. 113-79) eliminated direct payments of nearly $5 billion per year and replaced them with a new suite of revenue support programs. In particular, the PLC program replaced the previous Counter-Cyclical Price (CCP) program, but with a set of reference prices based on substantially higher support levels for most program crops. ARC relies on a five-year moving average price trigger in its payment calculation but also adopts the PLC reference price as the minimum guarantee in years when market prices fall below it. These higher relative support levels are expected to trigger payments of $8.7 billion in 2017, up from $7.9 billion in 2016.

Government payments of $12.5 billion would represent a relatively small share (3%) of projected gross cash income of $401.8 billion in 2017. In contrast, government payments are expected to represent 20% of net farm income of $62.3 billion in 2017 (**Table 1**). However, the importance of government payments as a percent of net farm income varies nationally by crop and livestock sector and region.

Farm fixed direct payments, whose payment rates were fixed in previous legislation, were eliminated by the 2014 farm bill.[8]

[8] For details see CRS Report R43076, *The 2014 Farm Bill (P.L. 113-79): Summary and Side-by-Side*.

Figure 13. U.S. Government Farm Support, Direct Outlays, 1996 to 2017F



Source: ERS, "2017 Farm Income Forecast," February 7, 2017. All values are nominal, that is, not adjusted for inflation. 2017 is forecast. All values are nominal.

Notes: Data are on a fiscal year basis and may not correspond exactly with the crop or calendar year. "Direct Payments" include production flexibility contract payments enacted under the 1996 farm bill and fixed direct payments of the 2002 and 2008 farm bills; "Price-Contingent" outlays include loan deficiency payments, marketing loan gains, CCP, ACRE, PLC, and ARC payments; "Conservation" outlays include Conservation Reserve Program payments along with other conservation program outlays; "Ad Hoc and Emergency" includes emergency supplemental crop and livestock disaster payments and market loss assistance payments for relief of low commodity prices; and "All Other" outlays include cotton ginning cost-share, biomass crop assistance program, peanut quota buyout, milk income loss, tobacco transition, and other miscellaneous payments.

Payments under the price-contingent marketing loan benefit are forecast at $442 million in 2016 and $150 million in 2017, as program crop prices are expected to remain above most program loan rates—the exception being rice and peanuts (**Table 4**).

The Margin Protection Program (MPP) for dairy is expected to earn savings as producer premiums paid exceed federal payouts by $11 million in 2016 and by $15 million in 2017.

Conservation programs include all conservation programs operated by USDA's Farm Service Agency (FSA) and the Natural Resources Conservation Service (NRCS) that provide direct payments to producers. Estimated conservation payments of $3.3 billion are forecast for 2017, down (-12%) from 2016.

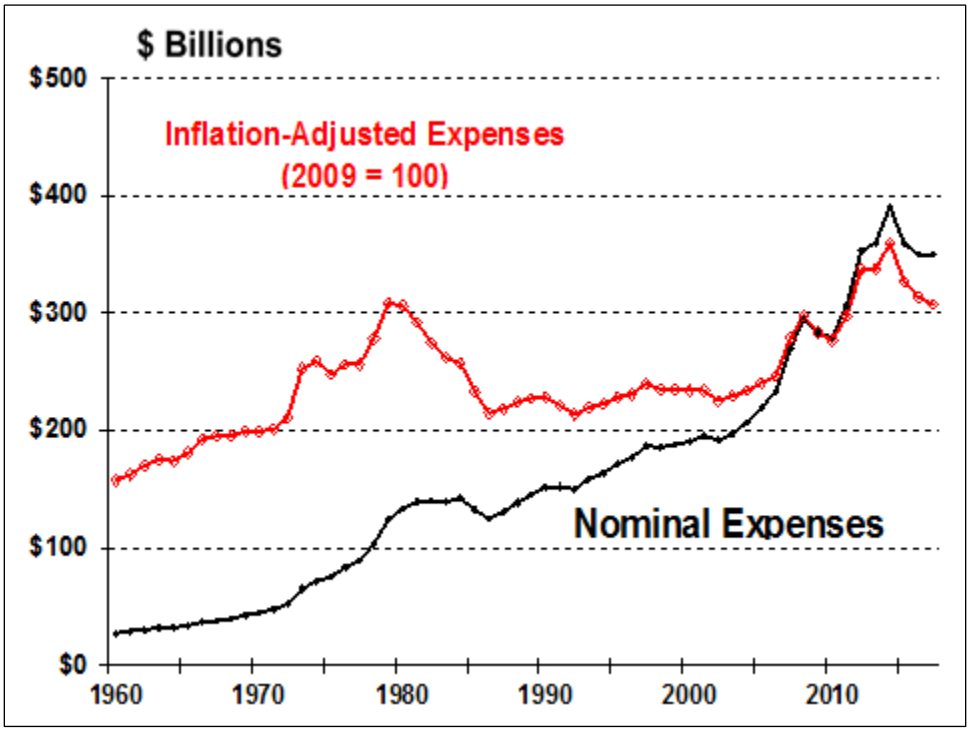
Supplemental and ad-hoc disaster assistance payments are forecast at $490 million in 2017, a 27% decline from $673 million in 2016. The decline is largely due to an expected decline in layouts under the Livestock Indemnity and Livestock Forage Programs.[9]

[9] See CRS Report RS21212, *Agricultural Disaster Assistance*, for information on available farm disaster programs.

Production Expenses

Production expenses for 2017 for the U.S. agricultural sector are projected unchanged at $350 billion (**Figure 14**) following two years of decline. Multi-year reductions in farm production expenses are relatively rare—it happened last from 1984 to 1986. Changes in input prices (i.e., expenses) typically lag commodity price changes. Commodity prices, in general, are in their fourth year of relative decline from record highs achieved in the 2012/2013 period. Production expenses will affect crop and livestock farms differently.

Figure 14. Total Farm Production Expenses, 1970 to 2017F

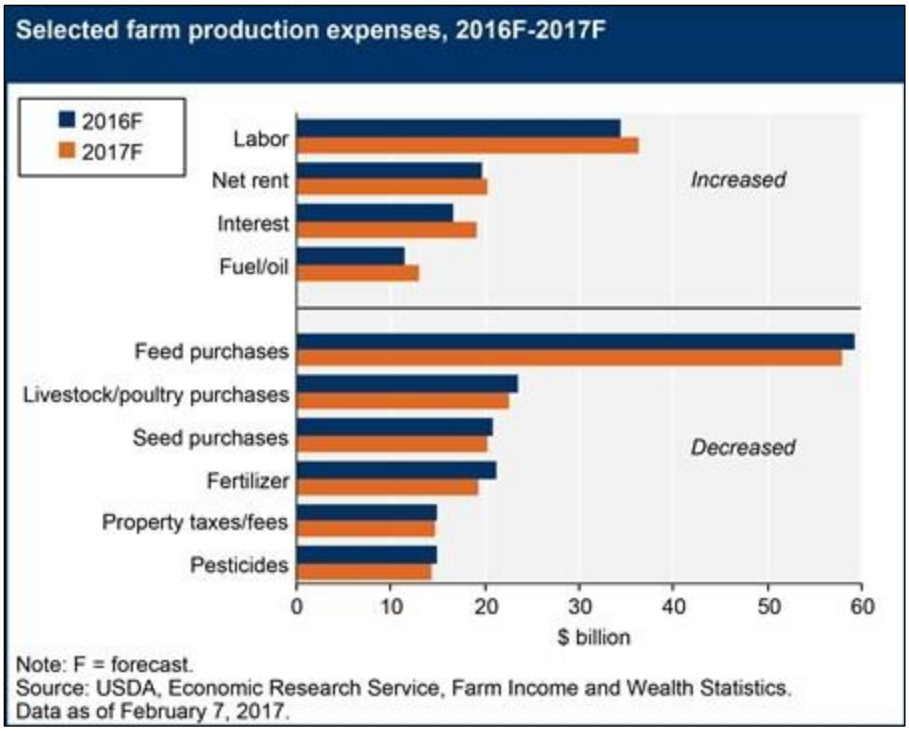


Source: ERS, "2017 Farm Income Forecast," February 7, 2017. All values are nominal, that is, not adjusted for inflation using the chain-type GDP deflator, OMB, Historical Tables, Table 10.1. 2017 is forecast.

The principal expenses for livestock farms are feed costs and purchases of feeder animals and poultry. Feed costs are projected down in 2017 (-2.1%), while replacement animal costs declined by nearly 4%. In the net, the principal livestock expenses are forecast down 2.6% from 2016 at $80.5 billion.

The principal crop expenses—including fertilizer, pesticides, and fuel—are forecast down by about 3%, to $90.4 billion. Miscellaneous operating expenses, which are projected unchanged at $36.6 billion, include crop insurance premiums and thus directly impact crop production.

Figure 15. Farm Production Expenses for Selected Items, 2016 and 2017F



Source: ERS, "2017 Farm Income Forecast," February 7, 2017. All values are nominal, that is, not adjusted for inflation. 2017 is forecast.

Cash Rental Rates

Renting or leasing land is a way for young or beginning farmers to enter agriculture without incurring debt associated with land purchases. It is also a means for existing farm operations to adjust production more quickly in response to changing market and production conditions, also avoiding risks associated with land ownership.

The share of rented farmland varies widely by region and production activity. However, for some farms it constitutes an important component of farm operating expenses. Since 2002, about 38% of agricultural land used in U.S. farming operations has been rented.[10]

Some farmland is rented from other farm operations—nationally about 8% of all land in farms in 2012—and thus constitutes a source of income for some operator landlords. However, the majority of rented land in farms is rented from non-operating landlords. Nationally in 2012, 30% of all land in farms was rented from someone other than a farm operator. Total net rent to non-operator landlords is projected to be down slightly (-2%) at $15.1 billion in 2016.[11]

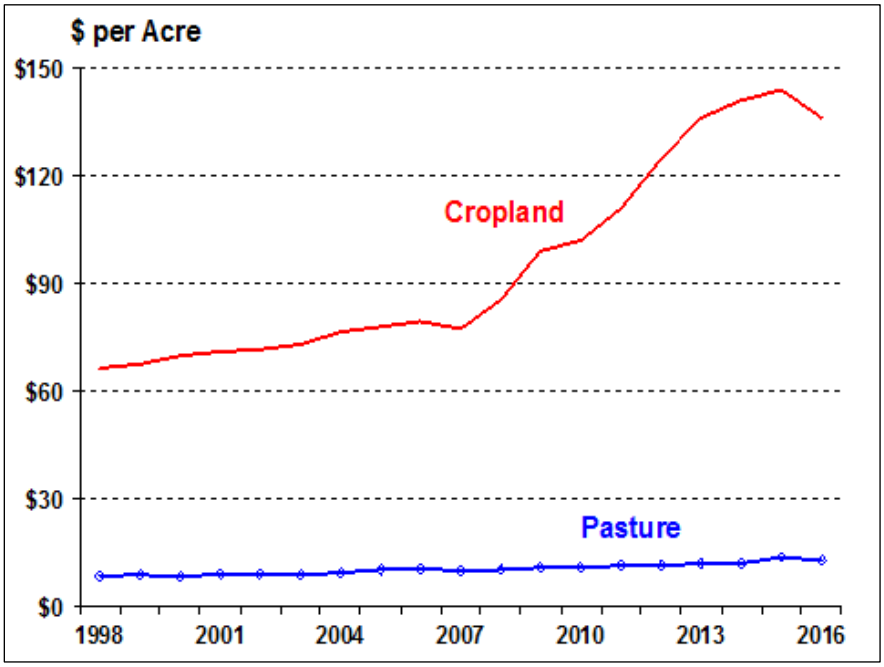
Average cash rental rates for 2016—which were set the preceding fall of 2015 or in early spring of 2016—still reflect the high prices and large net returns of the preceding several years (especially the 2011 to 2014 period) and have yet to decline substantially (**Figure 16**). Continued high per-acre cash rental rates into 2017 may cause a pinch in cash flow for some farm

[10] ERS, "Land Use, Land Values & Tenure: Farmland Ownership and Tenure," at http://www.ers.usda.gov/topics/farm-economy/land-use,-land-value-tenure/farmland-ownership-and-tenure.aspx.

[11] USDA does not forecast land values or rental rates. USDA estimates for 2017 will be available in August 2017.

operations, particularly if livestock product prices for hogs, poultry, eggs, and dairy continue to decline into 2017.

Figure 16. U.S. Average Farm Land Cash Rental Rates Since 1998



Source: NASS, "Quick Stats," downloaded August 30, 2016. All values are nominal.

Agricultural Trade Outlook

A major catalyst behind the strong farm income of recent years has been the strength of U.S. agricultural exports, which have shown remarkable growth since 2000—nearly tripling in absolute value and accounting for about one-third of gross cash farm income.

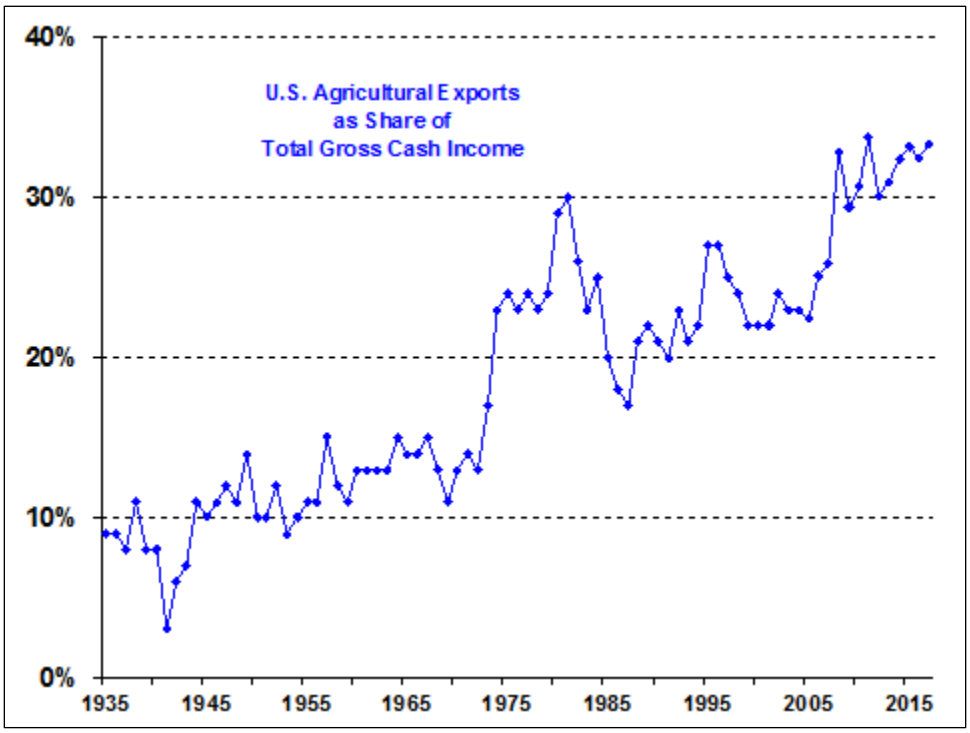
USDA projects U.S. agricultural exports higher in 2017 at $134 billion, up 3% from 2016's total but 12% below 2014's record $152.3 billion (**Figure 19**)—due largely to a relatively strong U.S. dollar coupled with a continued weak economic outlook in several major foreign importing countries. In contrast, USDA projects that U.S. agricultural imports will fall only slightly to $112.5 billion (-1%), thus raising the agricultural trade surplus to $21.5 billion (+29%).

Key U.S. Agricultural Trade Highlights

- As a share of total gross farm receipts, U.S. agricultural exports are projected to account for 33.4% of gross cash earnings in 2017 (**Figure 17**).
- The top three markets for U.S. agricultural exports are China, Canada, and Mexico, in that order. Together these three countries are expected to account for $65 billion, or 49% of total U.S. agricultural exports in FY2017 (**Figure 20**).
- A substantial portion of the increase in U.S. agricultural exports since 2010 has also been due to higher-priced grain and feed shipments, plus record oilseed exports to China and growing animal product exports to East Asia.

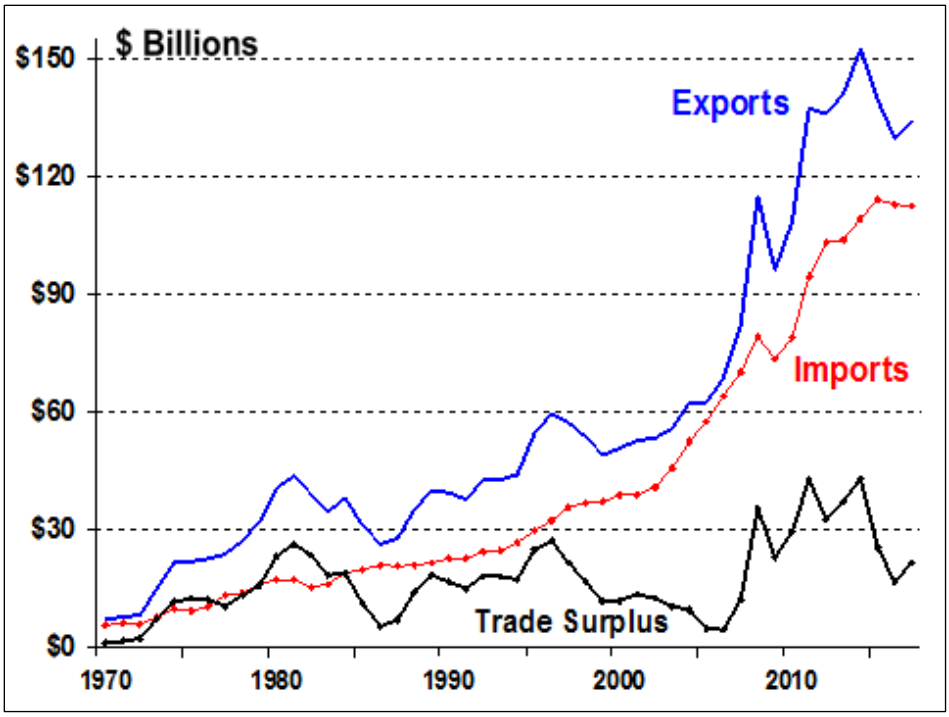
- The fourth- and fifth-largest U.S. export markets are the European Union (EU) and Japan, which are projected to account for a combined 17% of U.S. agricultural exports in FY2017. However, these two markets have shown relatively limited growth when compared with the rest of the world.
- The "Rest of World" component of U.S. agricultural trade—the Middle East, Africa, and Southeast Asia—has shown dramatic import growth in recent years. ROW is expected to account for 34% of U.S. agricultural exports in 2017.
- Over the past four decades, U.S. agricultural exports have experienced fairly steady growth in export of high-value products (**Figure 21**). As grain and oilseed prices decline, so will the bulk value share of U.S. exports.
- Bulk commodity shipments (primarily wheat, rice, feed grains, soybeans, cotton, and unmanufactured tobacco) are forecast at a relatively low 33.6% share of total U.S. agricultural exports in 2017, at $5 billion. This compares with an average share of over 60% during the 1970s and 1980s.
- In contrast, high-valued export products—including horticultural, livestock, poultry, and dairy—are forecast at $89 billion, for a 66.4% share of U.S. agricultural exports in 2017.

Figure 17. U.S. Agricultural Export Value as Share of Gross Cash Income



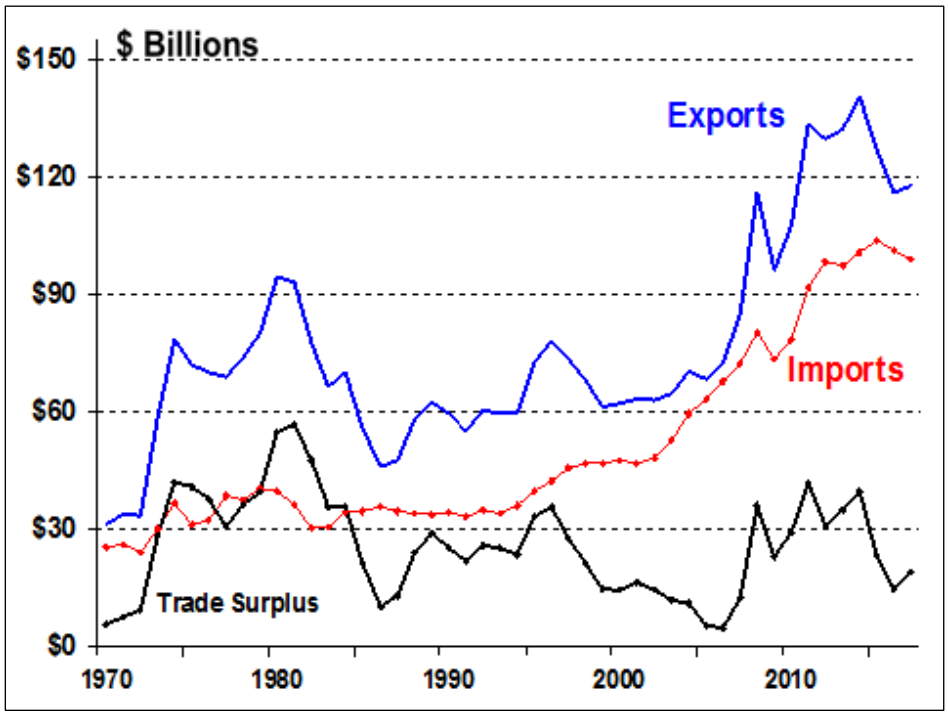
Source: See source notes from **Figure 21**.

Figure 18. U.S. Agricultural Trade Since 1970, Nominal Values



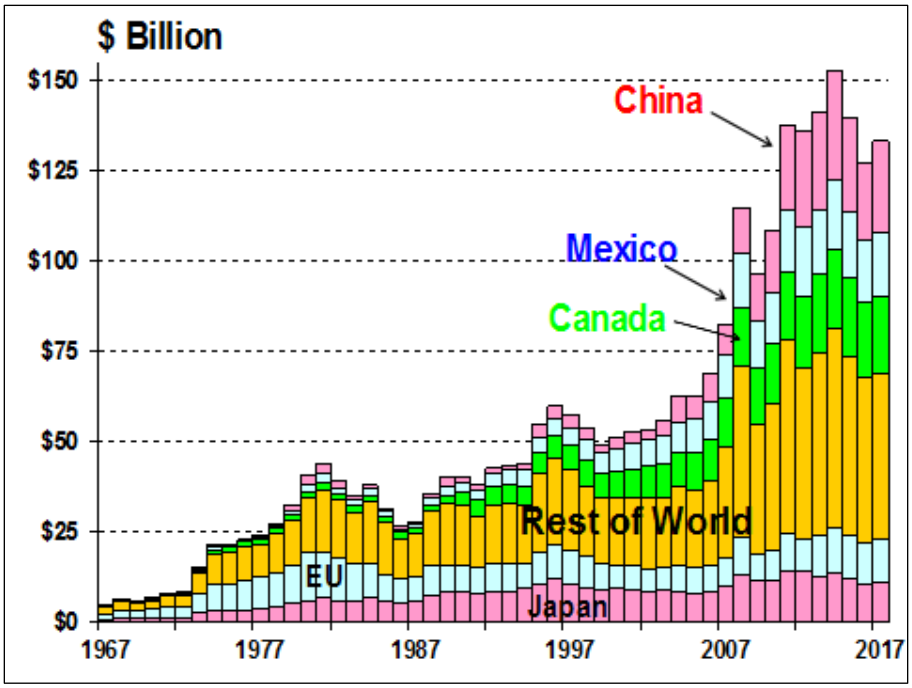
Source: See source notes from **Figure 19**.

Figure 19. U.S. Agricultural Trade Since 1970, Inflation-Adjusted (2009 = 100)



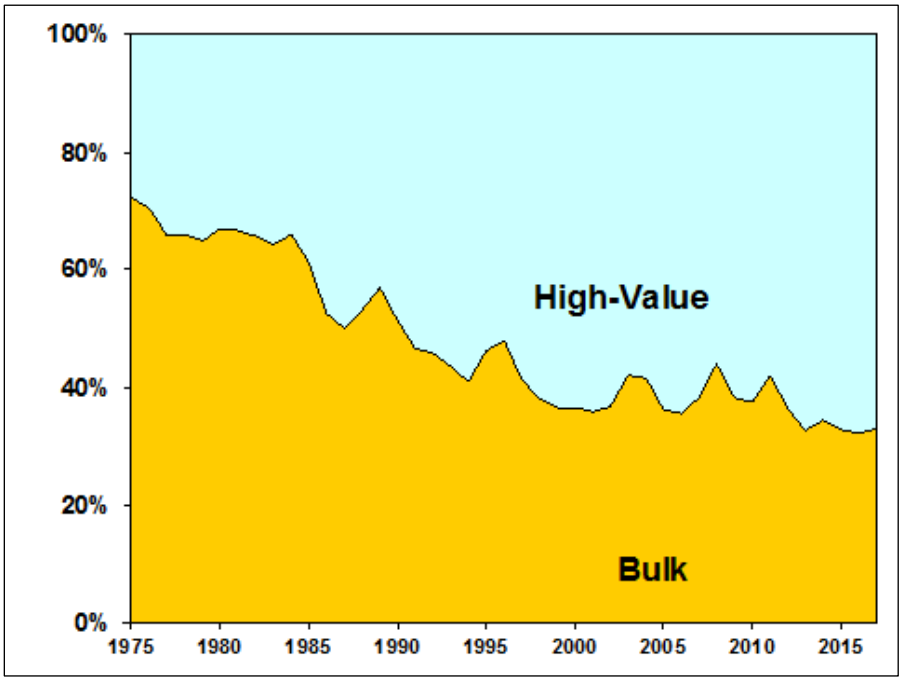
Source: ERS, *Outlook for U.S. Agricultural Trade*, AES-97, November 25, 2016; 2017 is a projection; inflation-adjusted data based on the chain-type GDP deflator, OMB, Historical Tables, Table 10.1.

Figure 20. U.S. Agricultural Exports Have Surged Higher Since 2006, Driven by China, NAFTA Partners (Canada and Mexico), and Developing Countries



Source: See source for **Figure 21**.

Figure 21. U.S. Agricultural Trade: Bulk vs. High-Value Shares



Source: ERS, *Outlook for U.S. Agricultural Trade*, AES-95, August 25, 2016; 2017 is a projection.

Farm Asset Values and Debt

The U.S. farm income and asset-value situation and outlook suggest some weakening in the financial position heading into 2017 for the agriculture sector as a whole, but with considerable uncertainty regarding the downward outlook for prices and market conditions for the sector.

Measuring Farm Wealth

A useful measure of the farm sector's financial wherewithal is farm sector net worth as measured by farm assets minus farm debt. A summary statistic that captures this relationship is the debt-to-asset ratio.

Farm Assets include both physical and financial farm assets. **Physical Assets** include land and buildings, farm equipment, on-farm inventories of crops and livestock, and other miscellaneous farm assets. **Financial Assets** include cash, bank accounts, and investments such as stocks and bonds.

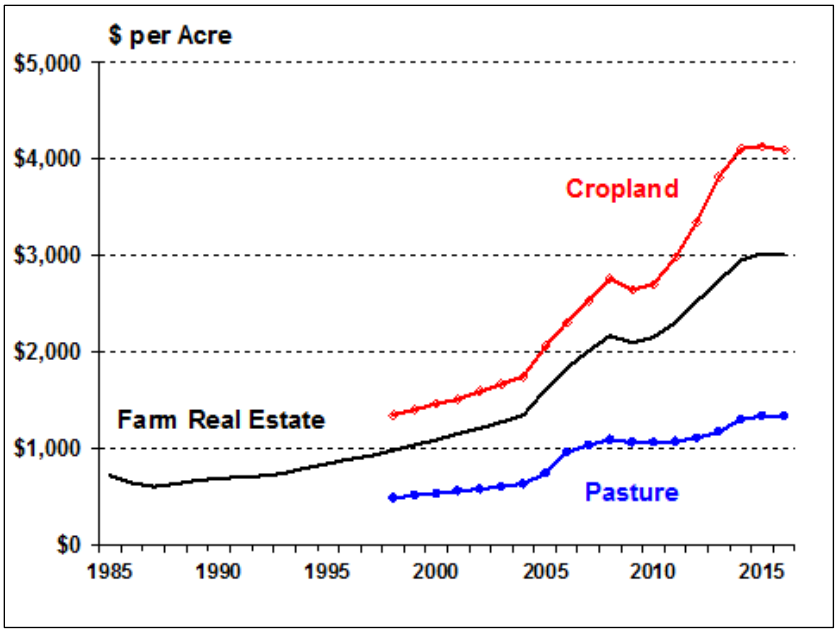
Farm Debt includes both business and consumer debt linked to real estate and non-real estate assets (e.g., financial assets, inventories of agricultural products, and the value of machinery and motor vehicles) of the farm sector.

The **Debt-to-Asset Ratio** compares the farm sector's outstanding debt related to farm operations relative to the value of the sector's aggregate assets. Change in the debt-to-asset ratio is a critical barometer of the farm sector's financial performance with lower values indicating greater financial resiliency. A smaller debt-to-asset ratio suggests that the sector is better able to withstand short-term increases in debt related to interest rate fluctuations or changes in the revenue stream related to lower output prices, higher input prices, or production shortfalls.

The largest single component in a typical farmer's investment portfolio is farmland. As a result, real estate values affect the financial well-being of agricultural producers and serve as the principal source of collateral for farm loans.

- Farm asset values—which reflect farm investors' and lenders' expectations about long-term profitability of farm sector investments—are projected down (-1%) in 2017 to $2,836 billion, reflecting a third consecutive year of decline and some erosion of the outlook for the general farm economy (**Table 3**).
- Weaker farm asset values are expected due to weakness in both real estate (-0.3%) and non-real estate (-5.1%) values (**Figure 22** and **Figure 23**). Real estate traditionally accounts for the bulk of total value of farm sector assets—nearly an 81% share.
- Land values are closely linked to commodity prices and are expected to continue to recede if the forecasts for lower commodity prices and the prospect for continued global stock recovery for grains and oilseeds are realized in 2017 and beyond (**Figure 22**).
- Meanwhile, total farm debt is forecast up to $395 billion in 2017 (+5.2%).
- Farm equity (or net worth, defined as asset value minus debt) is projected to be down a third consecutive year (-2.1%) at $2,441 billion in 2017.
- The farm debt-to-asset ratio is forecast higher at 13.9% in 2017, the highest mark since 2002 (**Figure 24**).

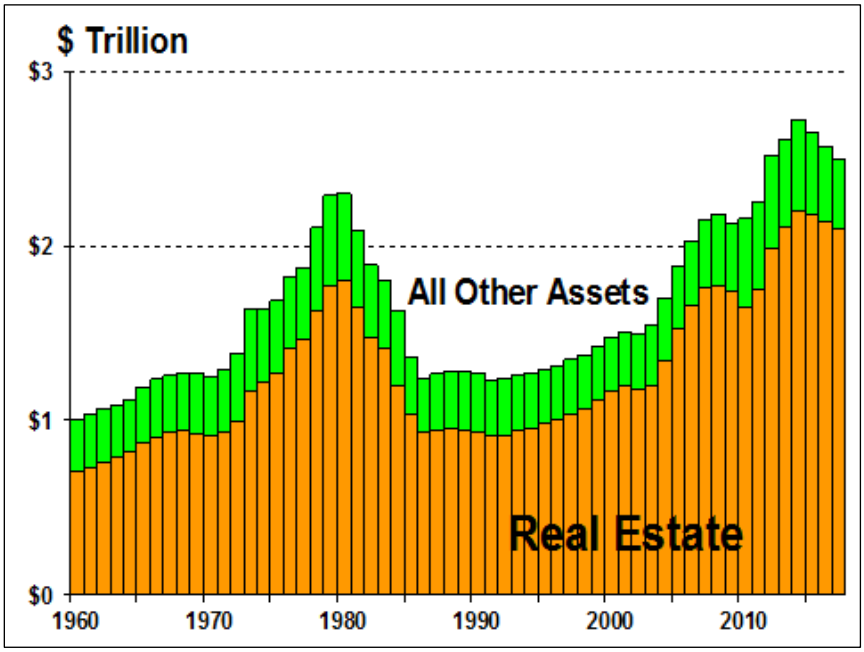
Figure 22. U.S. Average Farm Land Values, 1985 to 2016F



Source: NASS, *Land Values 2016 Summary,* August 2016.

Notes: Farm real estate value measures the value of all land and buildings on farms. Cropland and pasture values are only available since 1998. All values are nominal (i.e., not adjusted for inflation).

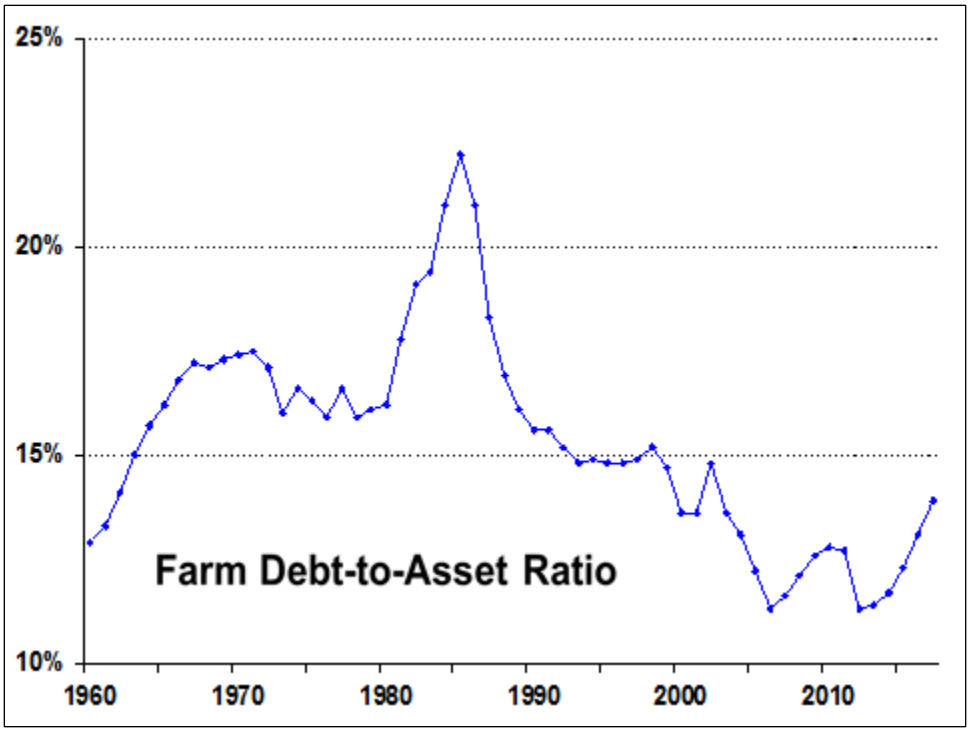
Figure 23. Real Estate Assets Comprise 81% of Total Farm Sector Assets in 2017, Inflation-Adjusted (2009 = 100)



Source: ERS, "2017 Farm Income Forecast," February 7, 2017. All values are adjusted for inflation using the chain-type GDP deflator, 2009 = 100, OMB, Historical Tables, Table 10.1. 2017 is forecast.

Notes: Non-real estate assets include financial assets, inventories of agricultural products, and the value of machinery and motor vehicles.

Figure 24. U.S. Farm Debt-to-Asset Ratio Since 1960



Source: ERS, "2017 Farm Income Forecast," February 7, 2017. 2017 is forecast.

Average Farm Household Income

Farm household wealth is derived from a variety of sources.[12] A farm can have both an on-farm and an off-farm component to its balance sheet of assets and debt. Thus, the well-being of farm operator households is not equivalent to the financial performance of the farm sector or of farm businesses because of other stakeholders in farming, such as landlords and contractors, and because farm operator households often have nonfarm investments, jobs, and other links to the nonfarm economy.

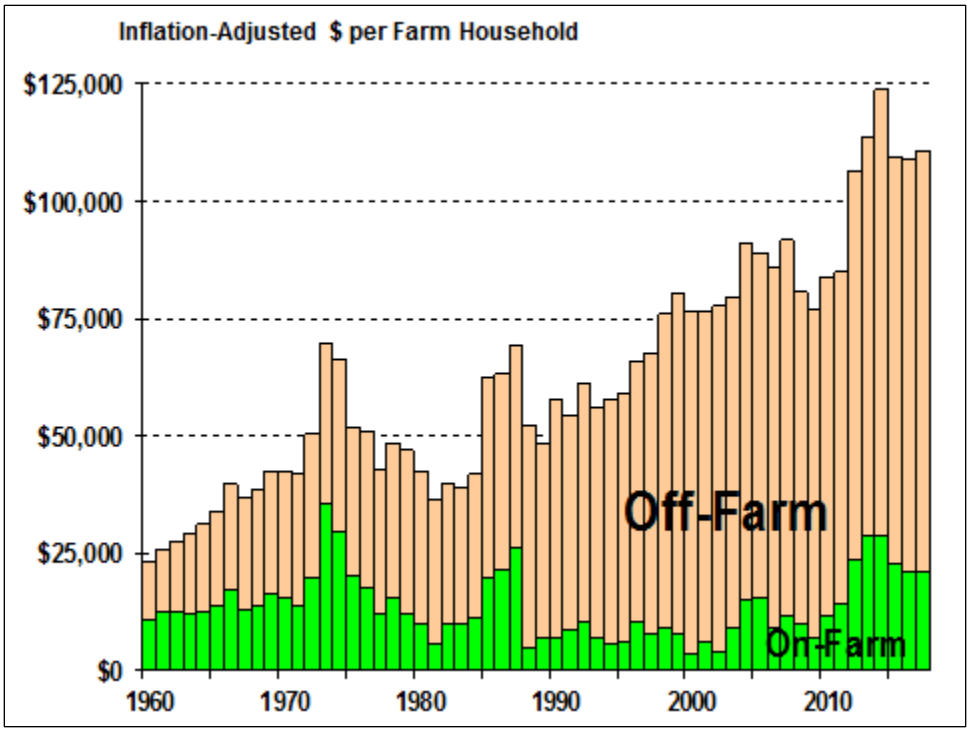
On-Farm vs. Off-Farm Income Shares

Average farm household income (sum of on- and off-farm income) is projected at $125,616 in 2017 (**Table 2**), up marginally from $121,421 in 2016 but well below the record of $134,164 in 2014.

About 19% ($23,827) of total household income is from the farm, and the remaining 81% ($101,789) is earned off the farm (including financial investments). The share of farm income derived from off-farm sources had increased steadily for decades but peaked at about 95% in 2000 (**Figure 25**).

[12] ERS, "Farm Household Well-Being," available at http://www.ers.usda.gov/topics/farm-economy/farm-household-well-being.aspx.

Figure 25. U.S. Average Farm Household Income, Adjusted for Inflation (2009 = 100), by Source, Since 1960



Source: ERS, "2017 Farm Income Forecast," February 7, 2017. All values are adjusted for inflation using the chain-type GDP deflator, 2009 = 100, OMB, Historical Tables, Table 10.1. 2017 is forecast.

U.S. Total vs. Farm Household Average Income

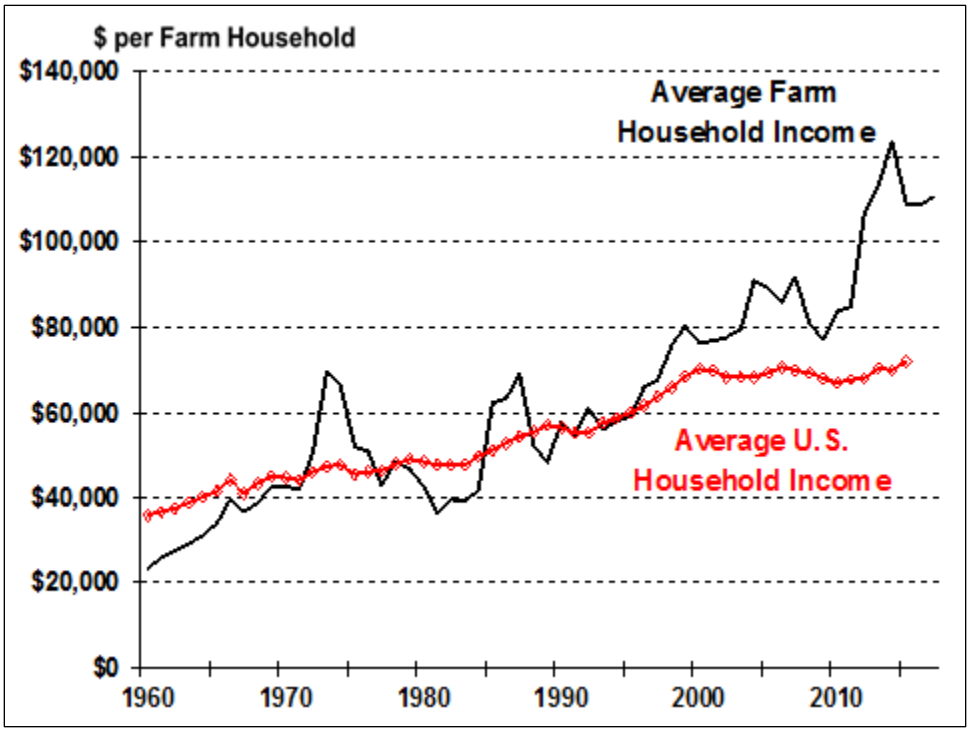
- Since the late 1990s, farm household incomes have surged ahead of average U.S. household incomes (**Figure 26** and **Figure 27**).
- In 2015 (the last year for which comparable data were available), the average farm household income of $119,880 was about 51% higher than the average U.S. household income of $79,263 (**Table 2**).

Note on Aggregate Farm Household Data

Aggregate data often hide or understate the tremendous diversity and regional variation that occurs across America's agricultural landscape. This report focuses entirely on national aggregate statistics. It is not intended to identify or discuss significant differences that may occur across different production activities and regions. For insights into the potential diversity of differences in American agriculture, readers are encouraged to visit the ERS websites on "Farm Structure and Organization" and "Farm Household Well-being," where more information on such differences is readily available in a highly accessible format.[13]

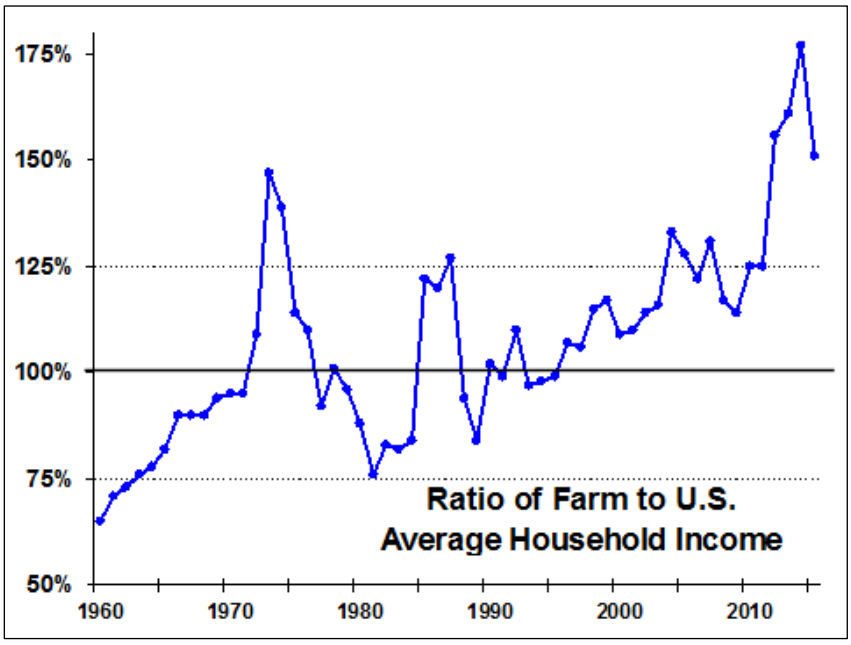
[13] ERS, "Farm Structure and Organization," http://www.ers.usda.gov/topics/farm-economy/farm-structure-and-organization.aspx, and "Farm Household Well-Being," http://www.ers.usda.gov/topics/farm-economy/farm-household-well-being.aspx.

Figure 26. U.S. Farm Household Incomes Have Surged Well Above Average Household Income Since 1996, Adjusted for Inflation (2009 = 100)



Source: ERS, "2017 Farm Income Forecast," February 7, 2017. All values are adjusted for inflation using the chain-type GDP deflator, 2009 = 100, OMB, Historical Tables, Table 10.1. 2017 is forecast.

Figure 27. U.S. Farm vs. Average Household Incomes Expressed as a Ratio



Source: ERS, "2017 Farm Income Forecast," February 7, 2017. 2015 is the last year with comparable data.

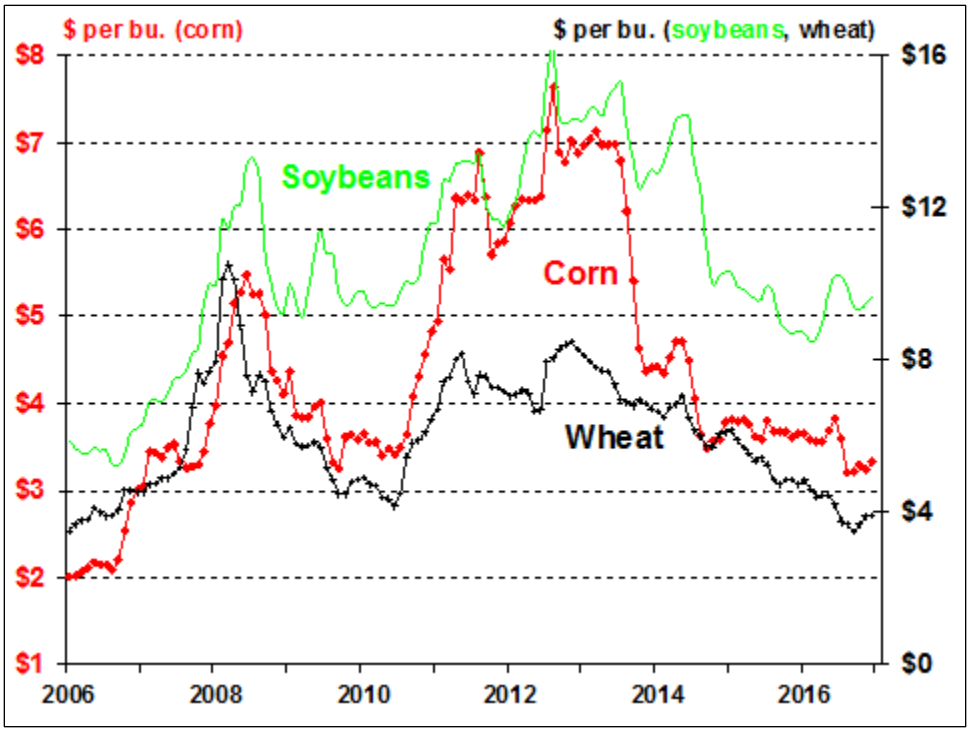
USDA Monthly Farm Prices Received Charts

The following set of eight charts (**Figure 28** to **Figure 35**) presents USDA data on monthly farm prices received for several major farm commodities—corn, soybeans, wheat, upland cotton, rice, milk, cattle, hogs, and chickens. The data is presented in both nominal and indexed formats to facilitate comparisons.

USDA Farm Income Data Tables

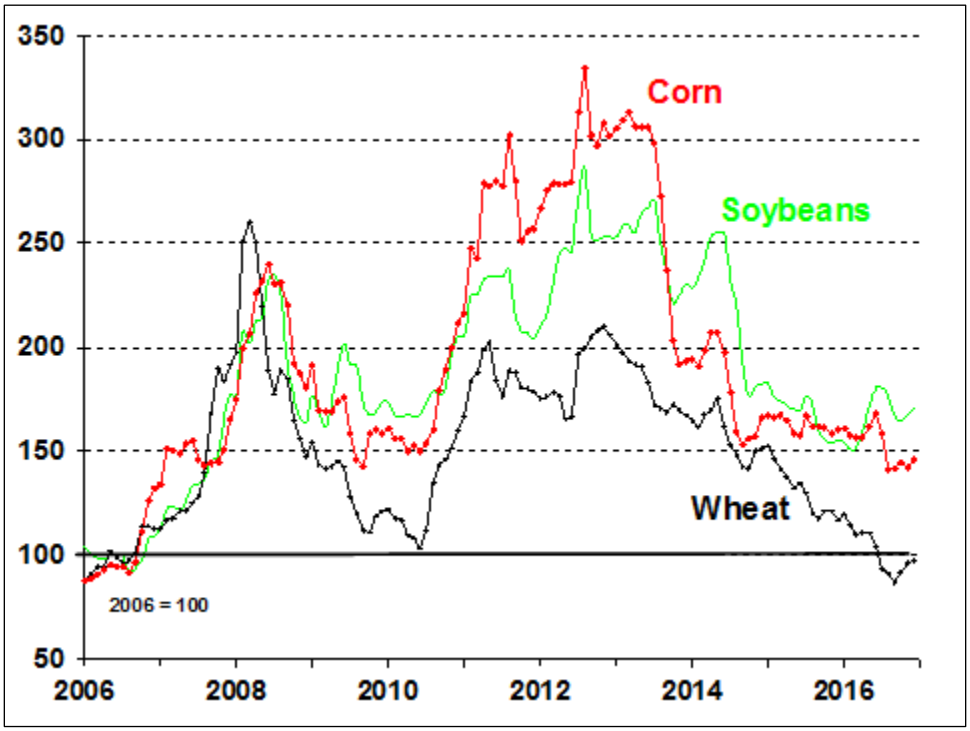
Three tables at the end of this report (**Table 1** to **Table 3**) present the aggregate farm income variables that summarize the U.S. agricultural situation. In addition, **Table 4** presents the annual average farm price received for several major commodities including the USDA forecast for the 2016/2017 marketing year.

Figure 28. Monthly Farm Prices for Corn, Soybeans, and Wheat, Nominal Dollars



Source: USDA, National Agricultural Statistics Service (NASS), *Agricultural Prices*, January 31, 2017.

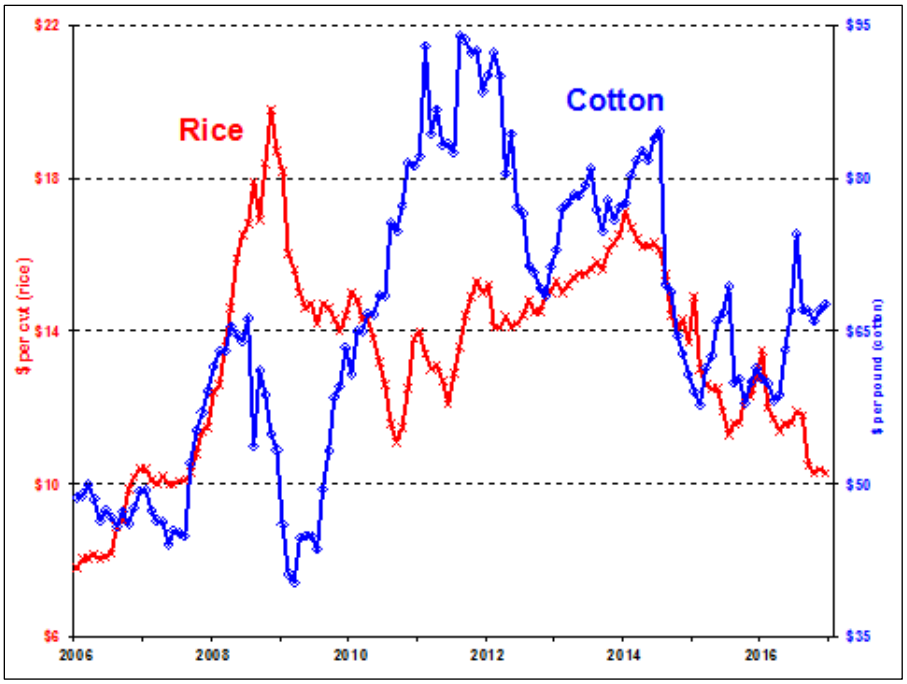
Figure 29. Monthly Farm Prices for Corn, Soybeans, and Wheat, Indexed Dollars



Source: NASS, *Agricultural Prices*, January 31, 2017; calculations by CRS.

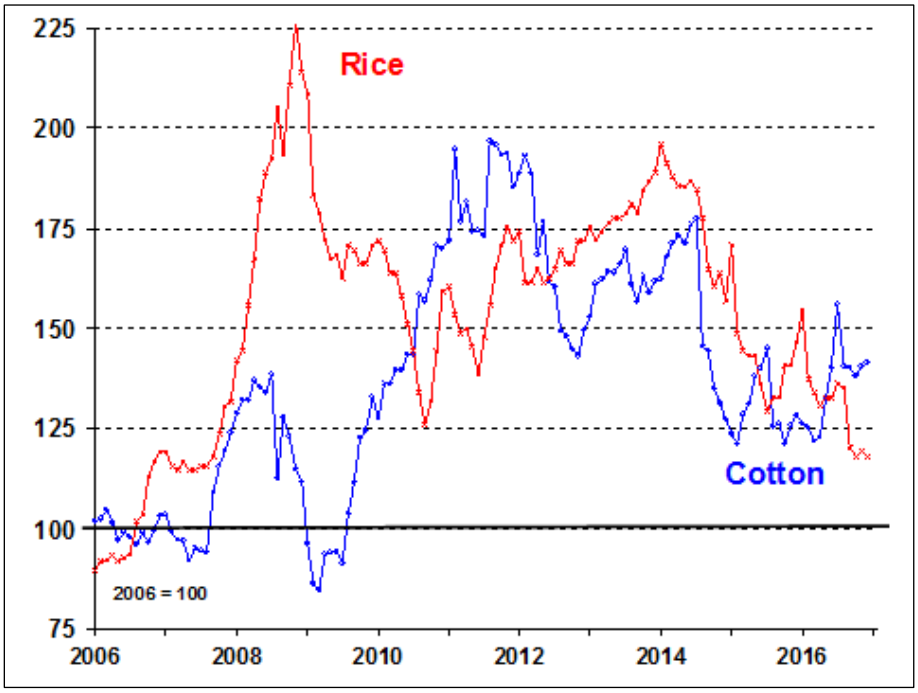
Notes: Prices are indexed to 2006 = 100 to permit relative comparisons.

Figure 30. Monthly Farm Prices for Cotton and Rice, Nominal Dollars



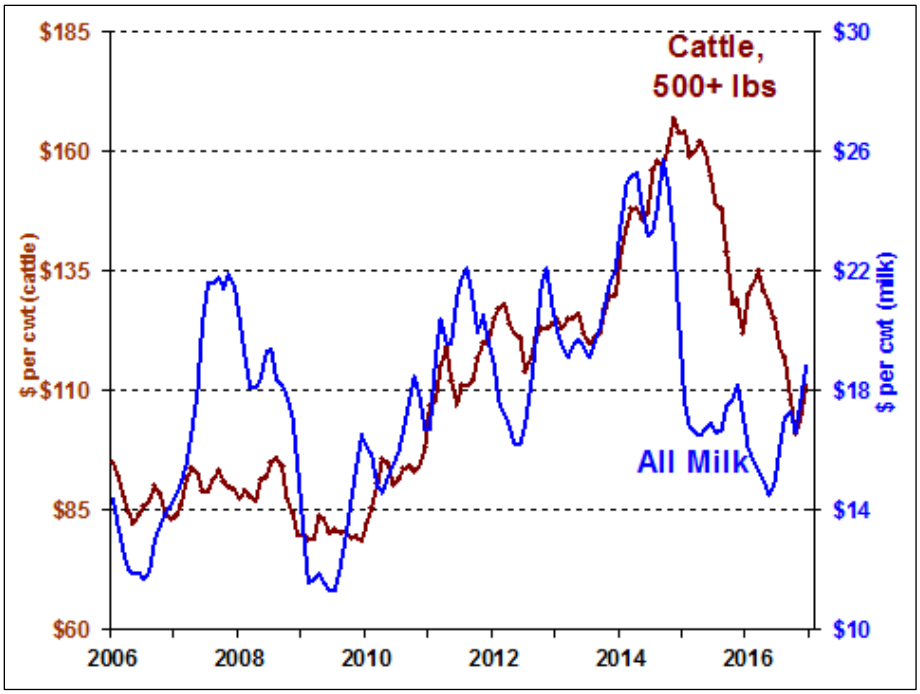
Source: USDA, NASS, *Agricultural Prices*, January 31, 2017.
Notes: cwt = hundredweight or units of 100 lbs.

Figure 31. Monthly Farm Prices for Cotton and Rice, Indexed Dollars



Source: USDA, NASS, *Agricultural Prices*, January 31, 2017; calculations by CRS.
Notes: Prices are indexed to 2006 = 100 to permit relative comparisons.

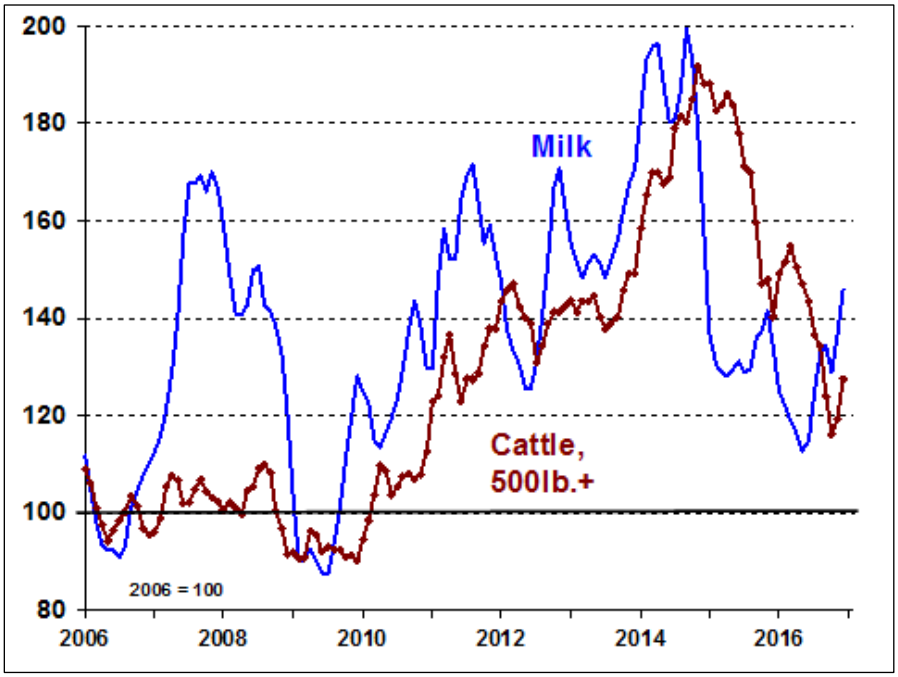
Figure 32. Monthly Farm Prices for All-Milk and Cattle (500+ lbs), Nominal Dollars



Source: USDA, NASS, *Agricultural Prices*, January 31, 2017.

Notes: cwt = hundredweight or units of 100 lbs; All-Milk averages prices across all classes of milk.

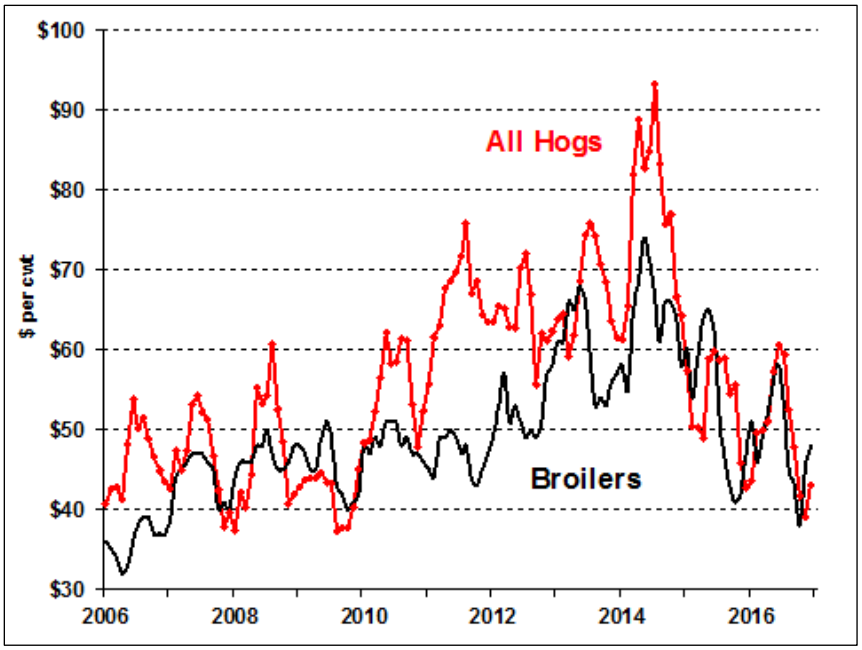
Figure 33. Monthly Farm Prices for All-Milk and Cattle (500+ lbs), Indexed Dollars



Source: USDA, NASS, *Agricultural Prices* January 31, 2017; calculations by CRS.

Notes: Prices are indexed to 2006 = 100 to permit relative comparisons.

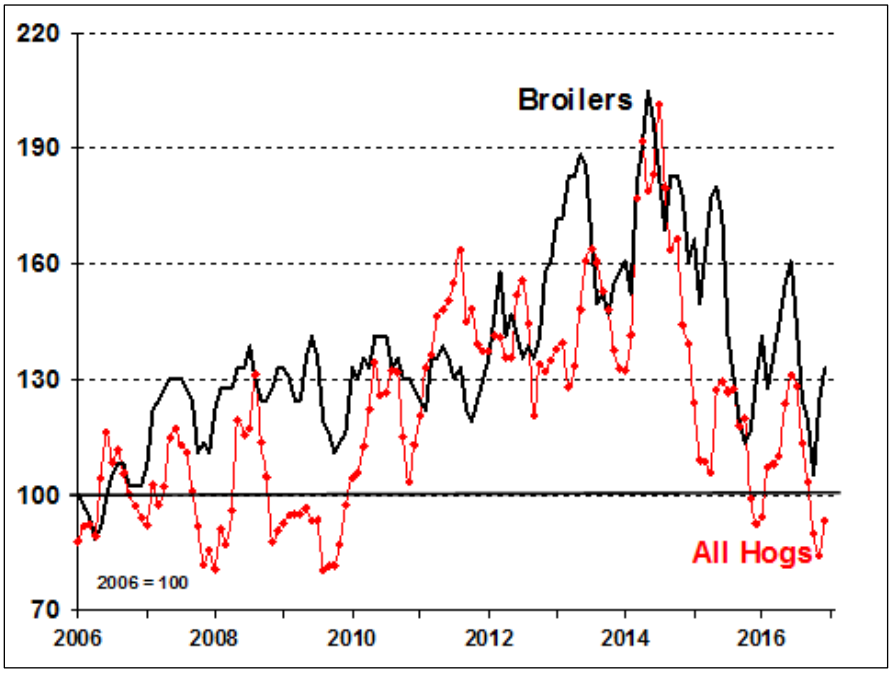
Figure 34. Monthly Farm Prices for All Hogs and Broilers, Nominal Dollars



Source: USDA, NASS, *Agricultural Prices*, January 31, 2017.

Notes: cwt = hundredweight or units of 100 lbs.

Figure 35. Monthly Farm Prices for All Hogs and Broilers, Indexed Dollars



Source: USDA, NASS, *Agricultural Prices*, January 31, 2017; calculations by CRS.

Notes: Prices are indexed to 2006 = 100 to permit relative comparisons.

Table 1. Annual U.S. Farm Income Since 2010

($ billions)

Item	2010	2011	2012	2013	2014	2015	2016	2017[a]	Change (%)
1. Cash receipts	**321.2**	**365.8**	**401.4**	**403.6**	**424.2**	**375.4**	**355.9**	**354.9**	**-0.3%**
Crops[b]	180.4	201.0	231.6	220.8	211.4	185.7	187.7	186.7	-0.5%
Livestock	140.8	164.8	169.8	182.7	212.8	189.8	168.1	168.2	0.0%
2. Government payments[c]	**12.4**	**10.4**	**10.6**	**11.0**	**9.8**	**10.8**	**13.0**	**12.5**	**-4.0%**
Fixed direct payments[d]	4.8	4.7	4.7	4.3	0.5	0.0	0.0	0.0	0.0%
CCP-PLC-ARC[e]	0.2	0.0	0.0	0.0	0.0	5.1	7.9	8.7	10.5%
Marketing loan benefits[f]	0.1	0.0	0.0	0.0	0.1	0.2	0.4	0.2	-63.6%
Conservation	3.2	3.7	3.7	3.7	3.6	3.6	3.7	3.3	-11.6%
Ad hoc and emergency[g]	3.1	1.3	1.1	2.1	5.0	1.8	0.7	0.5	-27.2%
All other[h]	1.0	0.7	1.1	0.9	0.7	0.0	0.3	0.0	-102.6%
3. Farm-related income[i]	**20.0**	**30.8**	**39.2**	**41.0**	**36.6**	**34.4**	**30.7**	**34.4**	**12.2%**
4. Gross cash income (1+2+3)	353.6	407.0	451.3	455.6	470.5	420.6	399.5	401.8	0.6%
5. Cash expenses[j]	257.3	283.6	316.0	320.0	338.9	315.9	307.6	308.3	0.2%
6. NET CASH INCOME	**96.3**	**123.2**	**135.3**	**135.6**	**131.5**	**104.7**	**91.9**	**93.5**	**1.8%**
7. Total gross revenues[k]	356.5	420.4	449.8	483.8	483.1	439.7	418.2	412.4	-1.4%
8. Total production expenses[l]	279.4	306.9	353.3	360.1	390.4	358.8	349.9	350.0	0.0%
9. NET FARM INCOME	**77.1**	**113.5**	**96.5**	**123.8**	**92.6**	**80.9**	**68.3**	**62.3**	**-8.7%**

Source: ERS, *Farm Income and Wealth Statistics*; U.S. and State Farm Income and Wealth Statistics, updated as of February 7, 2017.

a. Data for 2017 are USDA forecasts. Change represents year-to-year projected change between 2017 and 2016.
b. Includes Commodity Credit Corporation loans under the farm commodity support program.
c. Government payments reflect payments made directly to all recipients in the farm sector, including landlords. The non-operator 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.
d. Direct payments include production flexibility payments of the 1996 Farm Act through 2001, and fixed direct payments under the 2002 Farm Act since 2002.
e. CCP = counter-cyclical payments; PLC = Price Loss Coverage; and ARC = Agricultural Risk Coverage.
f. Includes loan deficiency payments (LDP); marketing loan gains (MLG); and commodity certificate exchange gains.
g. Includes payments made under the ACRE program which was eliminated by the 2014 farm bill (P.L. 113-79).
h. Cotton ginning cost-share, biomass crop assistance program (BCAP), milk income loss (MILC), tobacco transition, and other miscellaneous program payments.
i. Income from custom work, machine hire, agri-tourism, forest product sales, and other farm sources.
j. Excludes depreciation and perquisites to hired labor.
k. Gross cash income plus inventory adjustments, the value of home consumption, and the imputed rental value of operator dwellings.
l. Cash expenses plus depreciation and perquisites to hired labor.

Table 2. Average Annual Income per U.S. Household, Farm Versus All, 2009-2017F

($ per household)

	2010	2011	2012	2013	2014	2015	2016	2017F
Average U.S. Farm Income by Source								
On-farm income	$11,788	$14,625	$25,038	$30,639	$31,025	$24,740	$23,486	$23,827
Off-farm income	$72,671	$72,665	$86,486	$90,481	$103,140	$95,140	$97,935	$101,789
Total farm income	$84,459	$87,290	$111,524	$121,120	$134,165	$119,880	$121,421	$125,616
Average U.S. Household Income	$67,530	$69,677	$71,274	$75,195	$75,738	$79,263	NA	NA
Farm Household Income as Share of U.S. Avg. Household Income (%)	125%	125%	156%	161%	177%	151%	NA	NA

Source: ERS, *Farm Household Income and Characteristics,* principal farm operator household finances, data set updated as of February 7, 2017, at http://www.ers.usda.gov/data-products/farm-household-income-and-characteristics.aspx.

Note: NA = not available. Data for 2017 are USDA forecasts.

Table 3. Average Annual Farm Sector Debt-to-Asset Ratio, 2009-2017F

($ billions)

	2010	2011	2012	2013	2014	2015	2016	2017F
Farm Assets	2,170.8	2,318.7	2,638.2	2,776.1	2,949.2	2,910.0	2,868.0	2,836.2
Farm Debt	278.9	294.5	297.0	315.3	345.2	356.7	356.7	395.1
Farm Equity	1,891.9	2,024.2	2,341.2	2,460.8	2,604.0	2,553.2	2,492.3	2,441.1
Debt-to-Asset Ratio (%)	**12.8%**	**12.7%**	**11.3%**	**11.4%**	**11.7%**	**12.3%**	**13.1%**	**13.9%**

Source: ERS, *Farm Income and Wealth Statistics*; U.S. and State Farm Income and Wealth Statistics, updated as of February 7, 2017, available at http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics.aspx.

Note: Data for 2017 are USDA forecasts.

Table 4. U.S. Prices and Support Rates for Selected Farm Commodities Since 2011/12 Marketing Year

Commodity[a]	Unit	Year	2011/12	2012/13	2013/14	2014/15	2015/16F	2016/17F[b]	% Change from 2015/16[c]	2017/18P[b]	% Change from 2016/17[d]	2015 Loan Rate[e]	2015 Reference Price
Wheat	$/bu	Jun-May	7.24	7.77	6.87	5.99	4.89	3.80-3.90	-21.3%	—	—	2.94	5.50
Corn	$/bu	Sep-Aug	6.22	6.89	4.46	3.70	3.61	3.20-3.60	-5.8%	—	—	1.95	3.70
Sorghum	$/bu	Sep-Aug	5.99	6.33	4.28	4.03	3.31	2.50-2.90	-18.4%	—	—	1.95	3.95
Barley	$/bu	Jun-May	5.35	6.43	6.06	5.30	5.52	4.70-5.20	-10.3%	—	—	1.95	4.95
Oats	$/bu	Jun-May	3.49	3.89	3.75	3.21	2.12	1.95-2.15	-3.3%	—	—	1.39	2.40
Rice	$/cwt	Aug-Jul	14.50	15.10	16.30	13.40	12.10	10.10-10.90	-13.2%	—	—	6.50	14.00
Soybeans	$/bu	Sep-Aug	12.50	14.40	13.00	10.10	8.95	9.10-9.90	6.1%	—	—	5.00	8.40
Soybean Oil	¢/lb	Oct-Sep	51.90	47.13	38.23	31.60	29.86	34.00-37.00	18.9%	—	—	—	—
Soybean Meal	$/st	Oct-Sep	393.53	468.11	489.94	368.49	324.6	310-340	0.1%	—	—	—	—
Cotton, Upland	¢/lb	Aug-Jul	88.3	72.5	77.9	61.3	61.2	67-71	12.7%	—	—	45-52	none
Choice Steers	$/cwt	Jan-Dec	114.73	122.86	125.89	154.56	148.12	120.86	-18.4%	109-116	-6.9%	—	—
Barrows/Gilts	$/cwt	Jan-Dec	66.11	60.88	64.05	76.03	50.23	46.16	-8.1%	42-45	-5.8%	—	—
Broilers	¢/lb	Jan-Dec	79.9	86.6	99.7	104.90	90.5	84.3	-6.9%	82-87	0.2%	—	—
Eggs	¢/doz	Jan-Dec	115.3	117.4	124.7	142.3	181.8	85.7	-52.9%	93-98	11.4%	—	—
Milk	$/cwt	Jan-Dec	20.14	18.53	20.05	23.97	17.12	16.24	-5.1%	17.70-18.40	11.1%	—	—

Source: Various USDA agency sources as described in the notes below.

a. Season average farm price for grains and oilseeds are from USDA, National Agricultural Statistical Service, *Agricultural Prices*. Calendar year data are for the first year, for example, 2000/2001 = 2000; F = forecast and P = projection from *World Agricultural Supply and Demand Estimates (WASDE)* February 9, 2017;—= no value; and USDA's out-year 2017/2018 crop price forecasts will first appear in the May 2017 WASDE report. Soybean and livestock product prices are from USDA, Agricultural Marketing Service (AMS): soybean oil—Decatur, IL, cash price, simple average crude; soybean meal—Decatur, IL, cash price, simple average 48% protein; choice steers—Nebraska, direct 1100-1300 lbs; barrows/gilts—national base, live equivalent 51%-52% lean; broilers—wholesale, 12-city average; eggs—Grade A, New York, volume buyers; and milk—simple average of prices received by farmers for all milk.

b. Data for 2016/2017 are USDA forecasts; 2017/2018 data are USDA projections.

c. Percent change from 2015/2016, calculated using the difference from the midpoint of the range for 2016/2017 with the estimate for 2015/2016.

d. Percent change from 2016/2017, calculated using the difference from the midpoint of the range for 2017/2018 with the estimate for 2016/2017.

e. Loan rate and reference prices are for the 2016/2017 crop year. See CRS Report R43076, *The 2014 Farm Bill (P.L. 113-79): Summary and Side-by-Side*.

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