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U.S. Farm Income Outlook for 2015

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December 2, 2015

Congressional Research Service

7-5700

www.crs.gov

R40152

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 \$55.9 billion in 2015, down 38% from last year's level of \$90.4 billion. The 2015 forecast 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 also projected sharply lower in 2015, down 28% to \$93.0 billion.

The forecast for lower net farm income and net cash income is primarily a result of the outlook for lower crop and livestock receipts—down a combined 10% (\$43.7 billion). The fall in cash receipts reflects lower prices for most commodities compared with the period of 2011-2013, when prices for many major commodities experienced record or near-record highs.

Partially offsetting the decline in farm revenues is a mild decline of about 2% in farm cash expenses. In addition, government payments are projected up by 10% to \$10.8 billion. 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 new Price Loss Coverage (PLC) and Agricultural Risk Coverage (ARC) programs are expected to trigger payments of \$5 billion in 2015.

U.S. farm income experienced a golden period during 2011 through 2014, driven largely by strong commodity prices and agricultural exports. In particular, U.S. agricultural exports have nearly tripled in value since 2000 and are projected to account for 32% of earnings in 2015. However, agricultural exports are forecast lower in 2015, down 8% from 2014's record \$152.5 billion—due largely to a strengthening U.S. dollar coupled with a weakening economic outlook in several major foreign importing countries.

In addition to the outlook for lower farm income in 2015, farm wealth is projected to decline slightly (down about 3%) to \$2,862 billion from last year's record level. 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 slowed the previously rapid growth of farmland values. Because they comprise such a significant portion of the U.S. farm sector's asset base, 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 surged ahead of average U.S. household incomes since the late 1990s. In 2014 (the last year for which comparable data were available), the average farm household income of \$131,754 was about 74% higher than the average U.S. household income of \$75,738.

The outlook for lower net farm income, coupled with a downturn in farm wealth, suggests a mixed financial picture heading into 2016 for the agricultural sector as a whole, with substantial regional variation. Declining prices for most major program crops signal tougher times ahead. Falling prices are expected to trigger substantial payments under the new safety net programs of the 2014 farm bill; however, eventual 2016 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 November 24, 2015, farm income update and its December 2, 2015, 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 (USDA).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 value of production measure, 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.

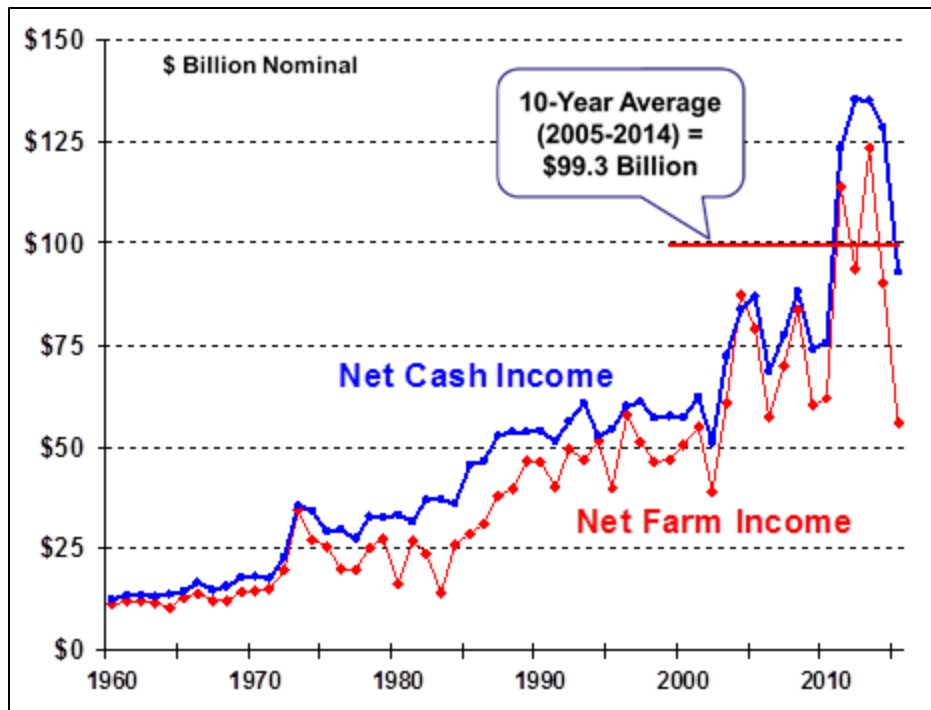
Key Concepts

- 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>.

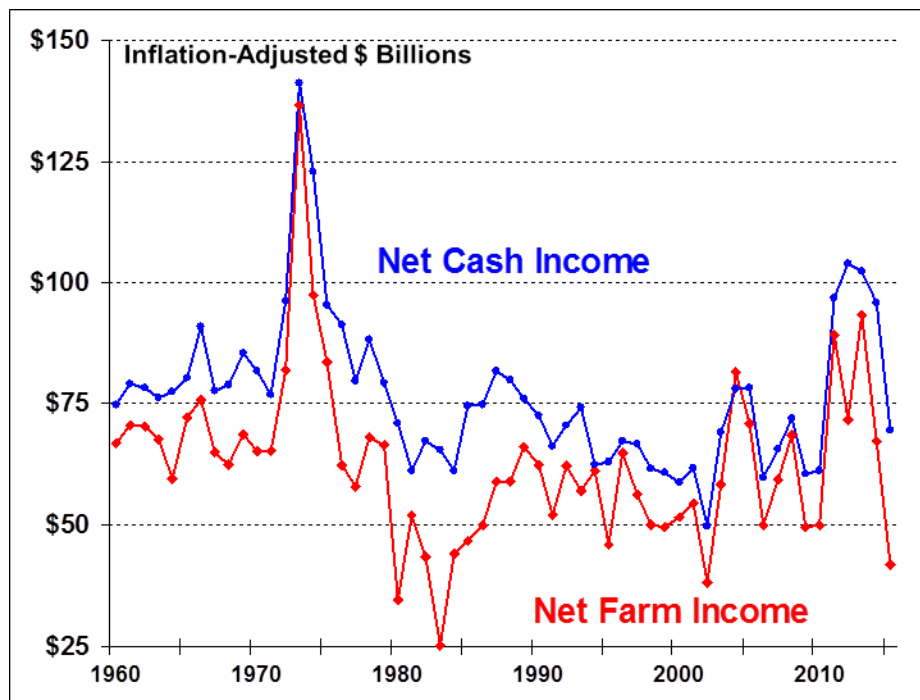
² For a more detailed discussion of the issues in this report, see "Farm Income and Costs: 2015 Farm Sector Income Forecast," ERS, USDA, at <http://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/2015-farm-sector-income-forecast.aspx>.

Figure 1. Annual U.S. Farm Sector Nominal Income, 1960 to 2015F



Source: USDA, ERS, “2015 Farm Income Forecast,” November 24, 2015. All values are nominal, that is, not adjusted for inflation. 2015 is forecast.

Figure 2. Annual U.S. Farm Sector Inflation-Adjusted Income, 1960 to 2015F



Source: USDA, ERS, “2015 Farm Income Forecast,” November 24, 2015. All values are adjusted for inflation using the Bureau of Labor Statistics (BLS), Consumer Price Index (CPI), where 2002-2003=100. 2015 is forecast.

USDA's 2015 Farm Income Forecast

According to USDA's Economic Research Service (ERS), both net farm income and net cash income are forecast sharply lower in 2015, primarily as a result of lower crop (-9%) and livestock (-12%) receipts, while production expenses are projected down slightly (-2%).³ U.S. agricultural exports are also forecast lower for the sector in 2015 as a stronger U.S. dollar is expected to combine with struggling international economies to slow growth in demand for U.S. agricultural products. Total farm asset values are forecast down slightly in 2015—the first decline since 2009, while the debt-to-asset ratio is expected to rise to 12.8%, the highest level since 2010.⁴

These forecasts are preliminary and will depend on both final crop harvests as well as market developments. The ongoing drought in California remains of particular concern since nearly half of U.S. fruit, vegetable, and tree nut production occurs there. Also, the new safety net programs of the 2014 farm bill will be in operation for the first time and are expected to make substantial payments as a result of relatively lower commodity prices in 2015.

Selected Highlights

- U.S. net farm income is forecast at \$55.9 billion in 2015, a drop of nearly \$35 billion (-38%) from 2014'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 1** and **Figure 2**).
- Measured in cash terms, net cash income in 2015 is also projected lower at \$93 billion, down \$36 billion (-28%) from the previous year.
- Farm prices for most feedstuffs—feed grains (corn, sorghum, barley, and oats), hay, and protein meals—as well as soybeans and wheat declined during 2014 and are projected to continue lower in 2015 as U.S. and global grain and oilseed stocks rebuild (**Table 4** and **Figure 21** to **Figure 24**).
- Cattle prices have remained near record highs in 2015, while dairy, poultry, and hog prices have turned sharply lower (**Figure 25** to **Figure 30**). Prices for all four protein sources are projected lower in 2016 (**Table 4**).
- Government payments in 2015 are projected up 10% to \$10.8 billion, the highest level since 2010 (**Figure 8**). Lower commodity prices are expected to trigger payments of \$5 billion under the new price-contingent PLC and ARC programs, offsetting the elimination of the \$5-billion-per-year direct payment program by the 2014 farm bill (Agricultural Act of 2014; P.L. 113-79).⁵
- Total production expenses, at \$382.6 billion, are projected down about 2% in 2015, held in check by lower costs for feed (-9%), fertilizer (-8%), fuel (-29%), and pesticides (-5%).
- Replacement animal costs are projected to match 2014's record high in 2015 (\$31 billion), plus higher costs for contract labor (+10%) are associated with the crop harvests of 2015.

³ The material presented in the report is drawn primarily from the 2015 Farm Sector Income Forecast of ERS, USDA, at <http://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/2015-farm-sector-income-forecast.aspx>.

⁴ See discussion later in the report in the section "Farm Asset Values and Debt."

⁵ CRS Report R43448, *Farm Commodity Provisions in the 2014 Farm Bill (P.L. 113-79)*, and CRS Report R43494, *Crop Insurance Provisions in the 2014 Farm Bill (P.L. 113-79)*.

- Global demand for U.S. agricultural product exports is expected to turn downward (-8%) in 2015 after setting a record of \$152.5 billion in 2014.
- Farm asset values are expected to decline in 2015 at \$2,862 billion (down 3%), driven by weaker land values. Increases in farm debt (\$367 billion, up 6%) are expected to result in a rise in the debt-to-asset ratio to 12.8%, up from 11.7% in 2014 and highest since 2010.

Wrap Up of U.S. Agriculture for 2015

Normal weather conditions prevailed in most major growing regions around the world in 2015. As a result USDA projects that 2015 is likely to see continued abundant global grain and oilseed stocks that began with the large harvests of 2013. Rebuilding stocks will further moderate crop prices in U.S. and international markets (**Figure 21** through **Figure 24**). The changing conditions for the livestock sector are evidenced by tracking the evolution of the ratios of livestock output prices to feed costs (**Figure 29** and **Figure 30**), which rose steadily through 2013 before turning downward in late 2014. The ratios are projected to continue to decline through 2015 with the exception of the milk-to-feed margin which has recovered slightly in 2015.⁶ The U.S. livestock sectors—cattle, dairy, broilers, and hogs—are all projected to experience declines in market prices heading into 2016. This suggests lower profitability and perhaps financial difficulties for marginal producers.

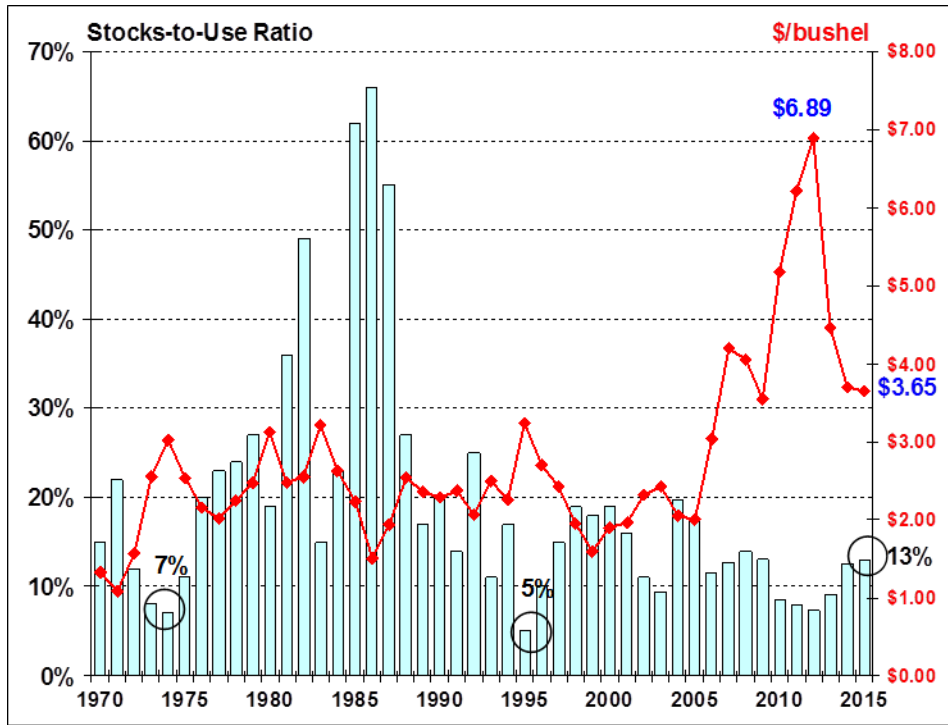
A key uncertainty for the hog sector in 2014 was the rapid outbreak and spread of the porcine epidemic diarrhea virus (PEDv), which caused market worries related to U.S. pork production. The incidence of PEDv since last winter (2014/2015) has declined, and initial market fears have subsided. However, a new disease-related uncertainty emerged during spring 2015, when the U.S. poultry industry experienced a severe outbreak of highly-pathogenic avian influenza (HPAI).⁷ With the start of summer, the finding of new cases slowed. The last reported new case was in Iowa on June 17, 2015. More than 48 million chickens, turkeys, and other poultry have been euthanized to stem the spread of the disease. Turkey and egg-laying hen farms in Minnesota and Iowa have been hardest hit. Commercial broiler farms have not been affected to date. USDA forecasts 2015 egg production to decline over 5% in 2015, and egg price are forecast to be 32% higher than in 2014. In 2016, egg prices are projected to decline 11% as supply concerns subside.

The two largest U.S. commercial crops—in terms of both value and quantity—are corn and soybeans. Both corn and soybeans experienced record harvests in 2014 and are expected to have bountiful harvests again in 2015 (another record for soybeans and 3rd largest ever for corn), thus helping to maintain stocks and pressure prices lower (**Figure 3** and **Figure 4**). These two crops provide important inputs for 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.

⁶ Feed costs are generally the largest cost component in livestock operations, ranging from 30% to 80% of variable costs. A historical comparison of livestock output prices to feed costs provides an indicator of sector profitability—rising output prices relative to feed costs suggest improving profitability.

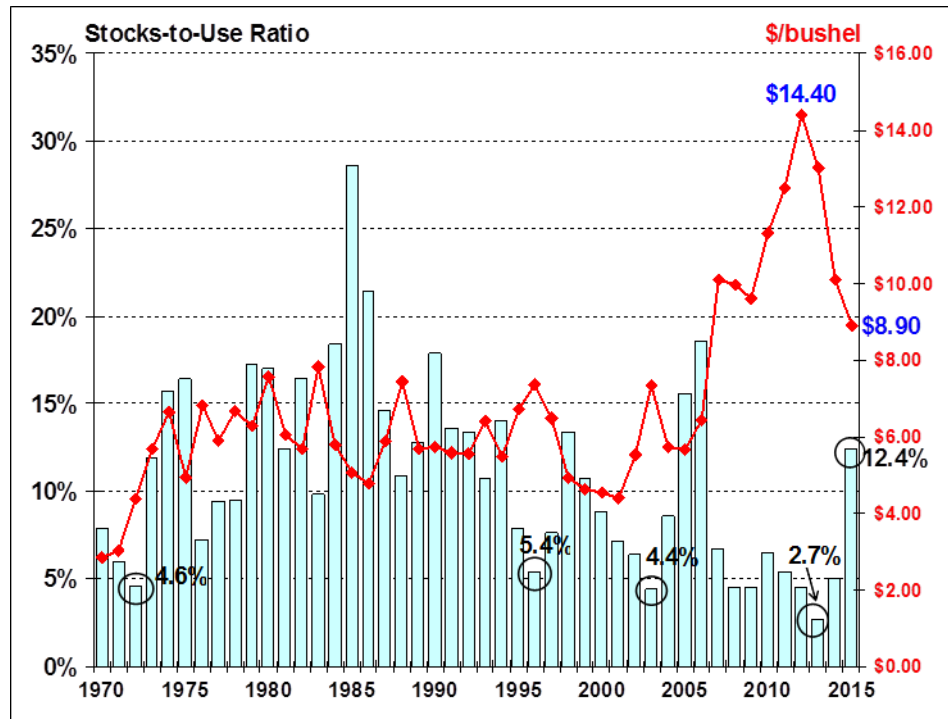
⁷ CRS Report R44114, *Update on the Highly-Pathogenic Avian Influenza Outbreak of 2014-2015*, by Joel L. Greene.

Figure 3. U.S. Corn Stocks-to-Use Share to Rise, Prices to Fall in 2015



Source: See Source and Notes for Figure 4.

Figure 4. U.S. Soybean Stocks-to-Use Share to Grow, Prices to Fall in 2015



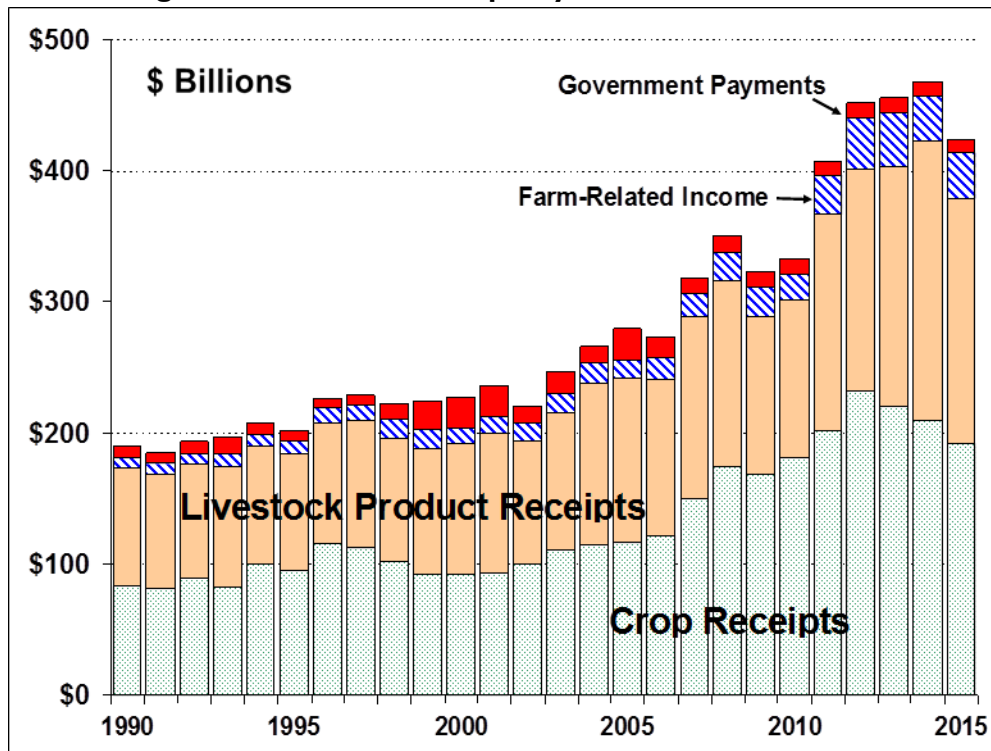
Source: World Agricultural Outlook Board, USDA, World Agricultural Supply and Demand Estimates (WASDE), November 10, 2015.

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

Cash Receipt Highlights

- Total farm sector gross cash receipts for 2015 are projected down 9.3% from the previous year's record of \$467.1 billion (**Figure 5**), driven by lower cash receipts for both crop (-9%) and livestock products (-12%).
- Farm sector revenue sources and shares include crop revenues (45% of sector revenues); livestock receipts (45%); government payments (2%); and other farm-related income, including crop insurance indemnities, machine hire, and custom work (8%).

Figure 5. Farm Cash Receipts by Source, 1990 to 2015F



Source: USDA, ERS, "2015 Farm Income Forecast," November 24, 2015. All values are nominal, that is, not adjusted for inflation. 2015 is forecast.

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

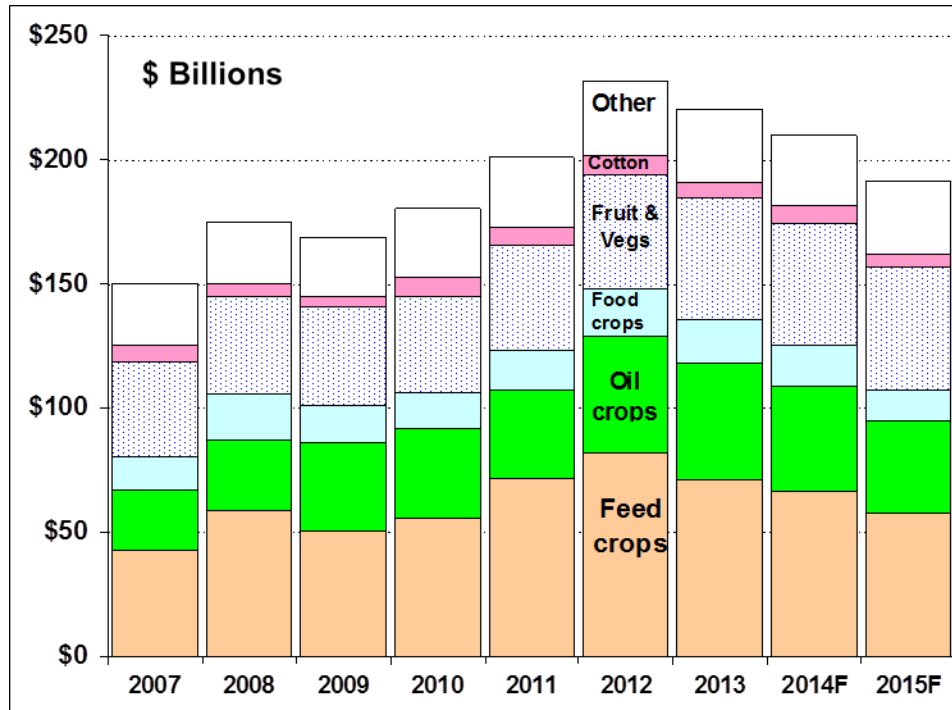
Total crop sales peaked in 2012 at a record \$231.6 billion when a nationwide drought pushed commodity prices to record or near-record levels. In 2015, crop sales are projected down 9% from 2014, at \$191.5 billion (**Figure 5**). The crop sector includes 2015 projections (and percentage changes from 2014) for:

- feed crops—corn, barley, oats, sorghum, and hay—of \$57.5 billion (-13%);
- oil crops—soybeans, peanuts, and other minor oilseeds—of \$37.5 billion (-12%);
- food grains—wheat and rice—of \$12.1 billion (-25%);
- fruits and nuts, vegetables, and melons of \$49.5 billion (+1%);

- cotton of \$5.1 billion (-30%); and
- all other crops—including tobacco, sugar, green house, and nursery crops—of a record \$29.8 billion (+6%).

The length and severity of the California drought (which remains ongoing in mid-2015) 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.⁸

Figure 6. Crop Cash Receipts by Source, 2007 to 2015F



Source: USDA, ERS, “2015 Farm Income Forecast,” November 24, 2015. All values are in nominal terms, that is, not adjusted for inflation. 2015 is forecast.

Livestock Receipts

The livestock sector, broadly defined, includes cattle, hogs, sheep, poultry and eggs, dairy, and other minor activities. Cash receipts for the livestock sector have grown steadily since the severe downturn of 2009. However, they are projected to turn downward again in 2015 to \$186.8 billion, down about 12% from the previous year’s record levels for all categories—driven largely by projected declines in dairy (-28%) and hogs (-25%). Poultry and eggs, and cattle and calves receipts are also projected lower in 2015.

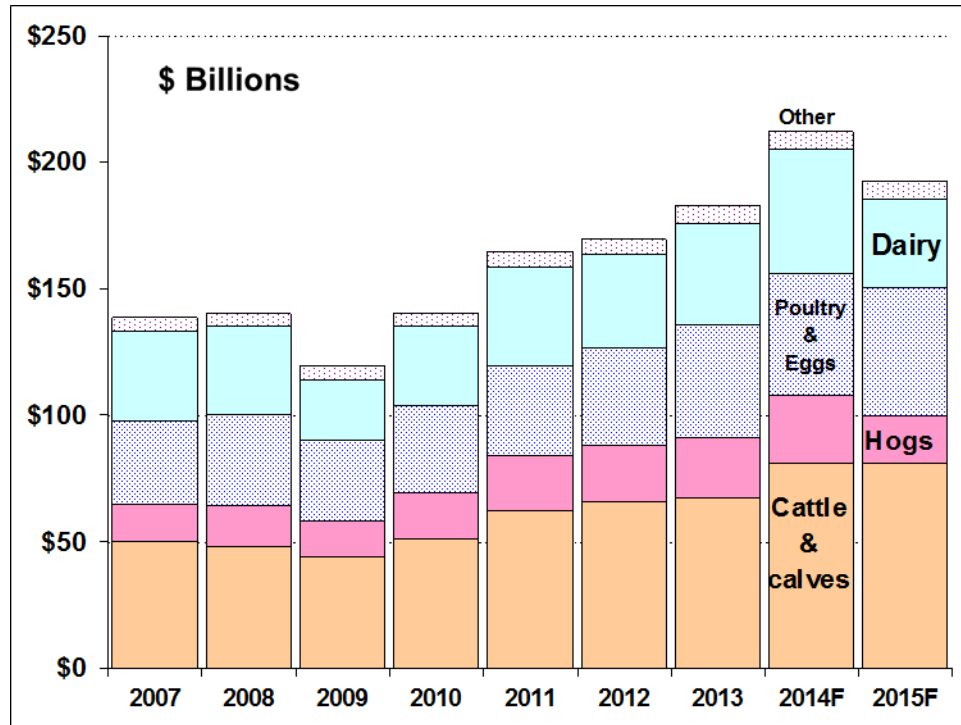
Highlights for individual activities include 2015 projections for:

- cattle and calf sales of over \$77.3 billion, down 5% from 2014’s record;
- hog sales of \$19.8 billion, also down (-25%) from 2014’s record;

⁸ CRS Report R44093, *California Agricultural Production and Irrigated Water Use*, by Renée Johnson and Betsy A. Cody.

- poultry and egg sales of \$47.1 billion, down 2.4% from the previous year's record (**Table 4**); and
- dairy sales, valued at \$35.5 billion, down 28% from the previous year's record on the outlook for sharply lower milk prices (-29%) in 2015.

Figure 7. U.S. Livestock Product Cash Receipts by Source, 2007 to 2015F



Source: USDA, ERS, "2015 Farm Income Forecast," November 24, 2015. All values are in nominal terms, that is, not adjusted for inflation. 2015 is forecast.

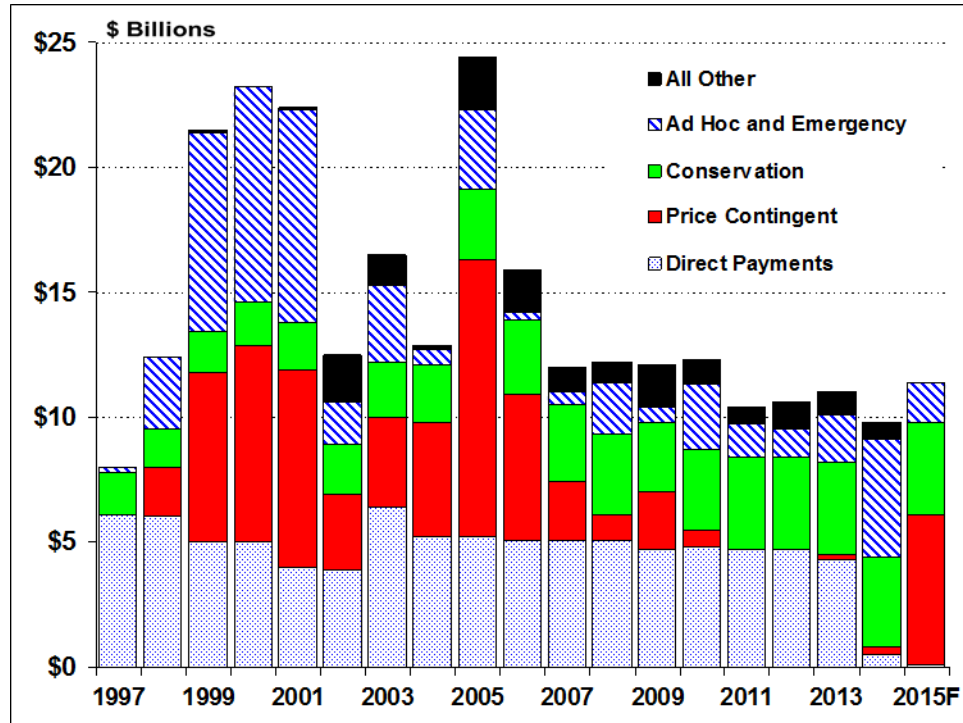
Government Payments

Government payments in 2015 are projected up by 10.4% from 2014 as plunging farm prices are expected to trigger payments under new price-contingent programs—the Price Loss Coverage (PLC) and the Agricultural Risk Coverage (ARC) programs. 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 \$5 billion in 2015 (**Figure 8**).

- Government payments of \$10.8 billion are expected to represent a relatively small share (3%) of projected gross cash income of \$423.6 billion (**Figure 5**).
- In contrast, government payments are expected to represent 19% of net farm income of \$55.9 billion (**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.⁹
- Cotton producers are eligible to receive transition payments (new under the 2014 farm bill) for crop years 2014 and 2015 as they transition into coverage authorized by the new Stacked Income Protection Plan (STAX).¹⁰ Fixed by legislation, these cotton transition payments are forecast at \$460 million in 2014 and \$68 million in 2015.

Figure 8. U.S. Government Farm Support, Direct Outlays, 1997 to 2015F



Source: USDA, ERS, “2015 Farm Income Forecast,” November 24, 2015. All values are in nominal terms, that is, not adjusted for inflation. 2015 is forecast.

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, counter-cyclical payments, and ACRE 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 peanut quota buyout payments, milk income loss payments, tobacco transition payments, and other miscellaneous expenditures.

- Payments under the price-contingent marketing loan benefit are forecast at \$95 million in 2014 and \$369 million in 2015, as program crop prices are expected to remain above most program loan rates—the exception being rice and peanuts (Table 4).

⁹ For details see CRS Report R43076, *The 2014 Farm Bill (P.L. 113-79): Summary and Side-by-Side*.

¹⁰ Ibid.

- Payments under the Average Crop Revenue (ACRE) program for 2014 (that will go out in 2015) are forecast at \$29 million.
- Although still available in 2014 on a transitional basis, no payments are expected to be made in 2014 and only \$2 million in 2015 under the Milk Income Loss Contract payments—which compensate dairy producers when domestic milk prices fall below a specified benchmark price subject to feed-cost adjustments—due to high milk prices and relatively low feed costs.
- 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 \$3.7 billion are forecast for 2015, up slightly (3%) from 2014.
- Supplemental and ad-hoc disaster assistance payments are forecast at \$1.7 billion in 2015, a 65% decline from \$4.7 billion in 2014. The continuing drought in California and the Southern Plains is expected to maintain some payouts, especially from the Livestock Forage Program (LFP).¹¹ In addition, some indemnity payments under an Animal and Plant Health Inspection Service (APHIS) program for losses from HPAI on U.S. poultry operations are expected.

Production Expenses

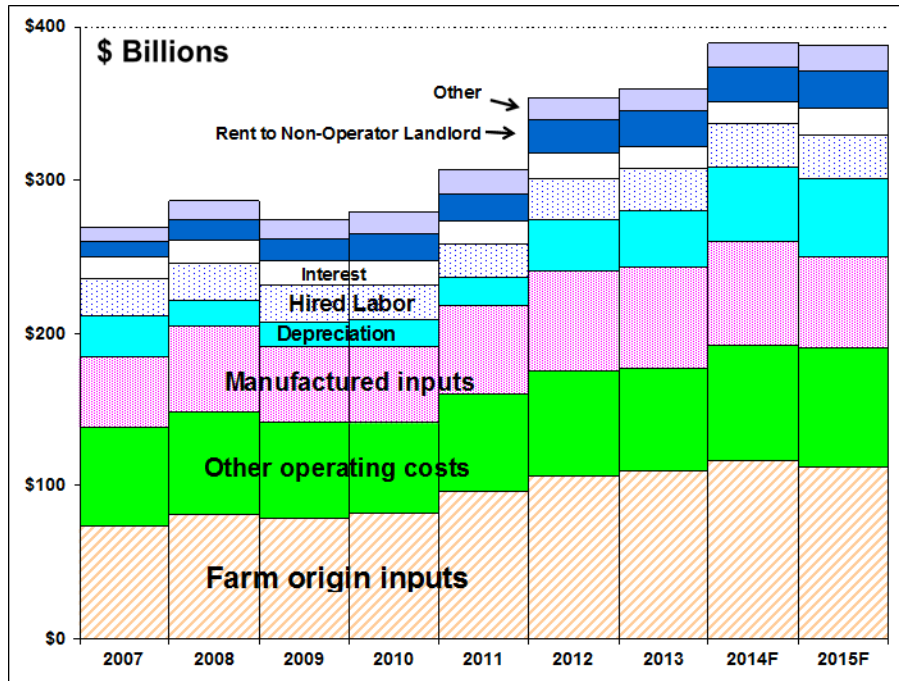
Production expenses for 2015 for the U.S. agricultural sector are projected down slightly (-2%) at \$382.6 billion (**Figure 9**). Production expenses will affect crop and livestock farms differently.

- The principal expenses for livestock farms—that is, feed and feeder animals and poultry—are expected to move in opposite directions, as feed costs decline by about 9% while replacement animal costs hold steady. In the net, the principal livestock expenses are forecast down 6% from 2014 at \$89.1 billion.
- The principal crop expenses—that is, seed, fertilizer, pesticides, and crop insurance premiums—are forecast down by about 3% to \$99.3 billion. Miscellaneous operating expenses, which are projected unchanged at \$36.5 billion, include crop insurance premiums and thus directly impact crop production.

Cash rental rates—which were set the preceding fall of 2014 or in early spring of 2015—still reflect the high prices and large net returns of the preceding several years and have yet to decline substantially (**Figure 10**). USDA projects that total net rent to non-operator landlords will be down slightly at \$16.8 billion in 2015. However, continued high per-acre cash rental rates into 2016 may cause a pinch in cash flow for some farm operations, particularly if livestock product prices for hogs, poultry, eggs, and dairy continue to decline into 2016.

¹¹ See CRS Report RS21212, *Agricultural Disaster Assistance*, for more information on available farm disaster programs.

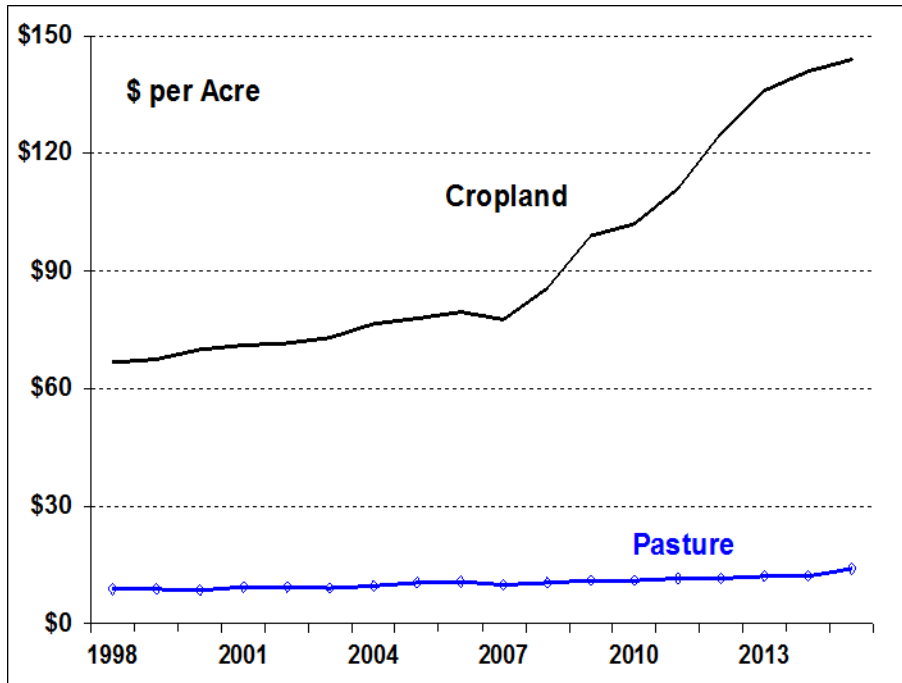
Figure 9. Farm Production Expenses by Source, 2007 to 2015F



Source: USDA, ERS, “2015 Farm Income Forecast,” November 24, 2015. All values are in nominal terms, that is, not adjusted for inflation. 2015 is forecast.

Notes: “Other operating costs” includes crop insurance premiums, contract labor, machine hire and custom work, marketing, storage, transportation, and repair and maintenance. “Other” includes property taxes, noncash labor perquisites, and miscellaneous cost items.

Figure 10. U.S. Average Farm Land Cash Rental Rates Since 1999



Source: USDA, NASS, “Quick Stats,” downloaded August 25, 2014.

Agricultural Trade Outlook

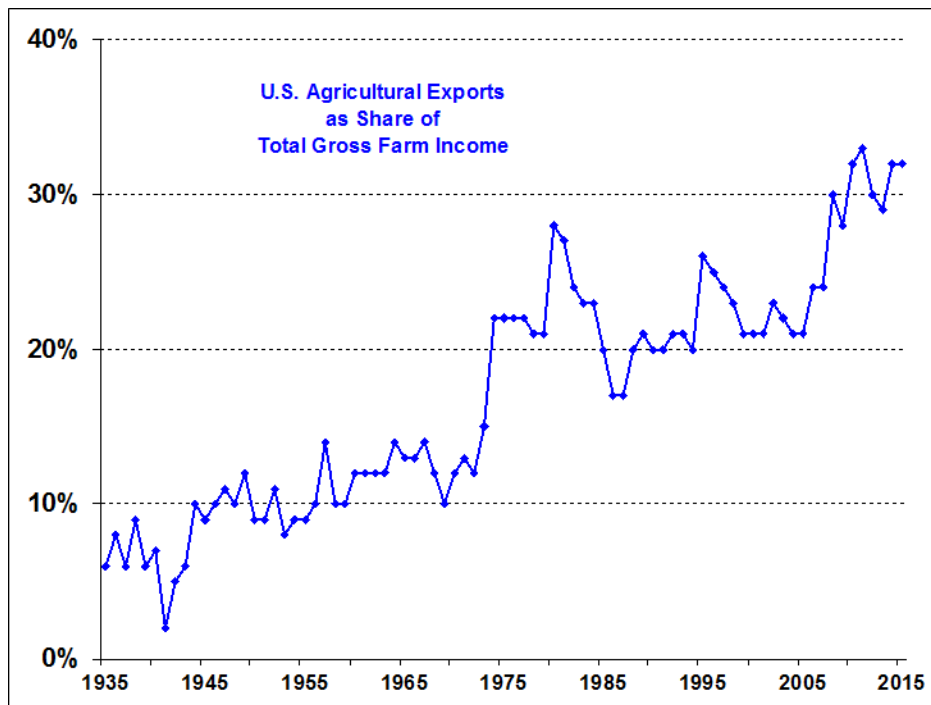
A major catalyst behind the strong farm income of recent years has been the strength of U.S. agricultural exports, which have shown remarkable growth since 2000—nearly tripling in absolute value and accounting for over 30% of gross cash farm income.

Agricultural exports are projected lower in 2015, down 8% from 2014's record \$152.3 billion (**Figure 12**). In contrast, U.S. agricultural imports are projected record large in 2015 at \$114.3 billion, up 4% year to year. As a result, the U.S. agricultural trade surplus is projected to be down sharply (-40%) in 2015 at \$25.7 billion. In its preliminary projections for 2016, USDA expects this same pattern to continue in 2016. USDA projects that U.S. agricultural exports will decline another 6% to \$131.5 billion while imports will rise by 7% to \$122 billion, thus reducing the agricultural trade surplus to \$9.5 billion—the lowest level since 2006.

- As a share of total gross farm receipts, U.S. agricultural exports are projected to account for 32% of earnings in 2015, the same as in 2014 (**Figure 11**).
- In 2015, the outlook is for an 8% fallback in agricultural exports to \$139.7 billion, still the third-highest total on record.
- 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 47% of total U.S. agricultural exports in FY2015 (**Figure 13**).
- 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.¹²
- 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 FY2015. These two markets have shown relatively limited growth when compared with the rest of the world.
- The “Rest of World” component of U.S. trade—i.e., Middle East, Africa, and Southeast Asia—has shown dramatic import growth of U.S. agricultural products in recent years. ROW is expected to account for 36% of U.S. agricultural exports in 2015.
- Over the past four decades, steady growth in high-valued export products (**Figure 14**) has helped to push U.S. agricultural export value to ever higher totals. 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 record low 33% share of total U.S. agricultural exports in 2015, at \$46 billion, and are projected to decline to 30% (\$38.9 billion) in 2016.
- In contrast, high-valued export products—including horticultural, livestock, poultry, and dairy—are forecast at \$93.7 billion in 2015.

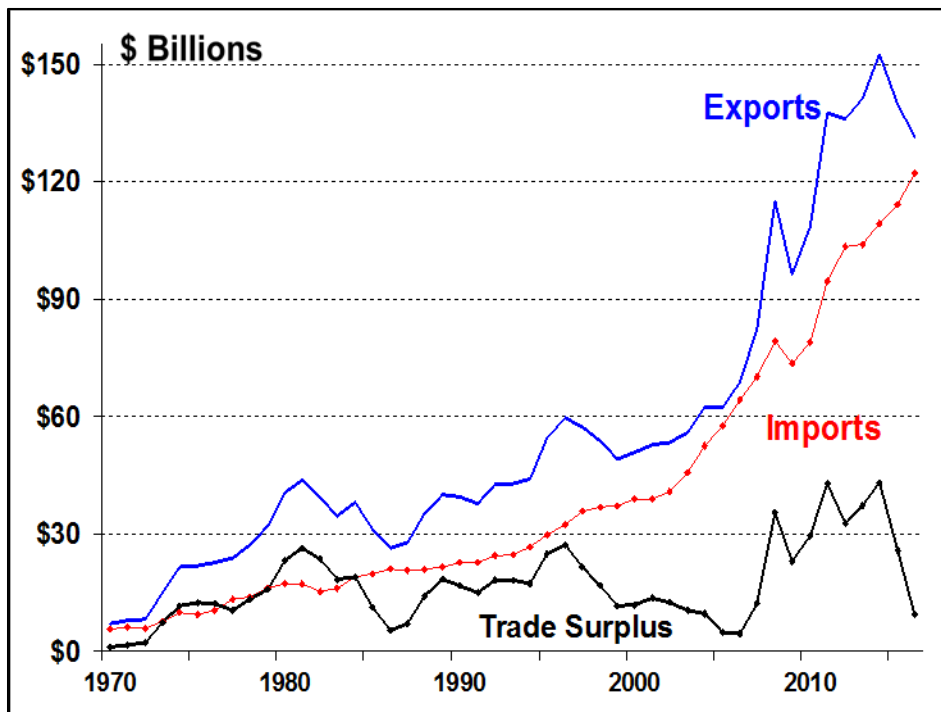
¹² USDA, ERS, *Outlook for U.S. Agricultural Trade*, AES-89, August 27, 2015.

Figure 11. U.S. Agricultural Export Value as Share of Gross Cash Income



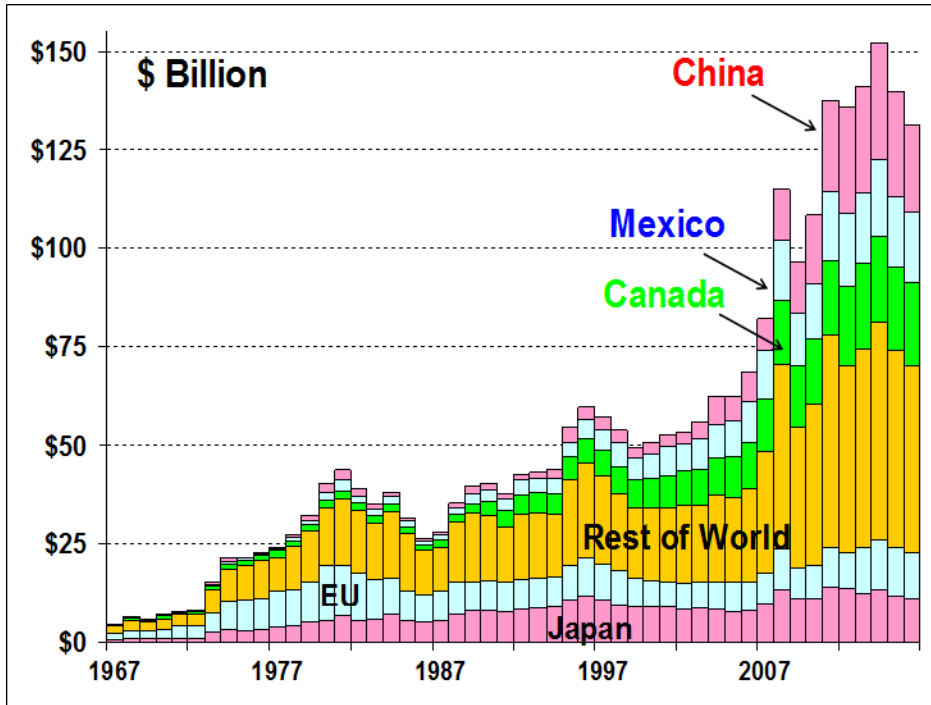
Source: USDA, ERS, Outlook for U.S. Agricultural Trade, AES-90, December 1, 2015; 2015 is an estimate; 2016 is a projection.

Figure 12. U.S. Agricultural Trade Since 1970



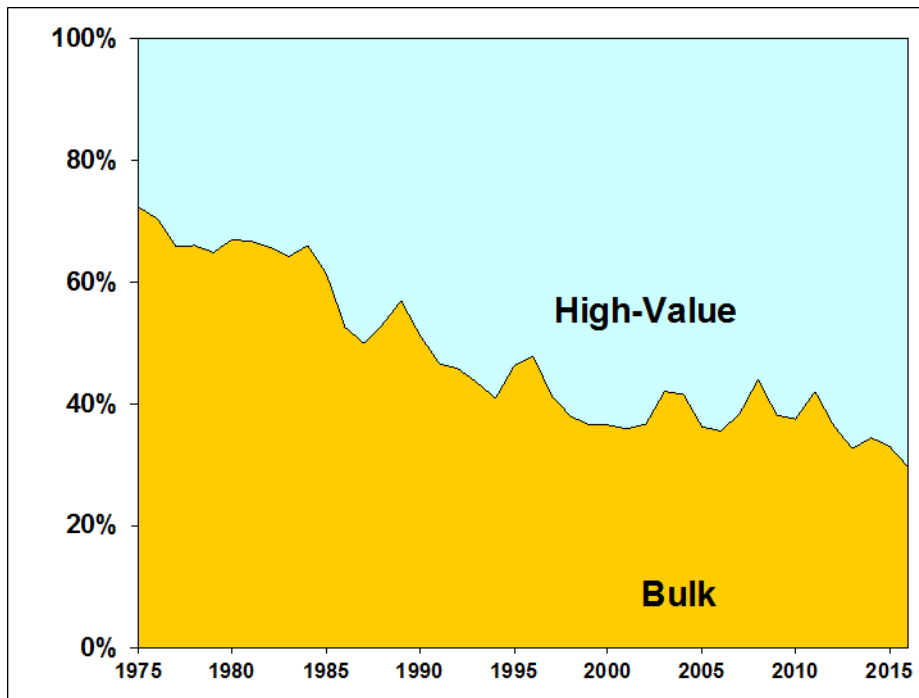
Source: See source for Figure 11.

Figure 13. 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 14.

Figure 14. U.S. Agricultural Trade: Bulk vs. High-Value Shares



Source: USDA, ERS, Outlook for U.S. Agricultural Trade, AES-90, December 1, 2015; 2015 is an estimate; 2016 is a projection.

Farm Asset Values and Debt

The U.S. farm income and asset-value situation and outlook suggest a relatively strong financial position heading into 2015 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.

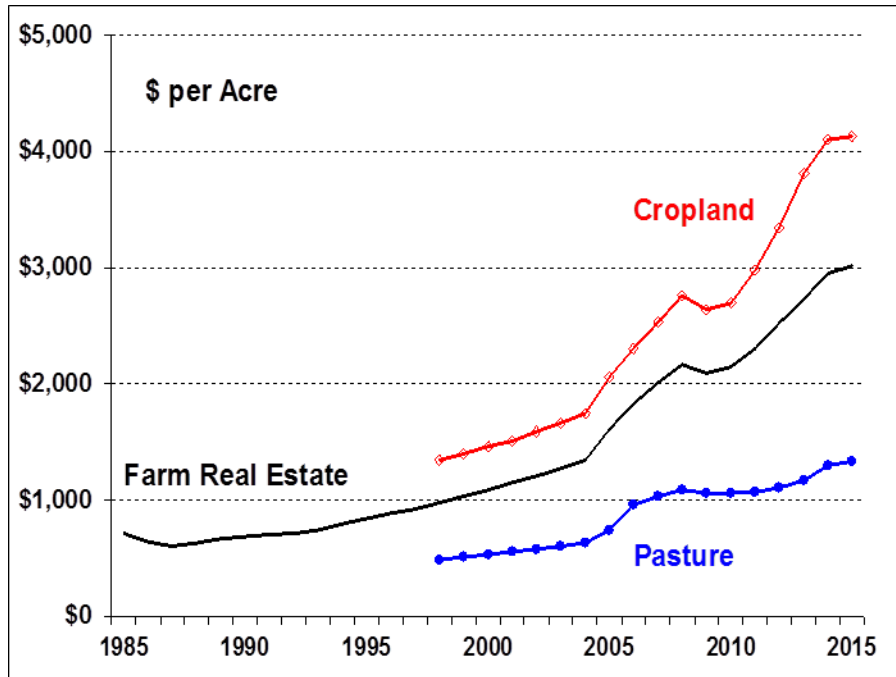
Farm Debt includes both business and consumer debt linked to real estate and non-real estate assets (e.g., financial assets, inventories of agricultural products, and the value of machinery and motor vehicles) of the farm sector.

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 (3%) in 2015 to \$2,862 billion, reflecting a leveling off of the previous year's strong outlook for the general farm economy (**Table 3**).
- Continued strong farm asset values are expected despite weaker farm real estate values, projected down 1.6% (**Figure 15** and **Figure 16**). Real estate traditionally accounts for the bulk of total value of farm sector assets. All other farm asset values are projected down 8.0%.
- Despite the projected decline in 2015, farm real estate values have grown by an estimated 42% since 2010, due largely to strong crop prices. In 2015, real estate assets are expected to account for nearly 81% of total farm assets.
- Land value growth is closely linked to commodity prices and is 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 2015 and beyond.
- Meanwhile, total farm debt is forecast to rise to \$367.4 billion in 2015 (up 6.3%).
- Farm equity (or net worth, defined as asset value minus debt) is projected to be down 4.0% at \$2,494.5 billion in 2015.
- The farm debt-to-asset ratio is forecast higher at 12.8% in 2015, up from 11.7% the preceding year, and highest since 2010 (**Figure 17**).

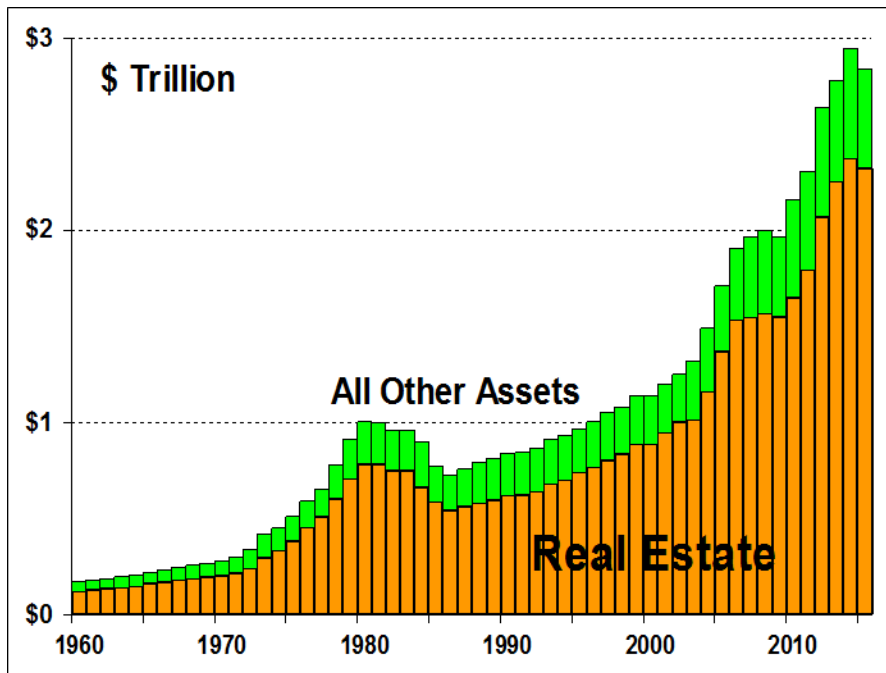
Figure 15. U.S. Average Farm Land Values, 1985 to 2015F



Source: USDA, NASS, *Land Values 2015 Summary*, August 2015; 2015 is a forecast.

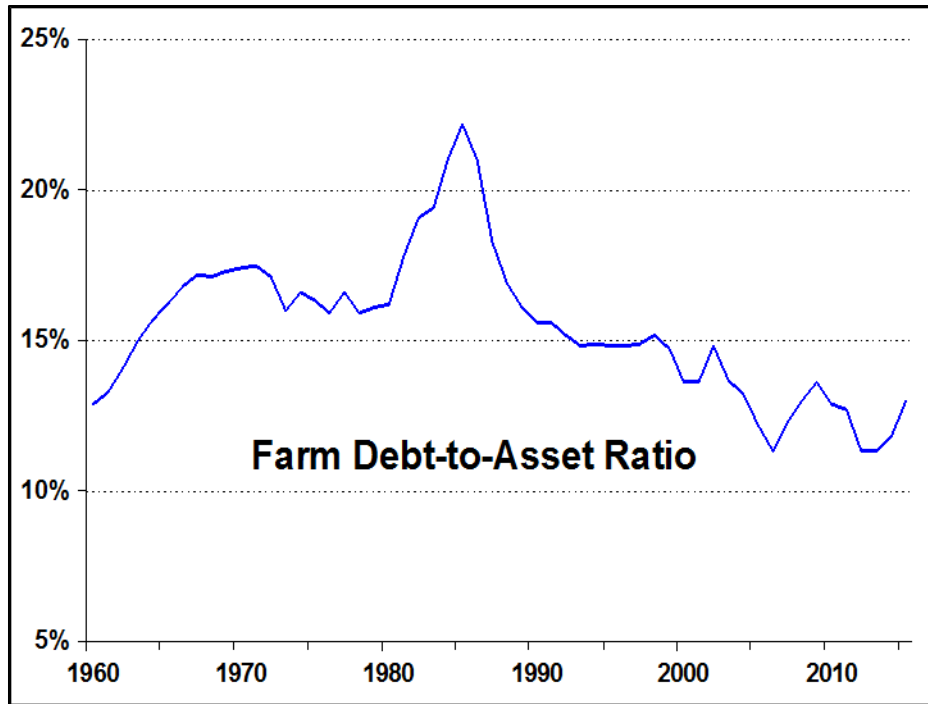
Notes: Farm real estate value measures the value of all land and buildings on farms. Cropland and pasture values are only available since 1998.

Figure 16. Real Estate Assets Comprise 81% of Total Farm Sector Assets in 2015



Source: See source for **Figure 17**.

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

Figure 17. U.S. Farm Debt-to-Asset Ratio Since 1960

Source: USDA, ERS, “2015 Farm Income Forecast,” November 24, 2015. All values are in nominal terms, that is, not adjusted for inflation. 2015 is forecast.

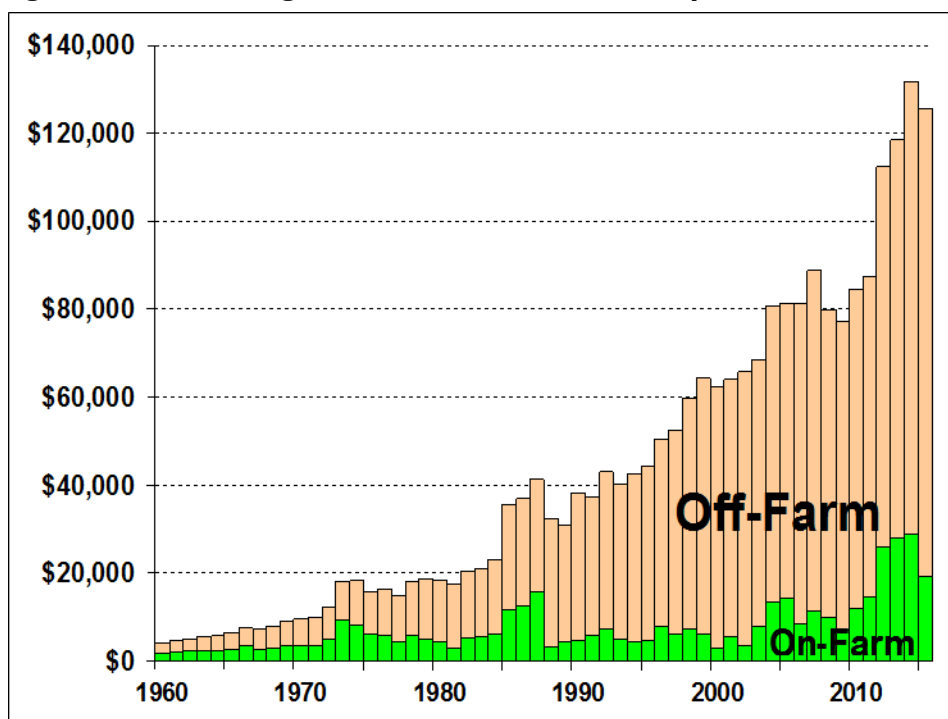
Average Farm Household Income

Farm household wealth is derived from a variety of sources.¹³ 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 there are 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 \$123,432 (down 6.3%) in 2015 (**Table 2**), with about \$16,687 coming from the farm and the remaining \$106,554 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 2002. In 2015, off-farm income is forecasted to account for 86% of the national average farm household income, compared with 14% from farming activities (**Figure 18**).

¹³ USDA, ERS, “Farm Household Well-Being,” available at <http://www.ers.usda.gov/topics/farm-economy/farm-household-well-being.aspx>.

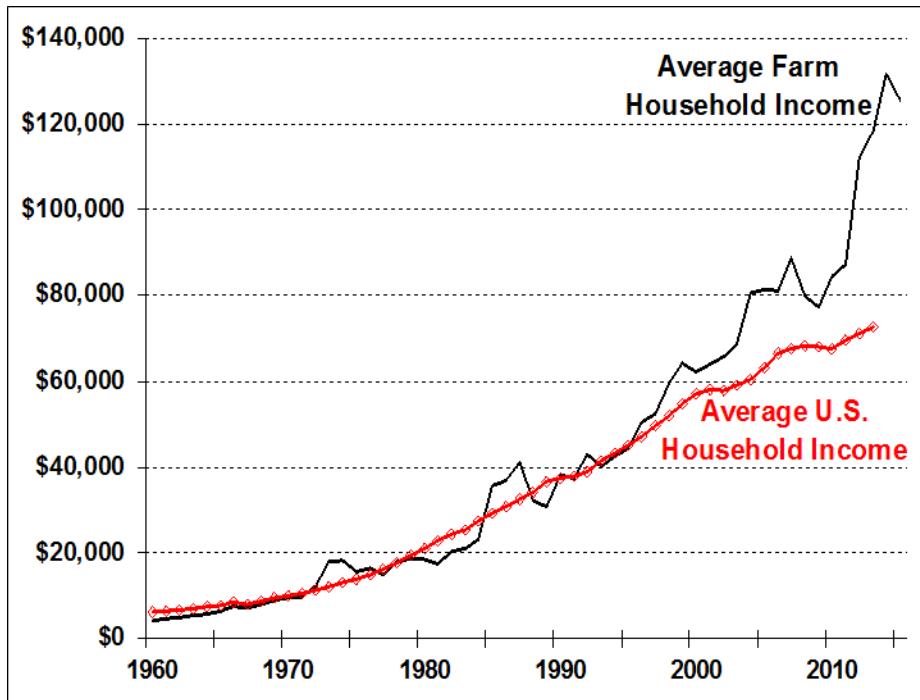
Figure 18. U.S. Average Farm Household Income, by Source, Since 1960

Source: USDA, ERS, “2015 Farm Income Forecast,” November 24, 2015. All values are in nominal terms, that is, not adjusted for inflation. 2015 is forecast.

U.S. Total vs. Farm Household Average Income

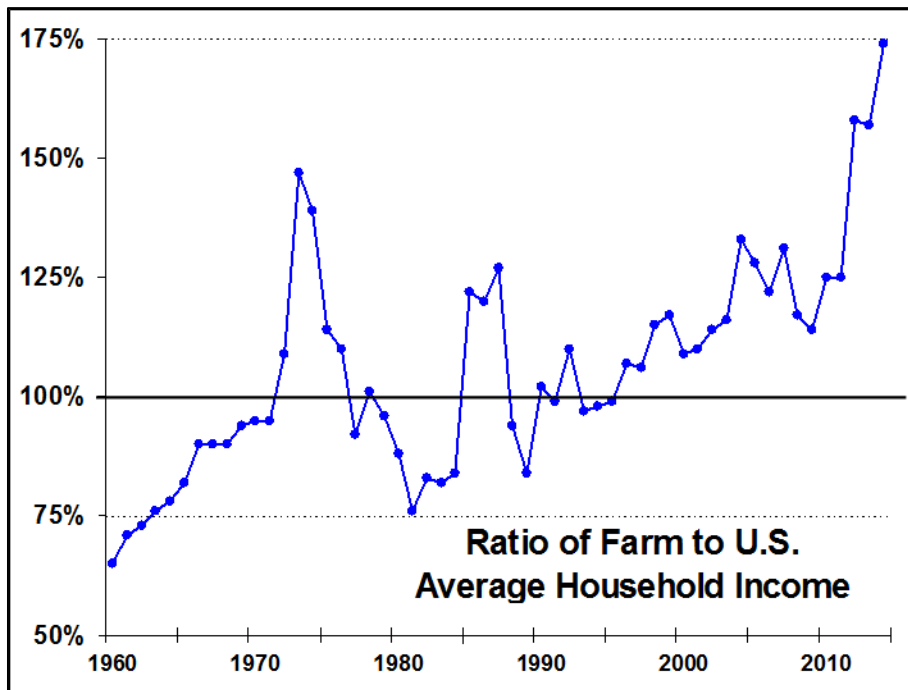
- Since the late 1990s, farm household incomes have surged ahead of average U.S. household incomes (**Figure 19** and **Figure 20**).
- In 2014 (the last year for which comparable data were available), the average farm household income of \$131,543 was about 74% higher than the average U.S. household income of \$75,738 (**Table 2**).

Figure 19. U.S. Farm Household Incomes Have Surged Well Above Average Household Income Since 1996



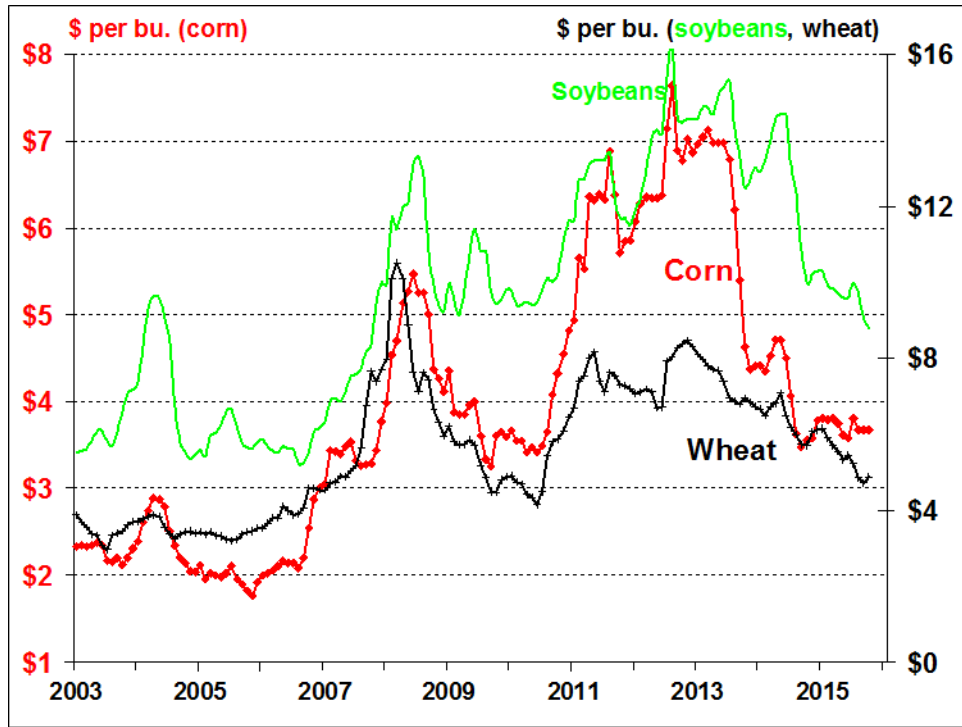
Source: USDA, ERS, "2015 Farm Income Forecast," November 24, 2015. All values are in nominal terms, that is, not adjusted for inflation. 2015 is forecast.

Figure 20. U.S. Farm vs. Average Household Incomes Expressed as a Ratio



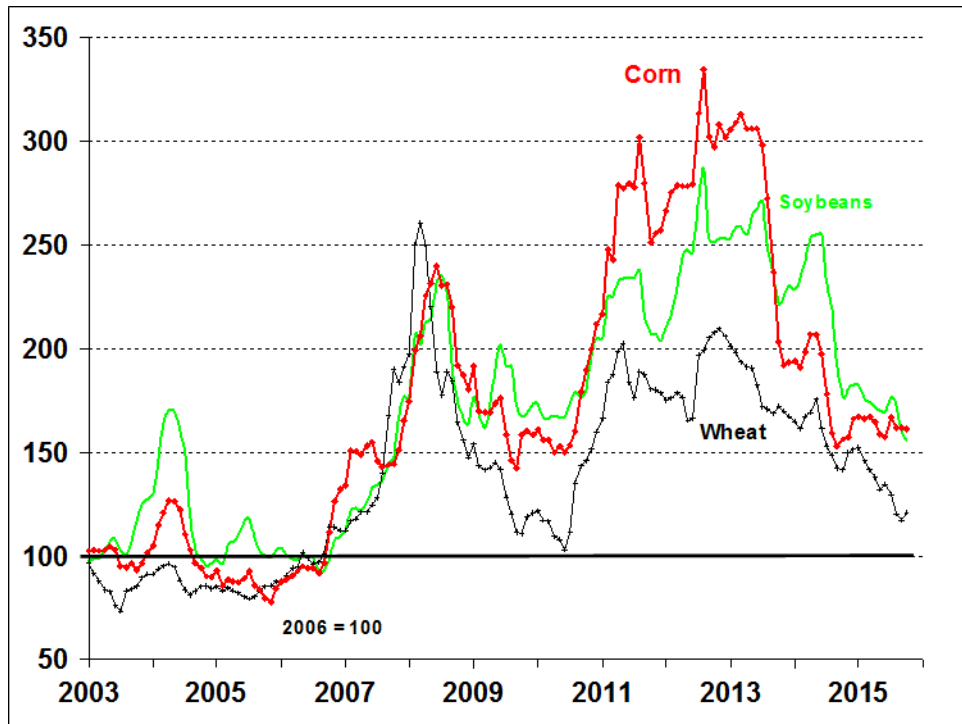
Source: See above source note. 2014 is the last year with comparable data.

Figure 21. Monthly Farm Prices for Corn, Soybeans, and Wheat, Nominal Dollars



Source: USDA, National Agricultural Statistics Service (NASS), *Agricultural Prices*, November 30, 2015.

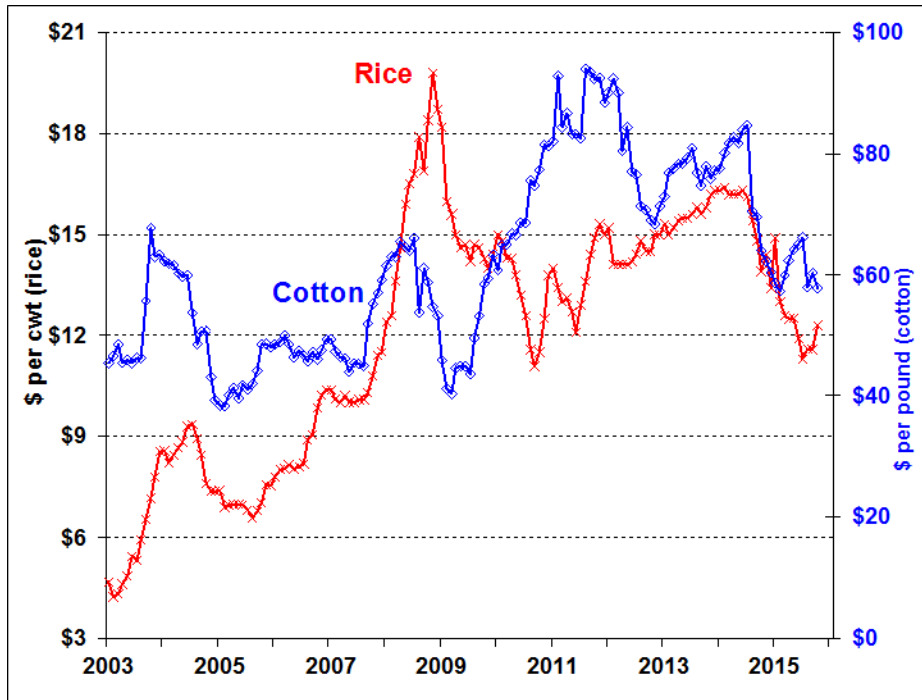
Figure 22. Monthly Farm Prices for Corn, Soybeans, and Wheat, Indexed Dollars



Source: USDA, NASS, *Agricultural Prices*, November 30, 2015.

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

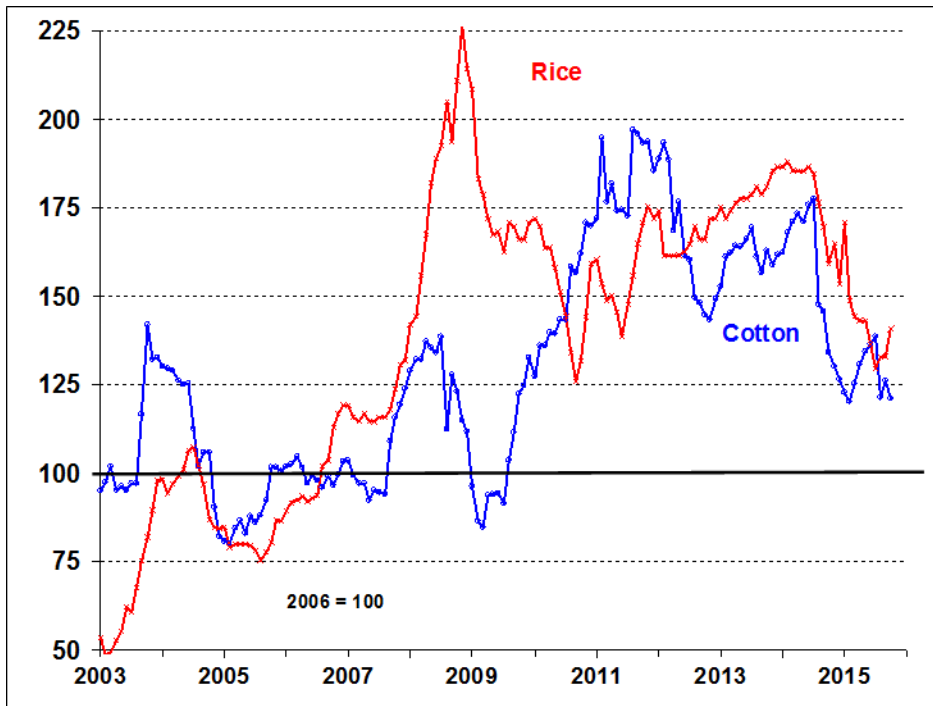
Figure 23. Monthly Farm Prices for Cotton and Rice, Nominal Dollars



Source: USDA, NASS, *Agricultural Prices*, November 30, 2015.

Notes: cwt = hundredweight or units of 100 lbs.

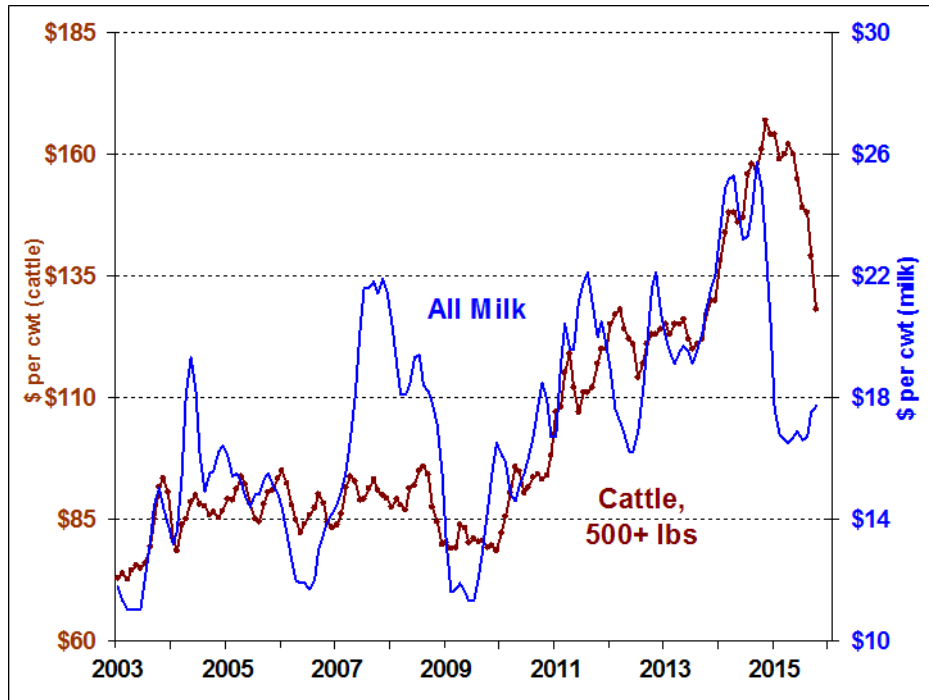
Figure 24. Monthly Farm Prices for Cotton and Rice, Indexed Dollars



Source: USDA, NASS, *Agricultural Prices*, November 30, 2015.

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

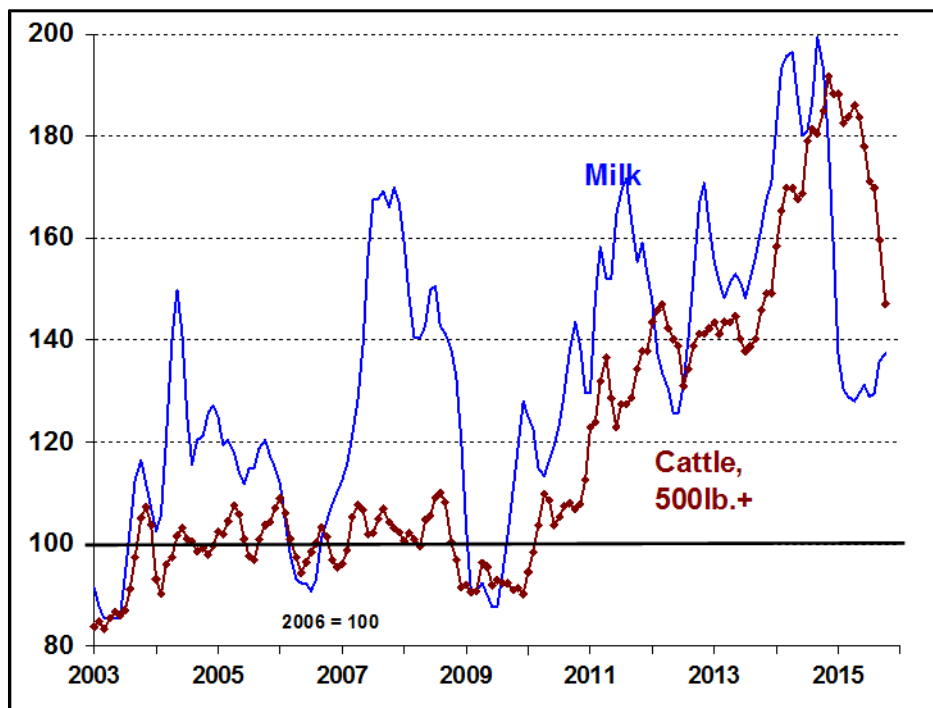
Figure 25. Monthly Farm Prices for All-Milk and Cattle (500+ lbs), Nominal Dollars



Source: USDA, NASS, *Agricultural Prices*, November 30, 2015.

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

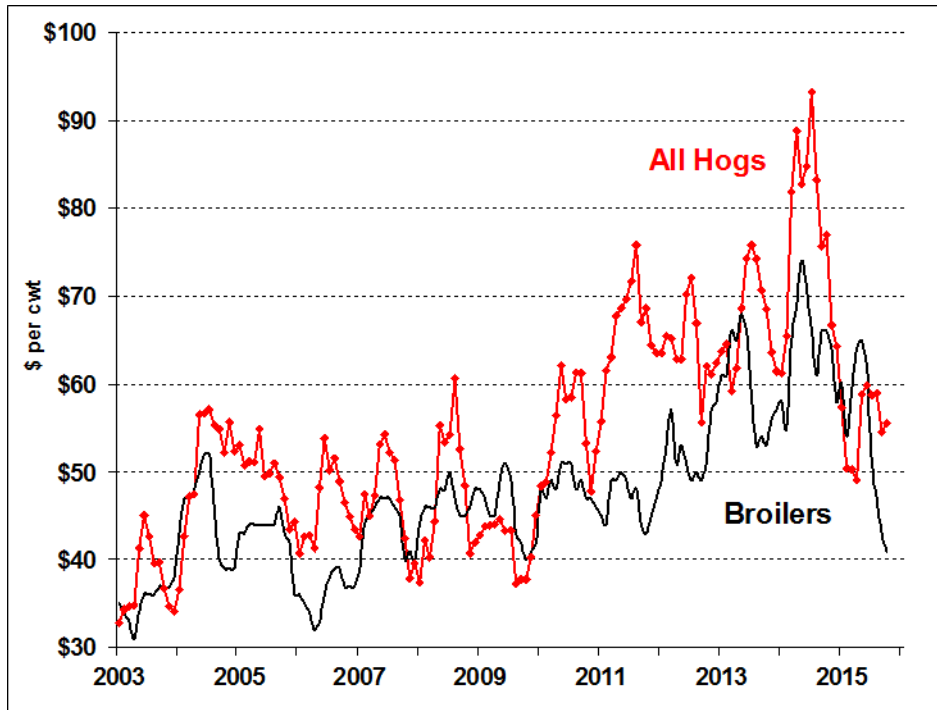
Figure 26. Monthly Farm Prices for All-Milk and Cattle (500+ lbs), Indexed Dollars



Source: USDA, NASS, *Agricultural Prices* November 30, 2015.

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

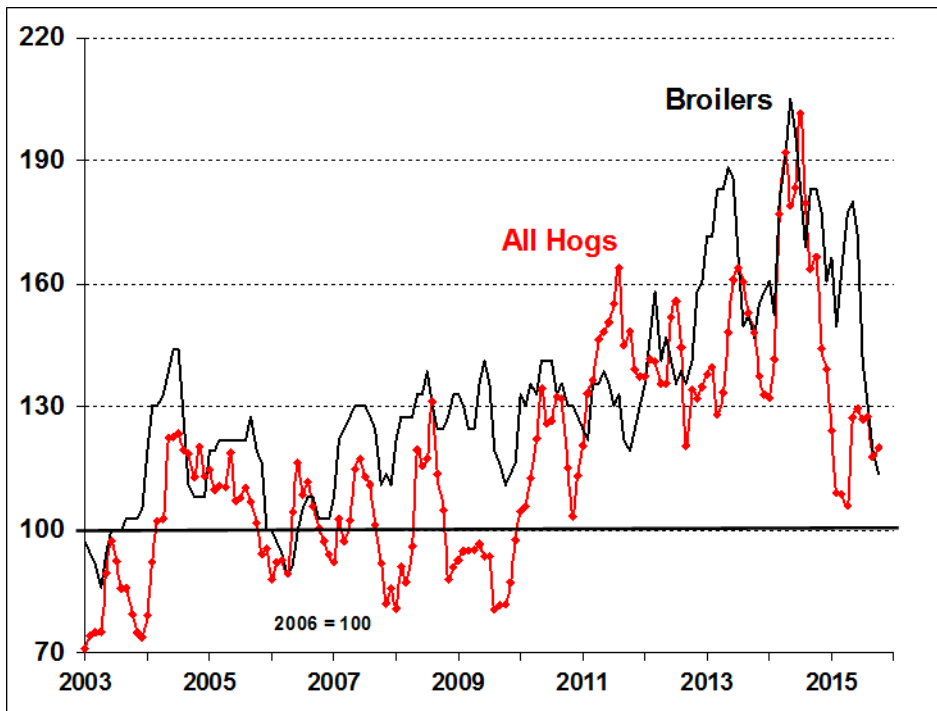
Figure 27. Monthly Farm Prices for All Hogs and Broilers, Nominal Dollars



Source: USDA, NASS, *Agricultural Prices*, November 30, 2015.

Notes: cwt = hundredweight or units of 100 lbs.

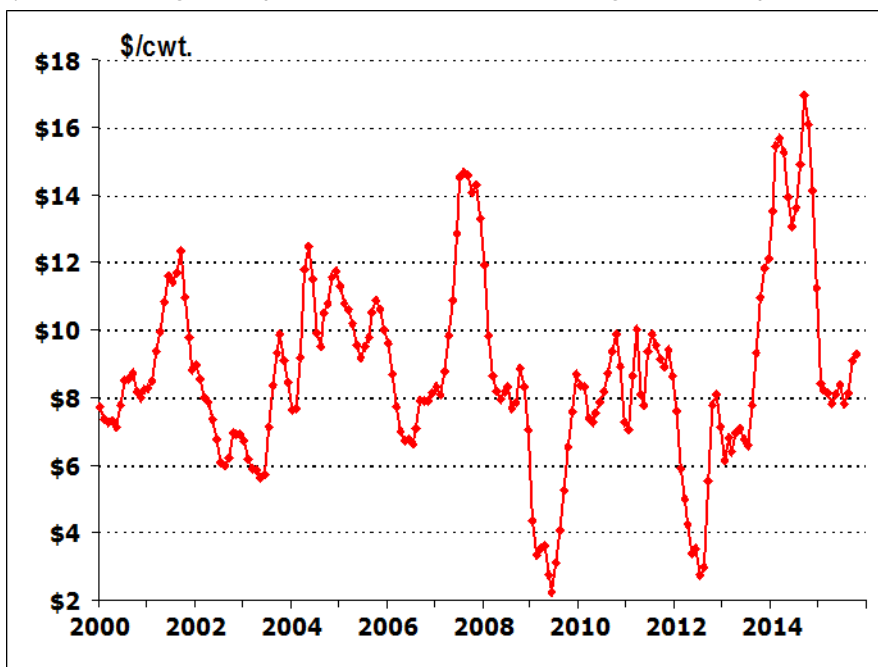
Figure 28. Monthly Farm Prices for All Hogs and Broilers, Indexed Dollars



Source: USDA, NASS, *Agricultural Prices*, November 30, 2015.

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

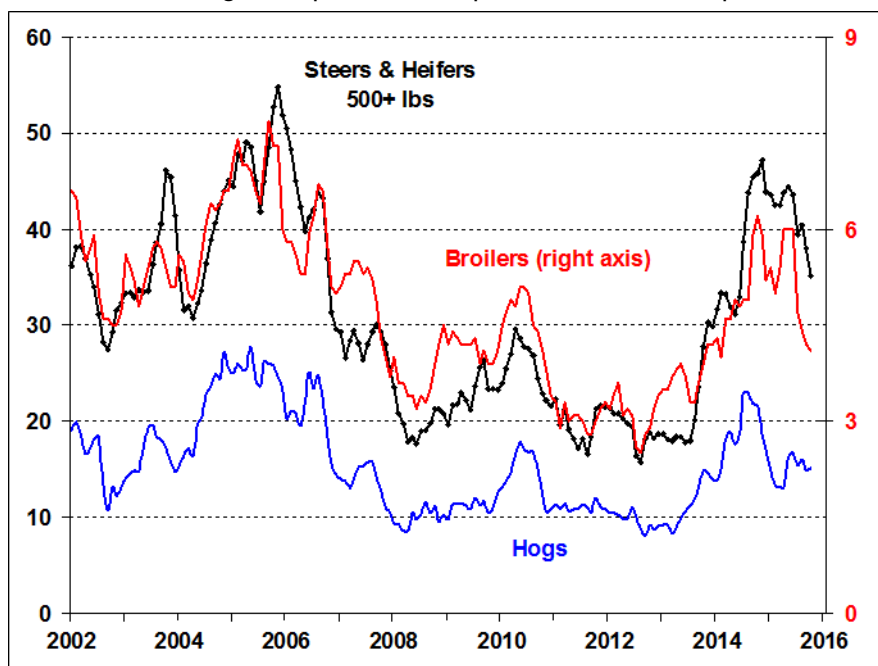
Figure 29. The Milk-to-Feed Margin Fell Sharply in Late 2014
 (National average farm-price received of milk less average feed costs per 100 lbs)



Source: USDA, NASS, *Agricultural Prices*, November 30, 2015; calculations by CRS.

Note: For pricing dairy feed, USDA uses 51% corn, 8% soybeans, and 41% alfalfa.

Figure 30. The Farm-Price-to-Feed Ratios Turned Unfavorable for Livestock in 2014
 (Ratio of national average farm-price received per 100 lbs of meat to per-unit feed cost)



Source: USDA, NASS, *Agricultural Prices*, November 30, 2015.

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

Table I. Annual U.S. Farm Income Since 2008
(\$ billions)

Item	2008	2009	2010	2011	2012	2013	2014	2015 ^a	Change (%)
1. Cash receipts	316.4	289.1	300.6	365.8	401.4	403.0	421.9	378.3	-10.4%
Crops ^b	174.8	168.9	180.4	201.1	231.6	220.4	209.7	191.5	-8.7%
Livestock	141.6	120.3	120.3	164.8	169.8	182.6	212.2	186.8	-12.0%
2. Government payments^c	12.2	12.2	12.4	10.4	10.6	11.0	9.8	10.8	10.4%
Fixed direct payments ^d	5.1	4.7	4.8	4.7	4.7	4.3	0.5	0.1	—
CCP-PLC-ARC ^e	0.7	1.2	0.2	0.0	0.0	0.0	0.0	5.0	—
Marketing loan benefits ^f	0.3	1.1	0.1	0.0	0.0	0.0	0.1	0.4	—
Conservation	3.2	2.8	3.5	3.7	3.7	3.7	3.6	3.7	—
Ad hoc and emergency ^g	2.1	0.6	3.1	1.3	1.1	2.1	5.0	1.7	—
All other ^h	0.8	1.7	0.7	0.7	1.1	0.9	0.7	0.0	—
3. Farm-related incomeⁱ	21.5	22.0	20.0	30.7	39.2	41.0	35.4	34.6	-2.3%
4. Gross cash income (1+2+3)	350.1	323.3	333.0	407.0	451.3	455.0	467.1	423.6	-9.3%
5. Cash expenses ^j	262.1	249.3	257.3	283.6	316.0	320.0	338.6	330.6	-2.3%
6. NET CASH INCOME	88.1	73.9	75.7	123.4	135.3	135.1	128.6	93.0	-27.7%
7. Total gross revenues ^k	377.6	343.2	341.3	420.3	446.9	483.3	480.7	438.5	-8.8%
8. Total production expenses ^l	294.0	283.0	279.4	306.5	353.3	360.0	390.3	382.6	-2.0%
9. NET FARM INCOME	83.6	60.3	61.9	113.9	93.6	123.3	90.4	55.8	-38.2%

Source: USDA, ERS, *Farm Income and Wealth Statistics*; U.S. and State Farm Income and Wealth Statistics, updated as of November 24, 2015.

- a. Data for 2015 are USDA forecasts. Change represents year-to-year projected change between 2015 and 2014.
- 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. Peanut quota buyout, milk income loss payments, 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, 2008-2015F

(\$ per household)

	2008	2009	2010	2011	2012	2013	2014	2015F
Average U.S. Farm Income by Source								
On-farm income	\$9,764	\$6,866	\$11,788	\$14,625	\$25,965	\$27,897	\$28,687	\$16,878
Off-farm income	\$70,032	\$70,302	\$72,671	\$72,665	\$86,482	\$90,476	\$103,067	\$106,554
Total farm income	\$79,796	\$77,169	\$84,459	\$87,290	\$112,447	\$118,373	\$131,754	\$123,432
Average U.S. Household Income	\$68,424	\$67,976	\$67,530	\$69,677	\$71,274	\$75,195	\$75,738	na
Farm Household Income as Share of U.S. Avg. Household Income (%)	117%	114%	125%	125%	158%	157%	174%	na

Source: USDA, ERS, *Farm Household Income and Characteristics*, principal farm operator household finances, data set updated as of November 24, 2015; at <http://www.ers.usda.gov/data-products/farm-household-income-and-characteristics.aspx>.

Note: Data for 2015 are USDA forecasts.

Table 3. Average Annual Farm Sector Debt-to-Asset Ratio, 2008-2015F

(\$ billions)

	2008	2009	2010	2011	2012	2013	2014	2015F
Farm Assets	2,154.0	2,131.5	2,161.4	2,310.6	2,637.9	2,777.8	2,944.3	2,861.9
Farm Debt	261.1	268.3	278.9	294.5	296.8	315.0	345.7	367.4
Farm Equity	1,893.0	1,863.1	1,882.4	2,016.2	2,341.1	2,462.8	2,598.6	2,494.5
Debt-to-Asset Ratio (%)	12.1%	12.6%	12.9%	12.7%	11.2%	11.3%	11.7%	12.8%

Source: USDA, ERS, *Farm Income and Wealth Statistics*; U.S. and State Farm Income and Wealth Statistics, updated as of November 24, 2015; available at <http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics.aspx>.

Note: Data for 2015 are USDA forecasts.

Table 4. U.S. Prices and Support Rates for Selected Farm Commodities Since 2009/10 Marketing Year

Commodity ^a	Unit	Year	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16 ^{Fb}	% Change from 2014/15 ^c	2016/17 ^{Pb}	% Change from 2015/16 ^d	2015 Loan Rate ^e	2015 Reference Price
Wheat	\$/bu	Jun-May	5.70	7.24	7.77	6.87	5.99	4.80-5.20	-16.5%	—	—	2.94	5.50
Corn	\$/bu	Sep-Aug	5.18	6.22	6.89	4.46	3.70	3.35-3.95	-1.4%	—	—	1.95	3.70
Sorghum	\$/bu	Sep-Aug	5.02	5.99	6.33	4.28	4.03	3.30-3.90	-10.7%	—	—	1.95	3.95
Barley	\$/bu	Jun-May	3.86	5.35	6.43	6.06	5.30	4.85-5.55	-1.9%	—	—	1.95	4.95
Oats	\$/bu	Jun-May	2.52	3.49	3.89	3.75	3.21	2.05-2.35	-31.5%	—	—	1.39	2.40
Rice	\$/cwt	Aug-Jul	12.70	14.50	15.10	16.30	13.30	13.30-14.30	3.8%	—	—	6.50	14.00
Soybeans	\$/bu	Sep-Aug	11.30	12.50	14.40	13.00	10.10	8.15-9.65	-11.9%	—	—	5.00	8.40
Soybean Oil	¢/lb	Oct-Sep	53.20	51.90	47.13	38.23	31.60	27.50-30.50	-8.2%	—	—	—	—
Soybean Meal	\$/st	Oct-Sep	345.52	393.53	468.11	489.94	368.49	300-400	-5.0%	—	—	—	—
Cotton, Upland	¢/lb	Aug-Jul	81.50	88.3	72.5	77.9	61.3	55-63	-3.8%	—	—	45-52	none
Choice Steers	\$/cwt	Jan-Dec	95.38	114.73	122.86	125.89	154.6	149.19	-3.5%	136-147	-5.2%	—	—
Barrows/Gilts	\$/cwt	Jan-Dec	55.06	66.11	60.88	64.05	76.0	50.82	-13.2%	47-50	-26.5%	—	—
Broilers	¢/lb	Jan-Dec	82.90	79.9	86.6	99.7	104.90	89.5	-14.7%	83-89	-3.9%	—	—
Eggs	¢/doz	Jan-Dec	106.30	115.3	117.4	124.7	142.3	188.0	32.1%	161-174	-10.9%	—	—
Milk	\$/cwt	Jan-Dec	16.26	20.14	18.53	20.05	23.97	17.00-17.10	-28.9%	15.95-16.85	-3.8%	—	—

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

- 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)* November 10, 2015; — = no value; and USDA's out-year 2016/2017 crop price forecasts will first appear in the May 2016 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.
- Data for 2015/2016 are USDA forecasts; 2016/2017 data are USDA projections.
- Percent change from 2014/2015, calculated using the difference from the midpoint of the range for 2015/2016 with the estimate for 2014/2015.
- Percent change from 2015/2016, calculated using the difference from the midpoint of the range for 2016/2017 with the estimate for 2015/2016.
- Loan rate and reference prices are for the 2015/2016 crop year. See CRS Report R43076, *The 2014 Farm Bill (P.L. 113-79): Summary and Side-by-Side*.

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