CARD Staff Report
Iowa State University
Center for Agricultural and Rural Development

July 2026
26-SR 125

# 2026 Iowa Agricultural Outlook: The Pressure is Rising

Edited by
John M. Crespi and Christopher C. Pudenz

Jointly published by
the Center for Agricultural and Rural Development at Iowa State University
the Iowa Farm Bureau Federation
the Iowa Bankers Association

**Suggested citation**

Crespi, J.M., and C.C. Pudenz (Eds.) 2026. "2026 Iowa Agricultural Outlook: The Pressure is Rising." Staff Report 26-SR 125. Center for Agricultural and Rural Development at Iowa State University, Iowa Farm Bureau Federation, and Iowa Bankers Association.

# 2026 Iowa Agricultural Outlook: The Pressure is Rising

# 2026 Iowa Agricultural Outlook: The Pressure is Rising


## Executive Summary

Iowa's agricultural economy is several years into a downturn. Following the post-COVID-19 economic boom, corn and soybean prices have retreated while input prices have remained high. Net farm income, a US Department of Agriculture measure of farm profitability, declined year-over-year in Iowa in 2023 and 2024 as row crop farmers bear the brunt of low revenues and high costs. Overall, net farm income in Iowa fell by 53% from 2022 to 2024 (USDA-ERS 2026). While this has not triggered a collapse on the scale of the 1980s farm crisis, the steady tightening is straining Iowa farm businesses and the industries and rural communities tied to them.

Using data-driven economic analysis, this report describes where Iowa's agricultural economy is today, how it got there, and where it might be going in the future. The report proceeds through eight chapters that look at Iowa's agricultural economies from different angles. Each of these chapters adds new perspectives and provides specific insights that together paint a comprehensive picture. Primary findings from each chapter are as follows.

### The Ag Economy in 2026: A Crop Marketing Perspective

- Iowa row crop farmers are facing their third year in a row in which costs are generally exceeding prices, underlying the current downturn in Iowa's agricultural economy.

- Corn and soybean prices are under pressure due to growth in corn and soybean production outpacing growth in corn and soybean usage.

- Corn (soybean) production costs have increased 37% (36%) since 2021. The largest increases have been in machinery charges and seed, chemical, and fertilizer costs. Crop input costs are expected to remain higher than comfortable due to increases in planted area, broader economic concerns, and ongoing conflicts abroad.

### The Ag Economy in 2026: A Livestock Marketing Perspective

- Iowa's livestock sectors are generally performing well despite ongoing issues such as tight domestic supplies (cattle), soft consumer demand (hogs), and highly pathogenic avian influenza (poultry and eggs).

- Estimated Iowa cattle feedlot monthly returns averaged a record $557/head in 2025.

- Iowa's livestock sectors remain a key avenue for young farmers to enter the industry and have been a critical diversification during the current agricultural economy downturn. Lower corn and soybean prices have led to cheaper animal feed, and many Iowa crop farmers also raise livestock.

### Iowa Agricultural Exports and the Local Impacts of the China Trade War

- In 2024, Iowa ranked second among all states in total commodity export value with $13.7 billion. This export value is made possible by trade agreements and the certainty they provide to commodity producers.

- Corn and soybeans are Iowa's dominant crops and top crop exports. US corn exports for the 2025 crop year will set an all-time record, while soybean exports are below the recent five-year average due to trade frictions with China.

- Iowa farmers are on the front lines of any trade wars due to their exposure to commodity exports, especially residents in Iowa counties that are generally agriculture-oriented and specialize in commodities directly targeted by retaliation.

## Land Markets in Context: What Farmland Values Say About the Farm Economy

- Both nominal and inflation-adjusted average farmland values in Iowa have decreased slightly since 2023. This differs from both the sharp 1980s crash and the rapid appreciation seen in 2021 and 2022.

- Despite margin pressure in the row crop sector, Iowa farmland values still support farmer balance sheets, collateral positions, and borrowing capacity.

- Forty percent of respondents to the 2025 Iowa State University Land Value Survey expect Iowa land values to decline over the next year, while 82% expect land values to increase over a five-year timeframe.

- If land values further soften, farm operations with a lot of debt or farms relying on land equity to support operating credit could face greater financial pressure.

## The Ag Economy in 2026: A Farm Finance Perspective

- Financial indicators show a deterioration of liquidity and increased working capital needs among mid- and large-size Iowa farms in 2026.

- Farm-level data shows 19% of mid- and large-size Iowa farms in the sample were financially vulnerable in December 2025, more than double that in 2022 (7.7%). But, so far, the proportion of vulnerable farms remains lower than the late 2010s.

- Despite rising debt loads some farms have shown resilience through cost control and increased revenue.

- Navigating this tighter liquidity often relies on decision tools such as realistic cash-flow budgeting and analysis to better weather the current storm.

## Reading the Credit: What Farm Lending Data Say About Financial Pressure

- We are seeing signs of financial stress emerging in the agricultural sector: rising demand for credit, increasing repayment concerns, and rising Chapter 12 bankruptcy filings.

- At the same time, there is still healthy farmland equity, healthy lender balance sheets, and low delinquency rates relative to periods in the past, thus making today different from the 1980s farm crisis.

- Proactive producers should do what they can to protect working capital, manage debt, and communicate early on with lenders about financial concerns.

## The Statewide Economic Impact of Iowa Agriculture

- From 2020 to 2024, on average, one job in Iowa's agricultural-related industries supported a total of 1.65 jobs in Iowa's economy.

- Agricultural-related industries in Iowa contributed $51.5 billion total to Iowa's GDP annually on average, amounting to 19% of Iowa's annual GDP.

- Compared to the average, direct economic output from Iowa's farmers and other agricultural production industries was down 2% in 2024, though the indirect and induced economic impacts from production were higher than average.

## Long-Term Projections for Corn, Soy, Beef, Pork, and Biofuels

- Long-term modeling projects that global production of corn (soybeans) could increase by 19.9% (17.7%) between 2025 and 2050.

- From 2025 to 2050, US net exports of corn are forecasted to fall slightly while Brazilian net exports are expected to increase by nearly 20 million metric tons.

- In 2050, though the United States remains the largest ethanol producer, production is projected to increase only 8.8% compared to a 66.7% projected increase in ethanol production in Brazil.

- Projected price changes between 2025 and 2050 appear broadly consistent with gradual expansion in supply alongside persistent demand growth. Expected commodity yield growth over the forecast period is a key price driver.

In sum, Iowa's agricultural economy is experiencing a prolonged downturn. While today's conditions do not yet mirror the severity of the 1980s farm crisis, the pressure is mounting, and both short- and long-term challenges loom large. Tight row crop margins, persistently elevated input costs, trade uncertainty, and long-term market shifts are testing farm working capital. Going forward, unofficial estimates for Iowa net farm income project an increase in net farm income in 2025, due primarily to government payments and livestock returns. This is followed by forecasted consecutive decreases in 2026 and 2027 (Jo et al. 2026). Farmers are weathering the downturn for now, but should the current situation persist or worsen, the negative economic effects will be felt throughout rural communities and Iowa's broader economy.

## References

Jo, H., D. Chinn, A. Plastina, and C. Hart. "Spring 2026 Farm Income Outlook for Iowa." RaFF Report 2026-03, Rural and Farm Finance Policy Analysis Center, University of Missouri, Columbia. April 2026. Available at raff.missouri.edu/state-outlooks/. Accessed July 8, 2026.

United States Department of Agriculture Economic Research Service (USDA-ERS). 2026. "Farm Sector Income and Finances – Farm Sector Income Forecast." https://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/farm-sector-income-forecast. Accessed June 6, 2026.

# The Ag Economy in 2026: A Crop Marketing Perspective

**Chad Hart**

Over the past 10 years, the US agricultural economy has experienced several significant swings. Following the peak in national net farm income in the early 2010s, agricultural returns dropped quickly, reaching a low point of $62.3 billion in 2016. Recovery in farm incomes evolved slowly, as net farm income languished under $100 billion each year from 2016 to 2020. However, the post-COVID-19 economic boom sent farm incomes back up into record territory, peaking in 2022 at $182 billion (USDA-ERS 2026). Crop revenues followed a similar pattern, coming off of record highs in the early 2010s, holding at low levels during the late 2010s, and peaking once again after COVID-19. Since then, farm incomes and crop revenues have retreated due to a number of fundamental and geopolitical reasons. Production, input cost, and policy swings have increased uncertainty across agricultural markets and created economic unease in farm country. We often refer to the swings in farm income as agricultural cycles, shifting from boom to bust periods. This chapter explores the historical relationships in the crop markets, outlines some of the factors that steered us to where we are today, and provides some thoughts on where the crop markets might move from here.

Figures 1 and 2 show the historical per bushel prices and production costs for corn and soybeans in Iowa over the past 50 years. As the figures display, prices and costs can move dramatically from year to year. While production costs on a per acre basis are relatively stable, production costs on a per bushel basis are not, due to the large swings we see in yields. For example, the drought of 2012 lowered Iowa's corn yield to 137 bushels per acre, 35 bushels less than in 2011. That increased the per bushel costs for corn substantially. Figures 1 and 2 highlight the large swings in prices and production costs we have experienced over the last few years. But they also show that we have had significant runs of profitability and loss before. For corn, we can see the profitable runs in the early 1970s and the mid-1990s. Both of these runs were followed by sustained periods of economic losses in the mid-1970s and the late 1990s. These cycles of profitability/loss typically cover 7–10 years; however, the length of any individual cycle depends on the relative strengths/weaknesses within the crop markets and the influence of outside factors, such as extreme weather events and geopolitical shifts.

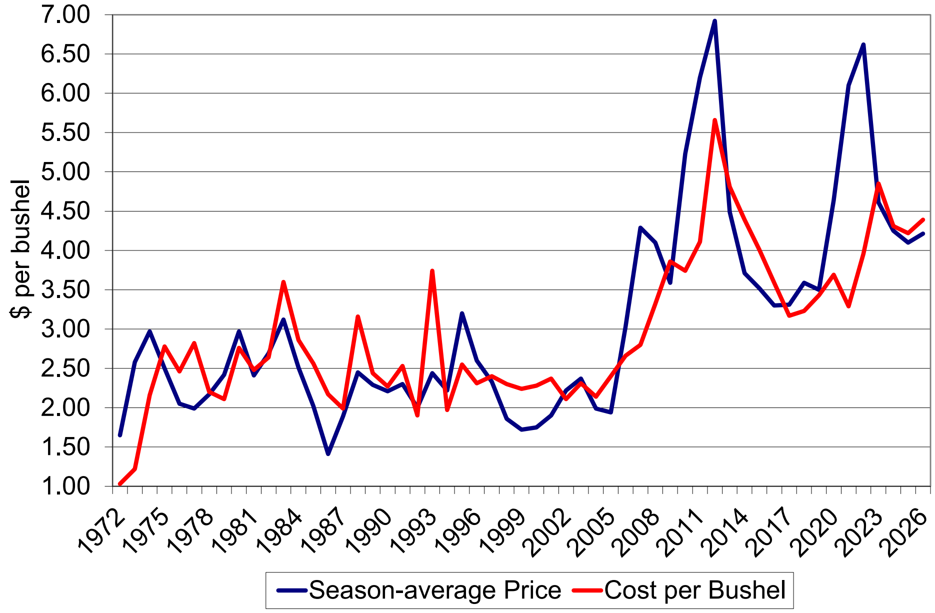


**Figure 1. Corn prices vs. production costs.**
*Sources*: USDA-NASS (2026) and Iowa State (2026).

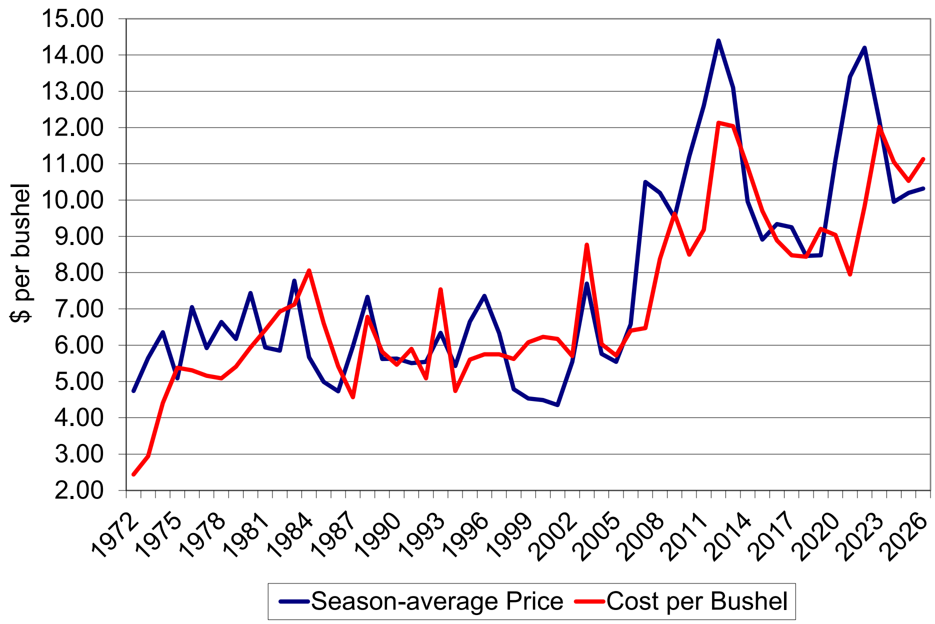


**Figure 2. Soybean prices vs. production costs.**
*Sources*: USDA-NASS (2026) and Iowa State (2026).

One of the larger factors influencing crop prices over the past few years has been crop productivity. Despite the challenges presented by a multi-year drought that has persisted somewhere in the United States over the past six years, national corn and soybean production has maintained a very strong pace. Since 2000, corn and soybean production has trended higher. On average, the corn market gains 242 million bushels each year, while the soybean market gains 77 million bushels. That continual increase in production puts pressure on either crop usage to keep pace or crop prices to fall. Lately, the surge in production has outraced the gains in usage. Four of the last five corn crops are in the top-five production years for the nation, including last year's mammoth record crop of 17 billion bushels. The last five soybean crops are all within the top-10 production years for the nation, including the record crop from 2021.

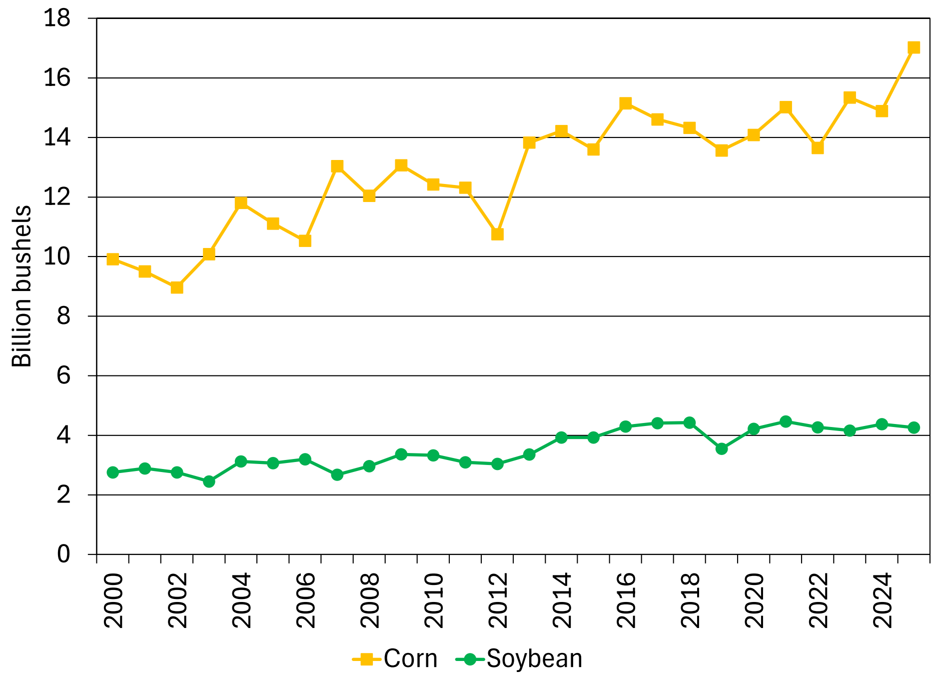


**Figure 3. Corn and soybean production.**
*Source*: USDA-NASS (2026).

Meanwhile, the effort to obtain those large production numbers has driven up crop input costs. Farmers reinvested some of their record returns from the 2021 and 2022 crops to cover production costs in later years. That reinvestment, combined with the impacts from the Russia-Ukraine and US-Iran wars, has resulted in lofty increases in crop production costs. Figures 4 and 5 display the estimated per acre costs to produce corn and soybeans in Iowa over the past six years. Overall, corn production costs have increased by 37% since 2021. The largest increases have been in machinery charges (57%) and seed, chemical, and fertilizer costs (39%). While farmland values have received a lot of attention recently as those values remain around record highs, farmland's share of crop production costs has actually been one of the slower moving components, only increasing by 23% since 2021.

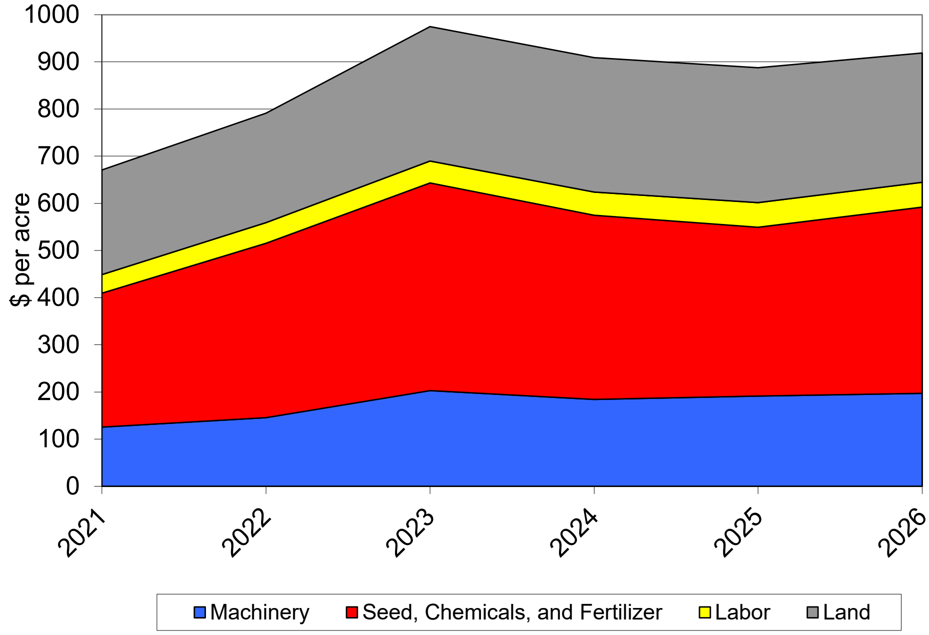


**Figure 4. Corn production costs.**
*Source*: Iowa State (2026).

The production cost pattern for soybeans mimics that of corn. Overall, soybean production costs have increased by 36% since 2021. The largest increases have been in machinery charges (74%) and seed, chemical, and fertilizer costs (37%), while farmland increased by 23% since 2021.

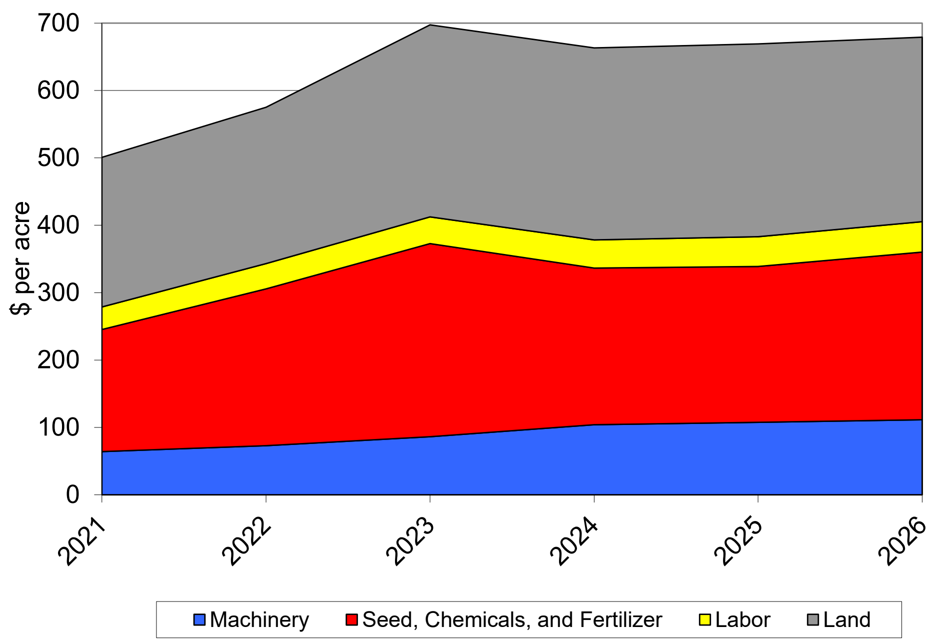


**Figure 5. Soybean production costs.**
*Source*: Iowa State (2026).

Concerns about the general economy can also have impacts on the agricultural economy. Figures 6 and 7 display the pattern of corn and soybean prices over the last 57 years and the gray bars highlight when the general economy was in recession. But as the graphs show, crop prices sometimes rise during recessions. During the recessions in the 1970s, corn and soybean prices tended to rise. With the last two recessions, the Great Recession of 2008 and the COVID-19 recession of 2020, crop prices fell. And while we have experienced some large price swings during recessions, those swings are no larger than those we have experienced during good economic times.

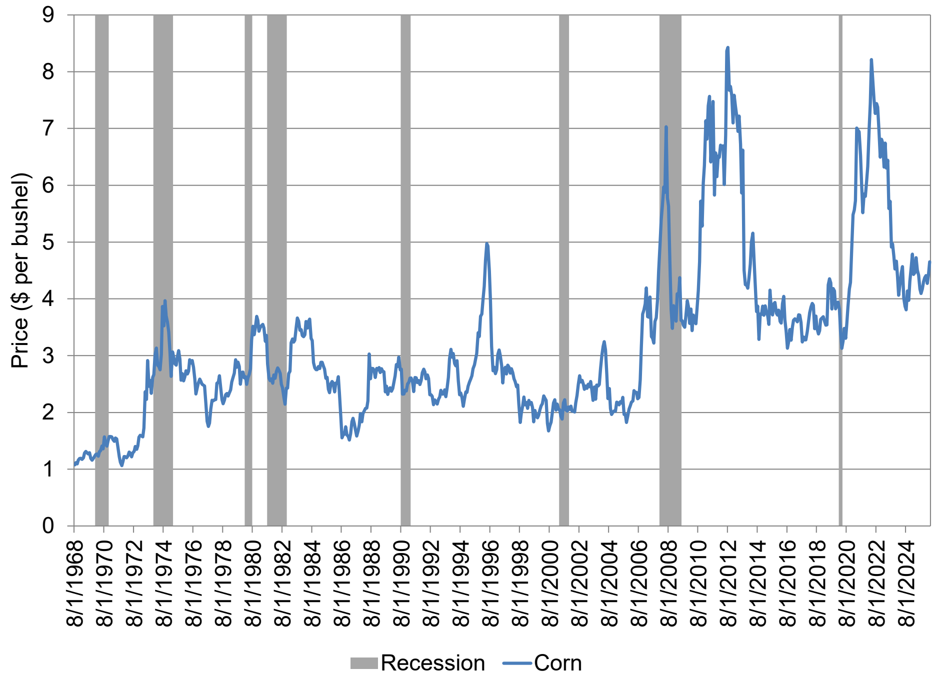


**Figure 6. Corn prices and recessions.**
*Sources*: Barchart.com (2026) and Federal Reserve Bank of St. Louis (2026).

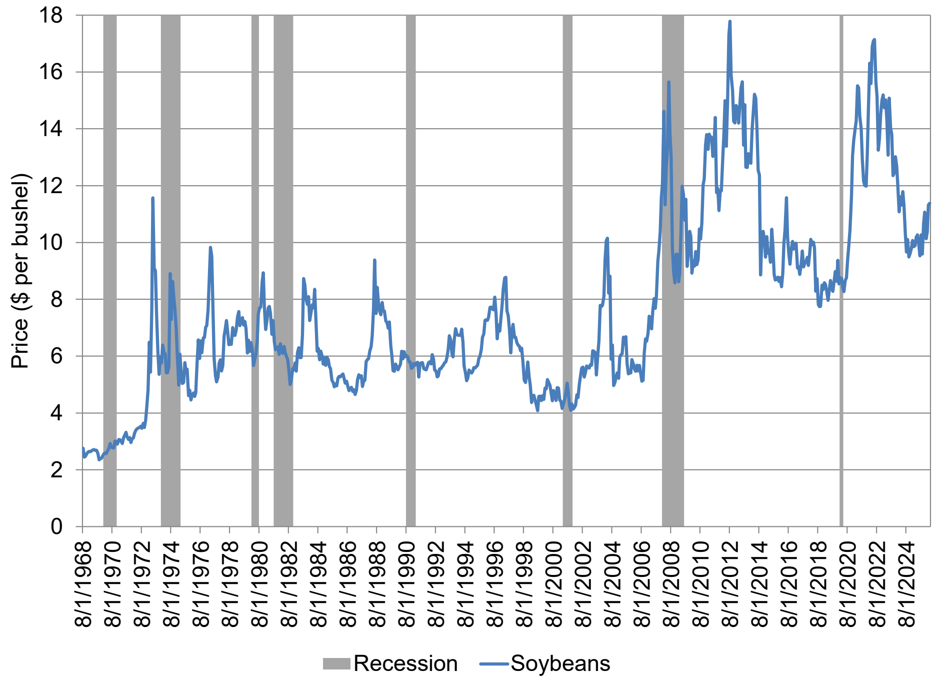


**Figure 7. Soybean prices and recessions.**
*Sources*: Barchart.com (2026) and Federal Reserve Bank of St. Louis (2026).

Table 1 shows the average monthly changes in corn and soybean prices over the last 58 years and during recessionary and non-recessionary periods. Corn and soybean prices have averaged roughly a 0.5% increase per month during the period, but most of that growth has occurred since 2005. However, if the general economy is in recession, the average increase in corn prices falls to 0.14%. Soybean prices show very little impact from recessions. In fact, soybean prices have actually grown a bit faster during recessions. During non-recessionary periods, corn and soybean prices have averaged nearly the same percentage growth, just over 0.5%.

**Table 1. Average Monthly Change in Crop Prices**

| | **Corn Price** | **Soybean Price** |
|---|---|---|
| Average | 0.49% | 0.53% |
| Recession | 0.14% | 0.59% |
| Not Recession | 0.54% | 0.52% |

*Note*: Data covers September 1968 to March 2026.
*Data sources*: Barchart.com (2026) and Federal Reserve Bank of St. Louis (2026).

The designation of a recession is not the only general economic factor that influences agriculture. As the US economy just experienced, following the COVID-19 pandemic, inflation can have a tremendous impact on economic wellbeing. And the Federal Reserve's major tool to fight inflation is interest rates. Thus, to explore the relationships among crop prices, inflation rates, and interest rates, we have computed the correlation matrix among these variables (table 2). Corn and soybean prices are highly correlated (i.e., they tend to move together) as is shown by the correlation of 0.6214. The linkages between crop prices, inflation rates, and interest rates are less certain. While there is a positive correlation structure among all of these variables, the strength of those relationships is weak. Based on these correlations, there does not seem to be strong links between crop prices, inflation rates, and interest rates.

**Table 2. Correlation Matrix**

| | Corn Price | Soybean Price | Inflation Rate | 3-Month T-Bill Rate |
|---|---|---|---|---|
| Corn Price | 1.0000 | | | |
| Soybean Price | 0.6214 | 1.0000 | | |
| Inflation Rate | 0.0587 | 0.0699 | 1.0000 | |
| 3-Month T-Bill Rate | 0.0424 | 0.0105 | 0.1087 | 1.0000 |

*Note*: Data covers September 1968 to March 2026.
*Data sources*: Barchart.com (2026), Federal Reserve Bank of St. Louis (2026), and BLS (2026).

However, two cost categories that could be highly influenced by recessions, inflation rates, and interest rates are fertilizer and fuel. After land costs, fertilizer and fuel are two of the biggest cost components crop producers have. USDA's data on fertilizer and fuel prices is not quite as extensive as the crop price data. From 1975 to 1995, USDA captured quarterly fertilizer and fuel prices. Since 1995, monthly price data is now available. Figures 8 and 9 show the fertilizer and fuel price series during recessions and non-recessionary times. For fertilizer, some of the largest price swings in history came during the Great Recession. However, we had seen a similar swing in 1975–76, just after the recession in the early 1970s. But the largest swing in fertilizer costs came with the outbreak of the war between Ukraine and Russia. The data is not yet available to show the most recent jump in fertilizer prices coinciding with the US-Iran conflict and the closing of the Strait of Hormuz.

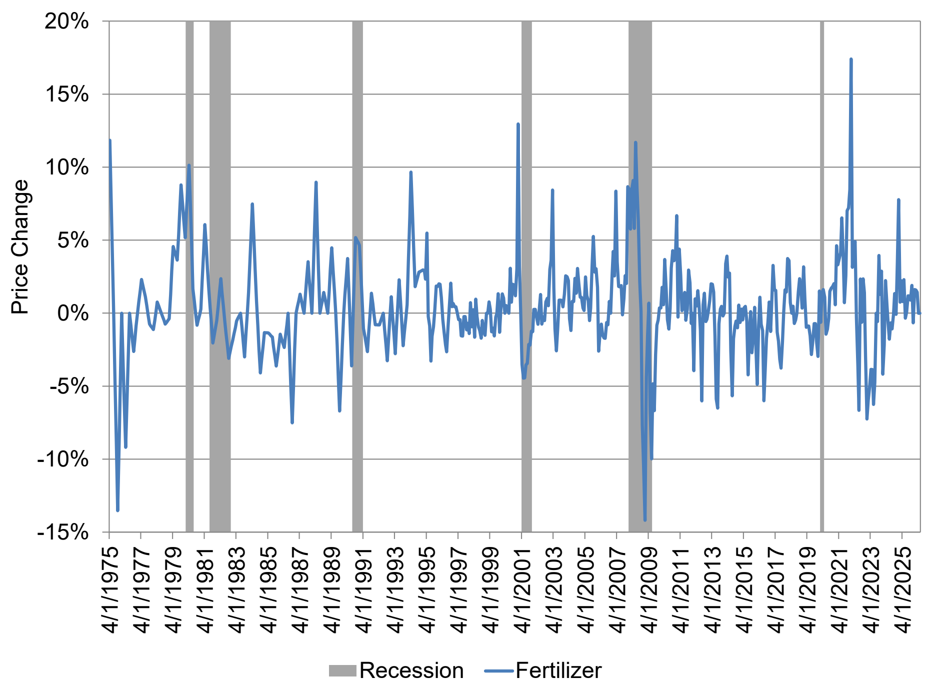


**Figure 8. Fertilizer prices and recessions.**
*Sources*: USDA-NASS (2026) and Federal Reserve Bank of St. Louis (2026).

For fuel, the largest price swings occurred during the 1990–91 recession, when fuel prices spiked by 50% and then retreated by 30%. The recent spikes in fuel prices related to the two large ongoing military conflicts are large, but pale in comparison to the 1990–91 shifts on a percentage basis. Figures 8 and 9 show that crop costs may be more in line with the general economy than crop prices, as costs tend to react more to non-agricultural events, such as recessions and wars.

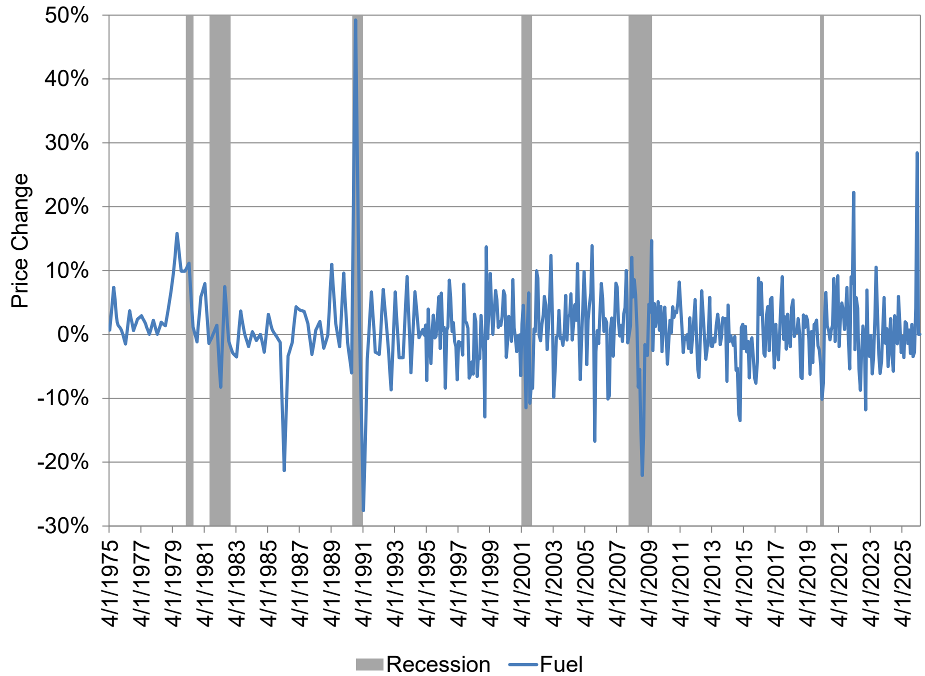


**Figure 9. Fuel prices and recessions.**
*Sources*: USDA-NASS (2026) and Federal Reserve Bank of St. Louis (2026).

Table 3 shows the average monthly changes for fertilizer and fuel prices. Overall, fertilizer prices tend rise 0.42% per month, while fuel prices rise a bit faster, at 0.68%. During recessions, fertilizer prices tend to cool, slowing to a growth rate of 0.14%. Meanwhile, fuel prices accelerated, growing at 0.8%.

**Table 3. Average Monthly Change**

| | Fertilizer Price | Fuel Price |
|---|---|---|
| Average | 0.42% | 0.68% |
| Recession | 0.14% | 0.80% |
| Not Recession | 0.44% | 0.67% |

*Note*: Data is quarterly from April 1975 to January 1995, then monthly from January 1995 to March 2026.
*Data sources*: Barchart.com (2026) and Federal Reserve Bank of St. Louis (2026).

Based on correlations, fertilizer and fuel prices are more closely tied to inflation and interest rates than crop prices are. In all cases there seems to be a positive relationship, for example, as inflation rates increase, so do fertilizer prices. The strongest relationship is between fuel prices and inflation rates. That makes sense as fuel price movements are a large component of inflation calculations.

**Table 4. Correlation Matrix**

| | Fertilizer Price | Fuel Price | Inflation Rate | 3-Month T-Bill Rate |
|---|---|---|---|---|
| Fertilizer Price | 1.0000 | | | |
| Fuel Price | 0.2208 | 1.0000 | | |
| Inflation Rate | 0.2224 | 0.4602 | 1.0000 | |
| 3-Month T-Bill Rate | 0.0619 | 0.0718 | 0.2338 | 1.0000 |

*Note*: Data is quarterly from April 1975 to January 1995, then monthly from January 1995 to March 2026.
*Data sources*: USDA-NASS (2026), Federal Reserve Bank of St. Louis (2026), and BLS (2026).

Another factor shaping both the revenue and cost sides for US crop farmers is the extent of competition from producers around the globe. While the United States is a major agricultural power, production outside the United States has also expanded greatly. Take corn for example, figure 10 shows corn production outside the United States over the last 25 years. In 2000, the rest of the world produced just over 10 billion bushels of corn. Today, that total is well north of 25 billion. This translates into a more competitive export environment, as other exporting countries have more to sell and some importing countries are now able to import less. This slows down export responsiveness and, thus, slows down price recovery. At the same time, that growth in global production adds to the cost pressure, not only here in the United States, but also for our global competitors. Farmers around the globe have felt the sting of higher fertilizer prices this year.

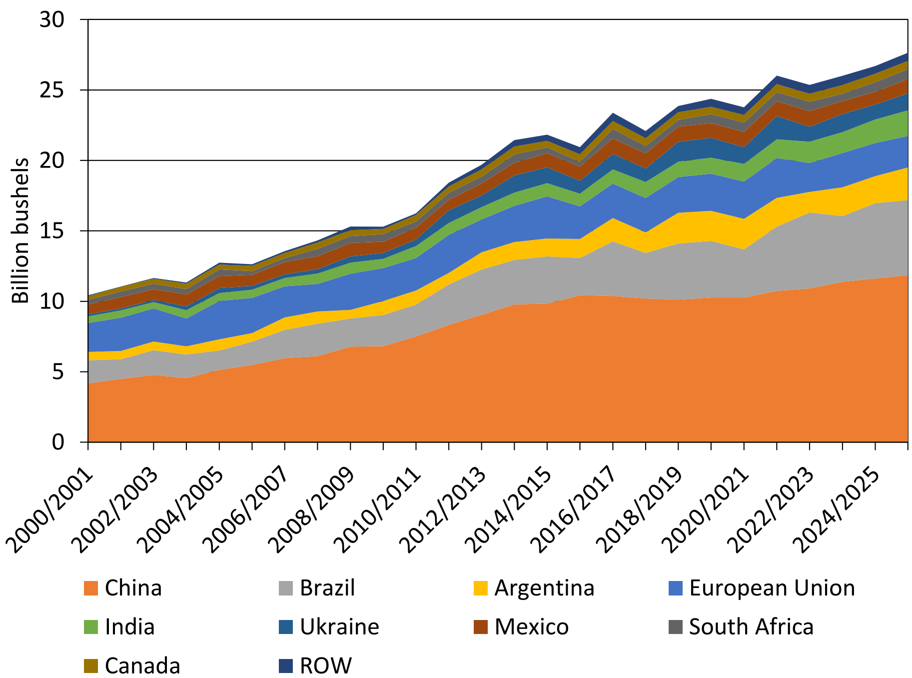


**Figure 10. International corn production.**
*Source*: USDA-FAS (2026).

The increase in corn production throughout the world also impacts production costs, as those producers outside the United States are competing for some of the crop inputs utilized here in the United States. Figure 11 outlines fertilizer use outside of the United States. While the United States produces some of the fertilizer products needed by crop producers, we do still import a significant portion of our fertilizer needs. Those imports link the

US fertilizer markets to the global ones. And as figure 11 shows, the rest of the world has a strong need for fertilizers as well. That competition leads to higher input costs.

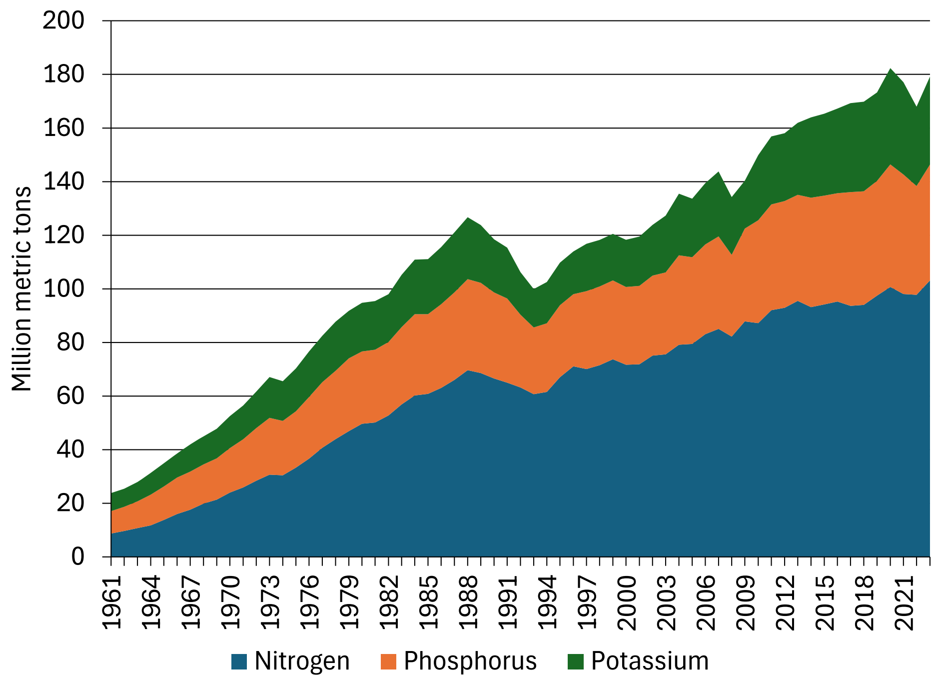


**Figure 11. International fertilizer consumption.**
*Source*: IFA (2026).

Currently, Iowa crop producers are facing their third year in a row where costs are generally exceeding prices. While the estimated losses are not as large as the gaps from the 1980s or the early 2000s, the financial strain of multi-year losses is appearing across the farming landscape. It is a time of mixed financial signals. Based on federal court filings, Chapter 12 farm bankruptcies have more than doubled over the past two years (US Courts 2026). But even at today's heightened level of bankruptcies, that is still below the minimum number of annual bankruptcy filings from 2008 to 2021 (US Courts 2026). The financial challenges are not evenly distributed.

Crop prices are heavily influenced by the cycles in agricultural production and crop market supply and demand. Crop costs are more influenced by the cycles in the general economy. As crop margins are computed as the difference between crop prices and costs, they are influenced by both types of cycles. Sometimes, these cycles complement each other. Other times these cycles offset each other, take for example the late 1980s and early 1990s. For price improvement, markets either require relatively less supply or more demand. In crop markets, less supply is usually driven by Mother Nature, via extreme weather events, such as droughts, floods, or freezes. On the other hand, increases in demand can come from existing or new sources. The ethanol boom is a great example of a new source of crop usage surging to support prices. Meanwhile, the current boost in corn exports is a fine example of a shift in existing demand supporting prices. As we look at the current situation, we have several factors that are pointing to a slower recovery to breakeven pricing. Crop prices are under pressure for several reasons. First, corn and soybean planted areas are at very high levels. So the potential for record crop production exists. Second, while crop usage has been robust, especially for corn, the growth in usage has not consistently kept pace with the growth in production. Based on futures prices as of early June 2026, corn prices will be in the $4.50–$4.75 per bushel range until 2029. Soybean prices are expected to hover around $11 per bushel.

Crop costs are expected to remain higher than comfortable. First, there is the direct pressure that comes from the increase in corn and soybean planted area and the need for more crop inputs as we farm more land. Second, concerns about the general economy and inflation have set the stage for steady-to-higher interest rates, adding interest pressure along with the higher input costs. Third, the ongoing conflicts in the Black Sea and Middle East have significantly challenged the energy and fertilizer markets. It will take some time to reset those markets to pre-war levels. If the crude oil market is a barometer for recovery, then that recovery could take years. Prior to the US-Iran war, crude oil prices were holding in the $60 per barrel range. Currently, the futures market shows crude oil price staying above $70 per barrel for the next couple of years and not dropping below $60 per barrel until 2033. However, agricultural returns are cyclical in nature, a few years of good returns are followed by a few years of negative returns and vice versa. Historically, crop costs follow a delayed pattern with crop prices, basically following the same shifts a year or two after prices. However, that relationship is now weaker given the discussion above. Looking forward, we should expect that costs will eventually align with prices, as farming remains a competitive industry.

Given this outlook, what are the ways we can protect our financial bottom line? First, create and follow a marketing plan. A marketing plan guides you as you face the ups and downs of a market and reminds you of the goals you have for your operation. Second, explore sales and input purchases as a joint event. Pair up crop sales and input purchases to lock in crop margins when they are profitable. As costs rise, input management will become more important. Third, continue to use risk management programs, such as crop insurance, to protect against unexpected weather and market events. While prices and costs have changed, the risks to agriculture are still the same set that we have had for the last 50 years, if not beyond. So the tools to manage those risks still work, as long as they reflect the current pricing structure. It is not that we need new risk management tools—we need to make sure we are utilizing the existing tools effectively.

## References


Barchart.com. 2026. "Monthly Price Series for Cash Crops." https://www.barchart.com/futures/grains?viewName=main. Accessed throughout May and June 2026.

Federal Reserve Bank of St. Louis. 2026. "Federal Reserve Economic Data [FRED]." https://fred.stlouisfed.org/. Accessed throughout May and June 2026.

International Fertilizer Association (IFA). 2026. "IFASTAT Database." https://ifastat.org/fertilizer-reports-analysis/bulk-download-files. Accessed June 6, 2026.

Iowa State University Extension and Outreach (Iowa State). 2026. "Historical Costs of Crop Production." https://www.extension.iastate.edu/agdm/crops/pdf/a1-21.pdf. Accessed June 6, 2026.

United States Courts. 2026. "Bankruptcy Statistics Data Visualizations." https://www.uscourts.gov/data-news/reports/statistical-reports/bankruptcy-filing-statistics/bankruptcy-statistics-data-visualizations. Accessed June 7, 2026.

United States Bureau of Labor Statistics (BLS). 2026. "Percentage Change in CPI – All Items." https://www.bls.gov/cpi/. Accessed throughout May and June 2026.

United States Department of Agriculture Economic Research Service (USDA-ERS). 2026. "Farm Sector Income and Finances – Farm Sector Income Forecast." https://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/farm-sector-income-forecast. Accessed June 6, 2026.

United States Department of Agriculture Foreign Agricultural Service (USDA-FAS). 2026. "Production, Supply, and Distribution (PSD) Database." https://apps.fas.usda.gov/psdonline/app/index.html#/app/advQuery. Accessed June 6, 2026.

United States Department of Agriculture National Agricultural Statistics Service (USDA-NASS). 2026. "Quick Stats." https://quickstats.nass.usda.gov/. Accessed June 6, 2026.


## Suggested Citation

Hart, C. 2026. "The Ag Economy in 2026: A Crop Marketing Perspective." In J.M. Crespi and C.C. Pudenz (Eds.) "2026 Iowa Agricultural Outlook: The Pressure is Rising." Center for Agricultural Development at Iowa State University, Iowa Farm Bureau Federation, and Iowa Bankers Association.

# The Ag Economy in 2026: A Livestock Marketing Perspective

**Chad Hart and Christopher C. Pudenz**

Within the past several years, the livestock industry has experienced record high prices, seemingly ever-increasing costs, and significant weather and disease challenges. All of those factors are actually still in place today. Combine those features with a number of geopolitical shifts and you get a significant increase in uncertainty across farm/ranch country. This chapter explores the historical relationships in Iowa's key livestock markets, outlines some of the factors that steered us to where we are today, and provides some thoughts on where the livestock markets might move from here.

## Livestock Supplies

Let us start with livestock supplies. While we often talk about the livestock industry as one sector, the individual species can move independently from one another. Currently, the cattle herd and turkey flock are going through extended contractions, the hog herd has been relatively steady, and the layer flock has been seeking expansion to meet demand and/or offset disease losses. Figure 1 displays the shifts in US national animal numbers over the past several decades. For cattle, hogs, and layers, the inventories are for a specific point in time, January 1 for cattle and layers, and December 1 for hogs. Turkey numbers are only reported over the entire year. Also, the layer data was only available since 2008. As the data shows, the cattle herd has been trending lower with each cycle since the 1970s. The turkey flock entered a similar downward trend in the late 1990s. Meanwhile, the hog herd has been trending higher since the 1980s.

Recently, the cattle herd peaked in 2019 and has been retreating since as drought conditions limited pasture and rangeland use and fed cattle prices offered lucrative returns for moving the animals to slaughter facilities. The hog herd also peaked in 2019, but hog inventories only took a slight retreat before leveling off, with levels basically holding steady over the past five years. Meanwhile, the layer and turkey industries have faced significant disease pressure as highly pathogenic avian influenza (HPAI) has plagued the poultry sector for a sizable portion of the last 12 years. The most recent outbreak, 2023–2025, steepened the pullback in turkey numbers and lowered layer populations by roughly 30 million birds per year. In Iowa in 2024 alone, HPAI combined with outbreaks of avian metapneumovirus (aMPV) led to the loss of approximately 830,800 turkeys, with substantial negative economic impacts extending beyond the state's turkey industry (Crespi and Pudenz 2025).

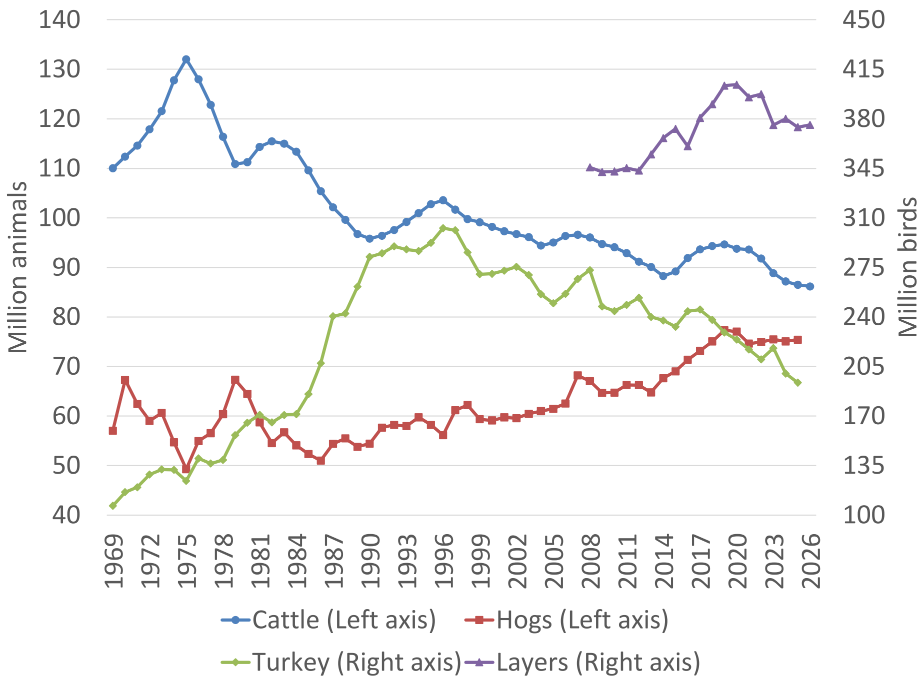


**Figure 1. US national animal inventories.**
*Source*: USDA-NASS (2026).

The recent downturns in most animal populations have not necessarily translated into similar reductions in meat and egg production. Figure 2 displays US national meat and egg production over the same time periods. In the long run, across all of the species, meat and egg production has been trending higher. For the meat animals, higher slaughter weights and increased animal turnover have mostly offset the smaller inventories. For eggs, layer productivity continues to increase. However, the data from the most recent years indicates those production gains are now being overwhelmed by the decline in animal numbers. While the cattle herd started shrinking in 2020, beef production reached its peak in 2022. Over the last three years, beef production has declined by roughly 2 billion pounds. Pork production peaked in 2020, dropped by 1 billion pounds by 2022, but has recovered some of that loss since. Turkey production topped out in 2008 at 8 billion pounds and held around 7 billion pounds until the 2020s. Over the last couple of years, turkey production has slid toward 6 billion pounds as the losses from HPAI have added up. Egg production set its record in 2019. While there were a couple of HPAI outbreaks in the 2010s, the egg industry was able to recover quickly and continue its long-run growth trend. However, the HPAI outbreaks during the 2020s have created a string of lower egg production levels since 2022.

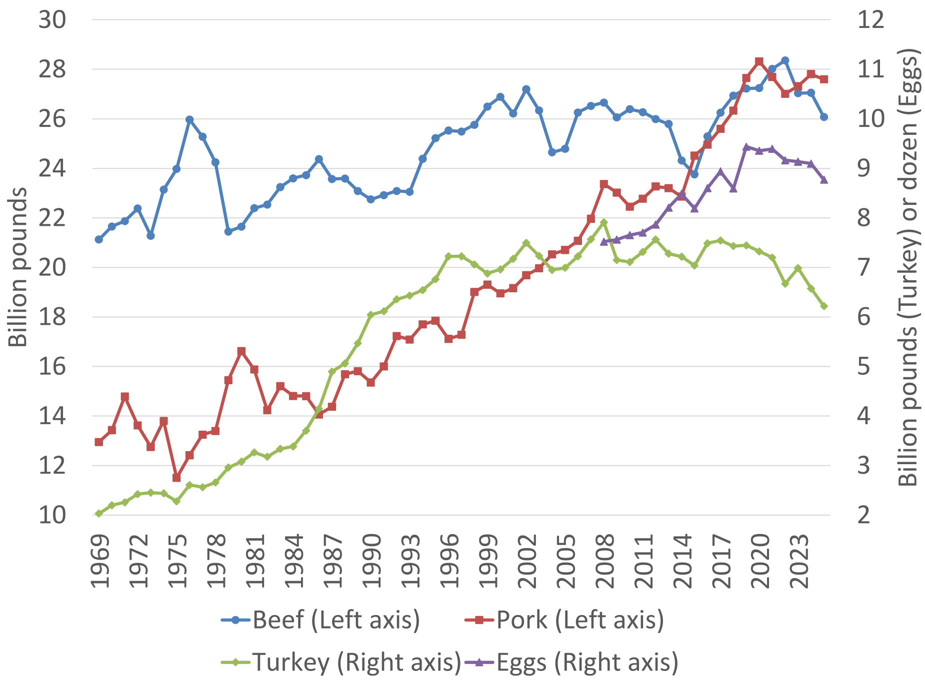


**Figure 2. US national meat and egg production.**
*Source*: USDA-NASS (2026).

## Livestock Prices

The general economy can impact livestock returns. Figures 3–6 display the pattern of cattle, hog, turkey, and egg prices over time (for cattle, hogs, and turkey: 57 years; for eggs: 27 years, as the price data was more limited) and the gray bars highlight when the general economy was in recession. The graphs do not reveal any strong discernible patterns linking livestock prices and recessions. For cattle and hogs, price variability seems consistent between good and tough economic times. Given the recent disease pressures with HPAI, turkey and egg prices show more variability with disease issues than with recessions.

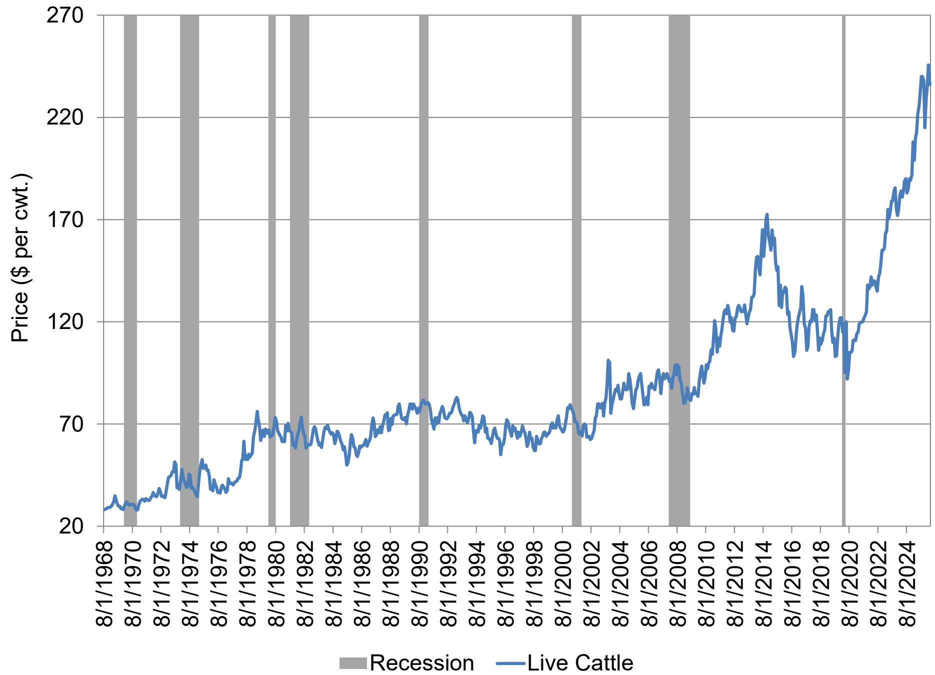


**Figure 3. Live cattle prices and recessions.**
*Sources*: Barchart.com (2026) and Federal Reserve Bank of St. Louis (2026).

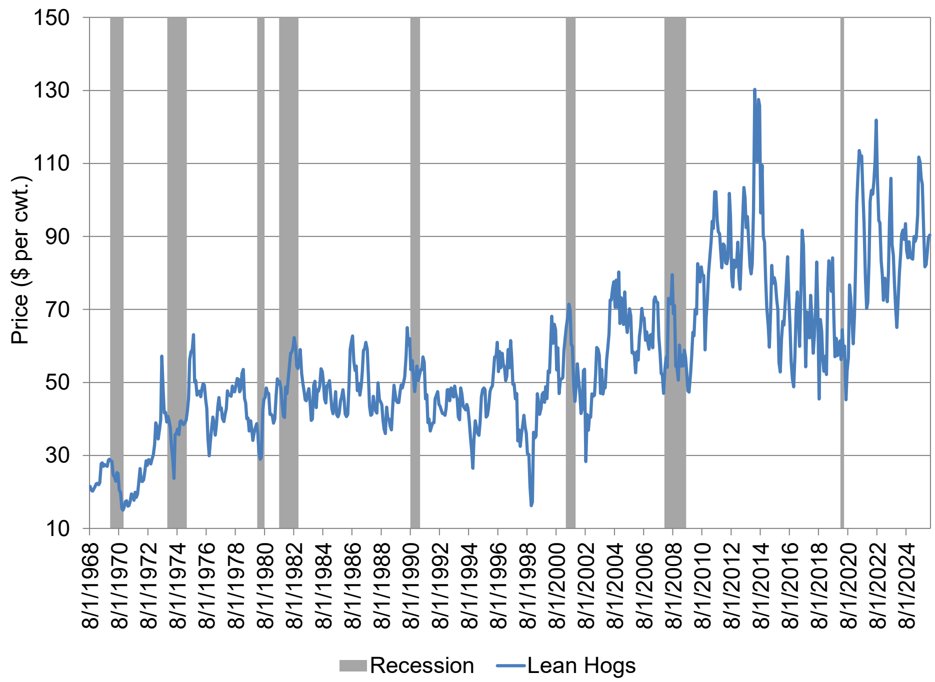


**Figure 4. Lean hog prices and recessions.**
*Sources*: Barchart.com (2026) and Federal Reserve Bank of St. Louis (2026).

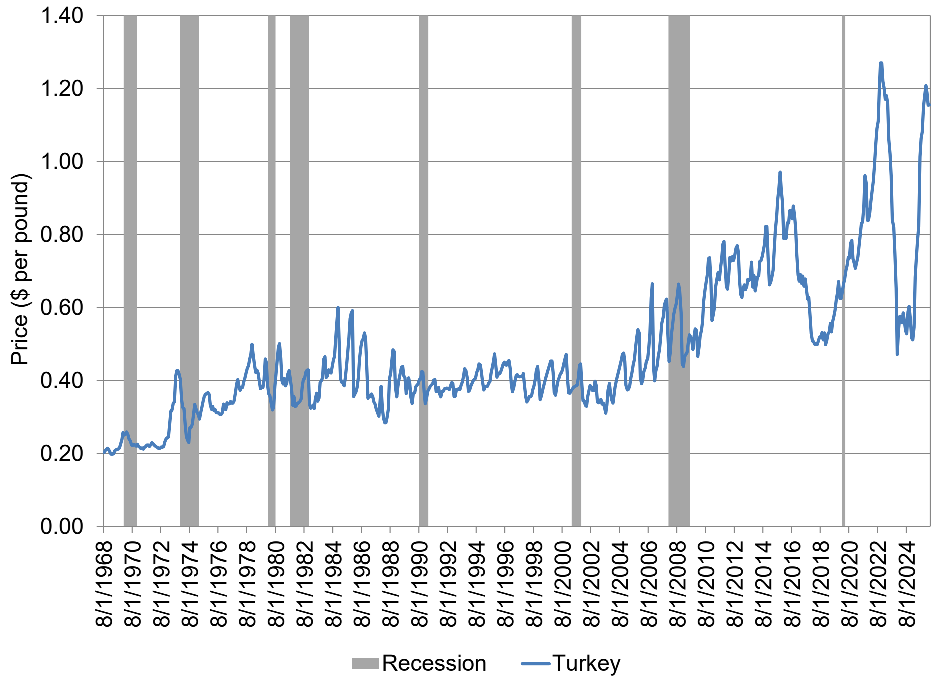


**Figure 5. Turkey prices and recessions.**
*Sources*: Barchart.com (2026) and Federal Reserve Bank of St. Louis (2026).

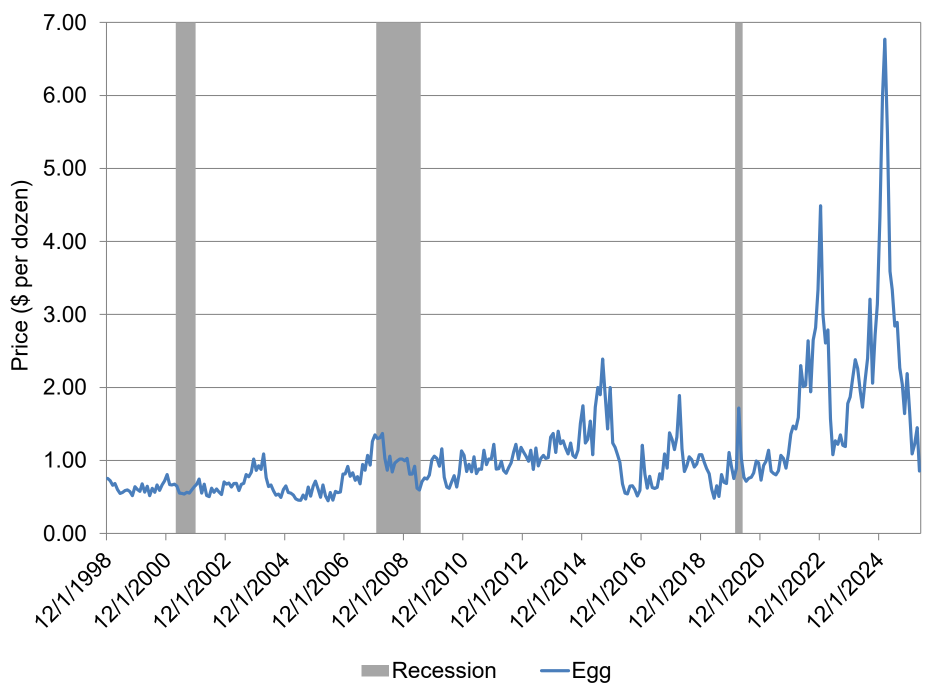


**Figure 6. Egg prices and recessions.**
*Sources*: Barchart.com (2026) and Federal Reserve Bank of St. Louis (2026).

Table 1 shows the average monthly changes in live cattle, lean hog, and turkey prices over the last 57 years and egg prices over the 27 years, during recessionary and non-recessionary periods. All of the livestock prices show an average overall positive monthly price change. However, recessions do tend to reduce or eliminate those gains. Eggs are the only category where the average price change is still positive during recessionary periods. Cattle prices tend to retreat the most, followed by hog and turkey prices. Thus, while the graphs did not show a strong relationship between recessions and livestock prices, the averages reveal a deeper connection.

**Table 1. Average Monthly Change in Livestock Prices**

| | Live Cattle Price | Lean Hog Price | Turkey Price | Egg Price |
|---|---|---|---|---|
| Average | 0.44% | 0.84% | 0.47% | 2.20% |
| Recession | -0.34% | -0.27% | -0.08% | 0.27% |
| Not Recession | 0.55% | 0.99% | 0.54% | 2.39% |

*Note*: Data covers September 1968 to March 2026 for cattle, hogs, and turkey and December 1998 to March 2026 for eggs.
*Data sources*: Barchart.com (2026), USDA-NASS (2026), and Federal Reserve Bank of St. Louis (2026).

Other general economic factors that can influence agriculture are inflation and interest rates. As the US economy just experienced, inflation can have a tremendous impact on economic wellbeing. And the Federal Reserve's primary tool to fight inflation is interest rates. Thus, to explore the relationships among livestock prices, inflation rates, and interest rates, we have computed the correlation matrix among these variables (table 2). The linkages among livestock prices, inflation rates, and interest rates are more tenuous than we found for crops. In most cases, there is a positive correlation structure among these variables, with the exception of lean hog prices and the 3-month T-bill rate, though the strength of those relationships is very weak. Based on these correlations, there do not seem to be strong links between livestock prices, inflation rates, and interest rates.

**Table 2. Correlation Matrix for Relevant Variables**

| | Live Cattle Price | Lean Hog Price | Turkey Price | Inflation Rate | 3-Month T-Bill Rate |
|---|---|---|---|---|---|
| Live Cattle Price | 1.0000 | | | | |
| Lean Hog Price | 0.1866 | 1.0000 | | | |
| Turkey Price | 0.0724 | 0.0070 | 1.0000 | | |
| Inflation Rate | 0.0311 | 0.0312 | 0.0217 | 1.0000 | |
| 3-Month T-Bill Rate | 0.0098 | -0.0119 | 0.0611 | 0.1087 | 1.0000 |

*Note*: Data covers September 1968 to March 2026.
*Data sources*: Barchart.com (2026), USDA-NASS (2026), Federal Reserve Bank of St. Louis (2026), and BLS (2026).

With the cattle and hog industries, there is a rich literature exploring the inventory cycles these livestock species display. To outline how those cycles relate to farm/ranch economics, we have also calculated the average price changes during herd expansion and contraction phases. Figures 7 and 8 show the movement in livestock prices over time, with the gray bars now indicating times of herd expansion. Here, herd expansion is defined as positive year-over-year change in the number of animals. As the cattle herd size is usually reported on a semi-annual basis and the hog herd is reported quarterly, you will see significantly more shifts between phases for hogs.

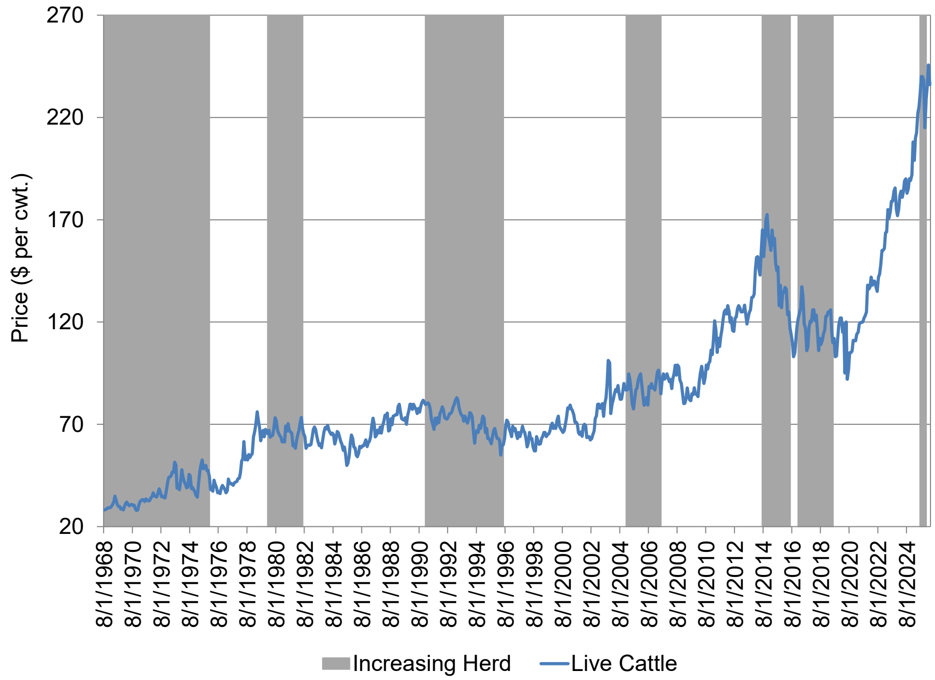


**Figure 7. Live cattle prices and year-over-year inventory shifts.**
*Sources*: Barchart.com (2026) and USDA-NASS (2026).

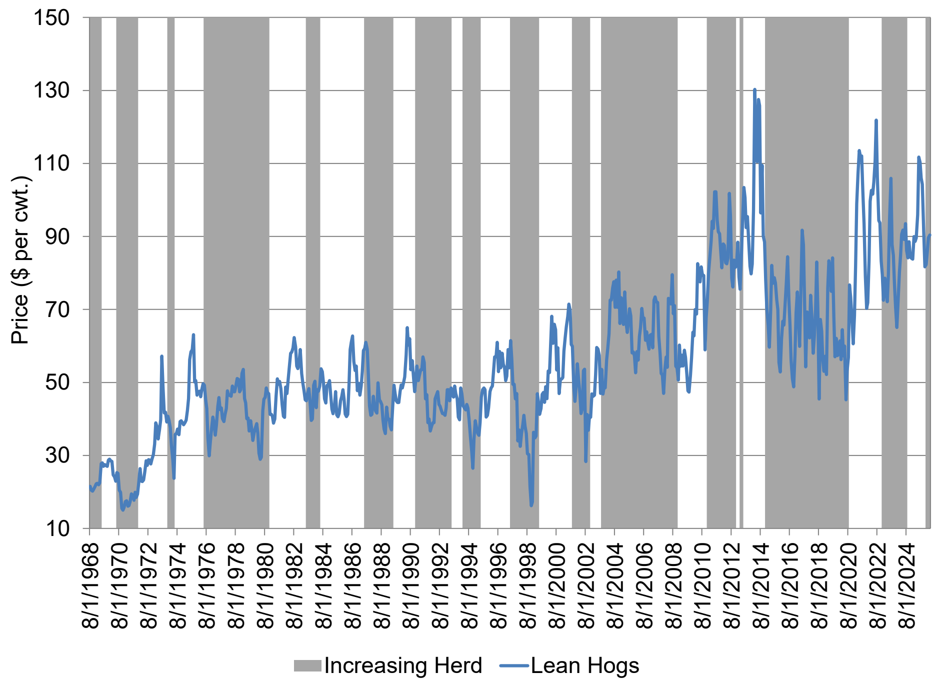


**Figure 8. Lean hog prices and year-over-year inventory shifts.**
*Sources*: Barchart.com (2026) and USDA-NASS (2026).

As with the macroeconomic data, the graphs show no strong relationships. However, the averages once again reveal discernible patterns. As one would expect, smaller herds lead to reduced meat supply expectations and increased prices, while herd expansion points to increased meat supply and lower, but still positive, price movement.

**Table 3. Average Monthly Price Change based on Herd Dynamics**

| | Live Cattle Price | Lean Hog Price |
|---|---|---|
| Average | 0.44% | 0.84% |
| Increasing Herd | 0.07% | 0.43% |
| Decreasing Herd | 0.68% | 1.37% |

*Note*: Data covers September 1968 to March 2026.
*Data sources*: Barchart.com (2026) and USDA-NASS (2026).

## Input Prices

While the positive average price changes across the phases of the livestock cycles are encouraging, those prices are not the only ones shifting with the herd size. Feed costs represent a sizable proportion of livestock production costs, with corn being the dominant feedstuff. Also, livestock producers often must purchase feeder animals to replenish their herds. The pricing data for feeder animals is more limited; thus, for this part of the analysis, we will utilize data from February 2000 to the present.

**Table 4. Average Monthly Price Change for the Cattle Industry**

| | Live Cattle Price | Feeder Cattle Price | Corn Price |
|---|---|---|---|
| Average | 0.53% | 0.57% | 0.56% |
| Increasing Herd | -0.26% | -0.26% | 0.85% |
| Decreasing Herd | 0.84% | 0.90% | 0.45% |

*Note*: Data covers February 2000 to March 2026.
*Data sources*: Barchart.com (2026) and USDA-NASS (2026).

Table 4 demonstrates that, during this period, live cattle, feeder cattle, and corn prices have roughly the same average monthly percentage change. But when we divide the data into herd expansion and contraction phases, the relationships vary greatly. Feeder cattle prices tend to move in tandem with live cattle prices, shrinking as the herd grows and increasing as the herd declines. Corn prices tend to move in opposition to the cattle prices. As the cattle herd expands, that translates into more feed usage and a boost in corn prices. On the flip side, as the cattle herd and feed usage contracts, corn price gains slow. Thus, cattle and feed prices are shifting in opposite directions. Herd expansions compress margins as cattle prices fall and feed costs rise. Meanwhile, herd contractions tend to enhance margins as cattle prices gain more than feed costs.

**Table 5. Average Monthly Price Change for the Hog Industry**

| | Lean Hog Price | Feeder Pig Price | Corn Price |
|---|---|---|---|
| Average | 0.90% | 1.97% | 0.56% |
| Increasing Herd | 0.71% | 1.42% | 0.44% |
| Decreasing Herd | 1.22% | 2.93% | 0.77% |

*Note*: Data covers February 2000 to March 2026.
*Data sources*: Barchart.com (2026), USDA-AMS (2026), and USDA-NASS (2026).

For the hog industry, as shown in table 5, we find that input costs and lean hog prices tend to move in the same direction. Feeder pig prices mimic lean hog prices, but at roughly double the percentage rate. This shows that the purchase of replacement animals has become a larger proportion of total hog production costs. Corn prices also tend to move in concert with lean hog prices, but at a reduced percentage rate. These patterns indicate that pressure on hog margins is now more often exerted by feeder pig prices than corn prices for those producers that do not produce their replacement stock.

## Consumer Demand

Another significant driver of livestock returns is consumer demand. The measurement of demand goes beyond just examining the prices received for livestock and/or the number of animals or pounds moving through the markets. Truly looking at demand means exploring the combination of prices received and quantities transacted, capturing the total amount of money utilized by consumers to capture the products they desire. But often the sheer volume of money does not easily reveal the shifts within the industry. That is where demand indices are most helpful. A demand index sets the demand for a base period (a year, a month, a week, etc.) equal to a standard value (oftentimes 100, but 1 is sometimes used) and then tracks the relative change in demand over time. Figures 9 and 10 show relevant demand indices for beef and pork demand since 2000. For both indices, the base year is 2000 and the values are inflation-adjusted using the Consumer Price Index (CPI).

Figures 9 and 10 show that meat demand goes through similar cycles as livestock production. Consumers will have times where they are willing to spend more for meat, followed by periods where they pull back. For beef, the general trend has been upward. For every year since 2014, beef demand has exceeded the level from 2000. Over the last couple of years, beef demand has set records, with last year's index reaching 136, indicating consumers are spending 36% more in total for their beef purchases now than they spent in 2000. The strength of this consumer demand is providing significant support to high cattle and beef prices we see today. So for the cattle/beef market, it is a strong combination of limited supplies and record demand that has led to our current situation.

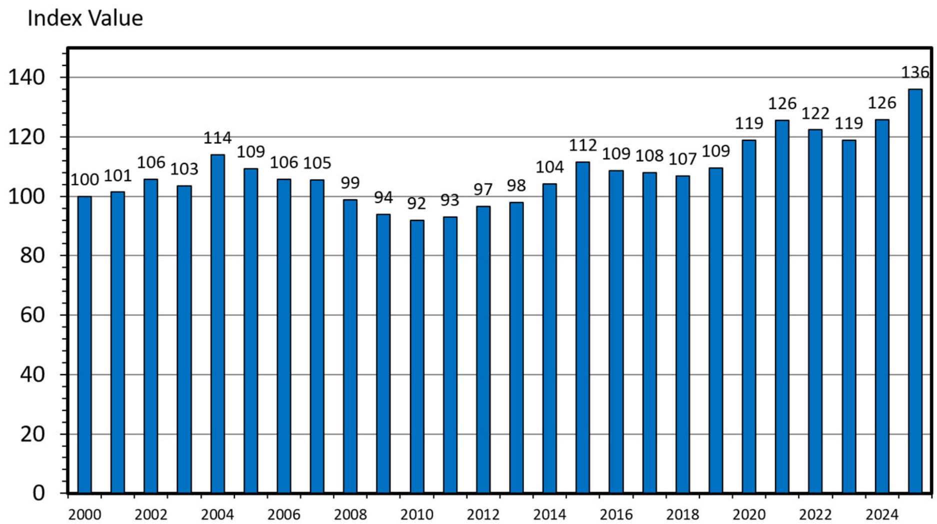


**Figure 9. Beef demand index.**
*Source*: LMIC (2026), based on data from BLS and USDA-ERS.

The pork industry, on the other hand, is not experiencing the same demand conditions. For a majority of the past 25 years, pork demand has been lower than in 2000. Pork did enjoy a bit of a renaissance from 2019 to 2022, but demand has been declining over the past three years, with the pork demand index staying below 100 during those three years. The 2025 index shows an 8% decline in pork demand relative to 2000. So while beef has limited supplies and record demand, pork is maneuvering with near record supplies and weakening demand.

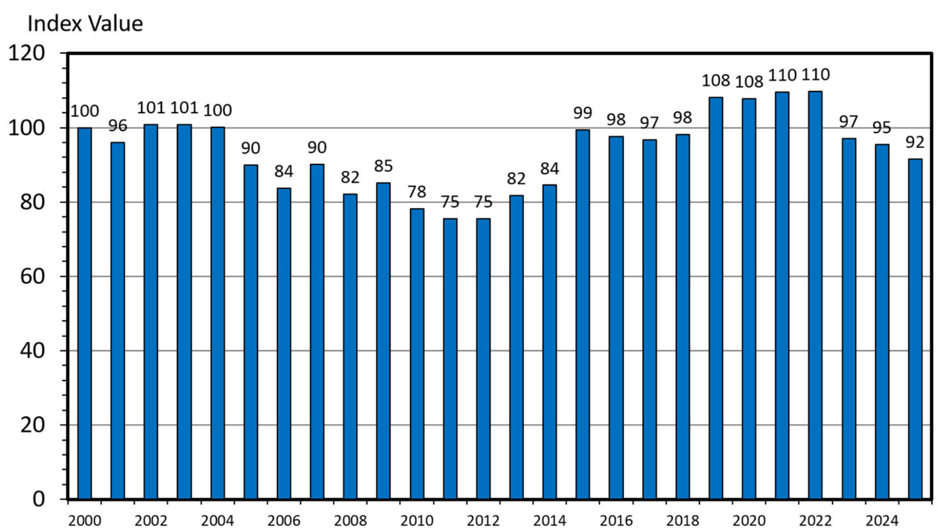


**Figure 10. Pork demand index.**
*Source*: LMIC (2026), based on data from BLS and USDA-ERS.

## Livestock Economics of Iowa

Localizing this discussion to Iowa, consider figure 11, which shows the value of production of crops and the value of animals and products by year for Iowa and Illinois. The purpose for including this figure is two-fold.

First, consider that Illinois on average generates more agricultural value from crops than Iowa during the decade shown, yet has a much smaller livestock sector. This demonstrates that a large row crop production industry does not guarantee that a livestock industry will develop alongside it. Second, observe that the value from animals and products and the value from crop production in Iowa are nearly equal on average in the decade shown. This industry diversification is key during downswings in either the crop or livestock economy. For instance, the value from crop production has shrunk since 2022, while value from livestock has remained essentially flat. On a percentage basis, the total value of agricultural production from animals and products and from crop production dropped 22% in Illinois from 2022 to 2024, compared to 16% in Iowa.

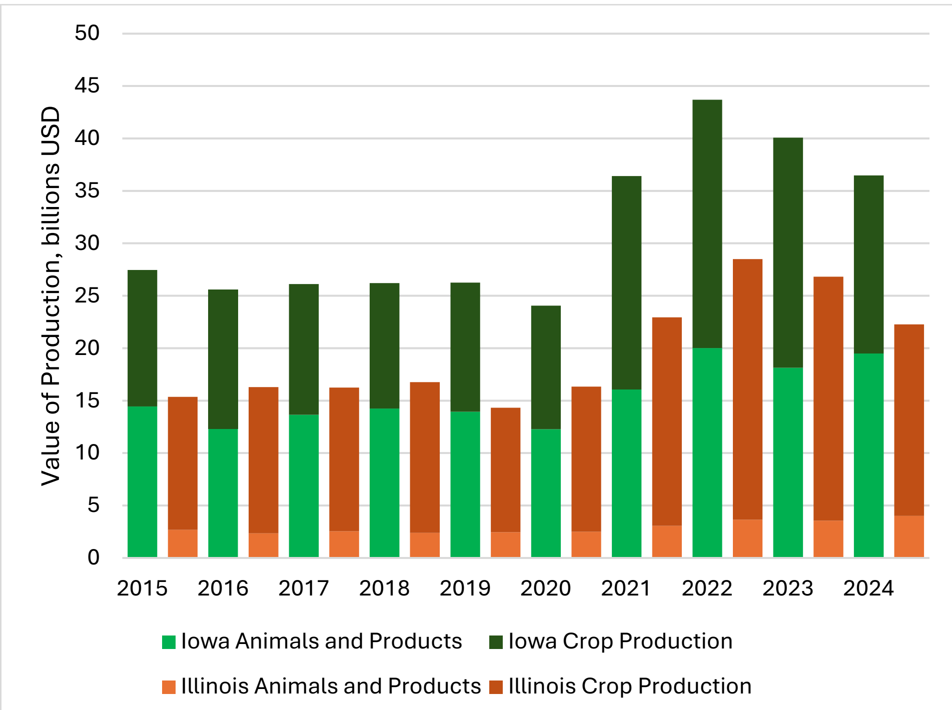


**Figure 11. Iowa vs. Illinois value of agricultural production, (USD billions), 2015–2024.**
*Source*: USDA-ERS (2026).

We gain a more granular view of how several of Iowa's largest livestock industries are performing by turning to Iowa State University's Estimated Livestock Returns models. Researchers from Iowa State calculate and publish monthly estimates for livestock feeding profitability (revenues from livestock sales plus manure credit less costs) for cattle feedlots and the swine industry. The estimates do not reflect any specific livestock operation in Iowa, nor do they reflect all livestock operations in Iowa. Instead, they serve as a directional barometer for livestock industry profitability in the state.

We begin first with Iowa's cattle feedlot industry, which ranks fourth among all states in cattle on feed inventory (USDA-NASS 2026). Monthly estimated returns to finishing steer calves calculations are shown in figure 12 from January 2002 through May 2026.

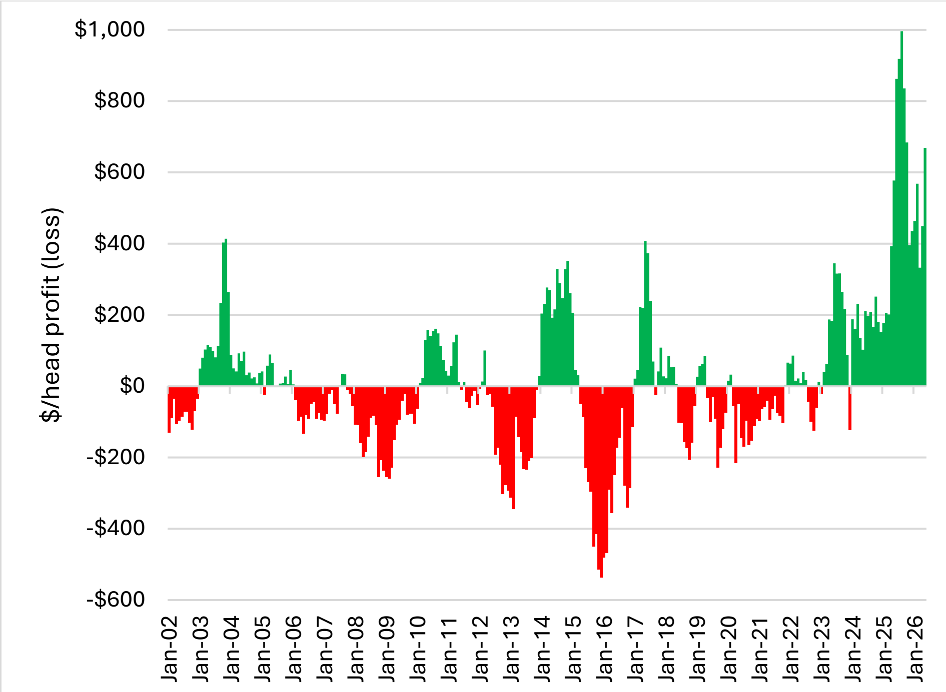


**Figure 12. Estimated returns to finishing steer calves in Iowa, total profit (loss), $ per head.**
*Source*: Iowa State University (2026).

Several aspects of figure 12 are worth pointing out. First, figure 12 shows how profitability in Iowa's feedlot sector is highly cyclical, with several years of profits alternating with several years of losses. Second, figure 12 shows how the current positive returns experienced by Iowa's cattle feedlots are both the largest and longest in the series dating back to 2002. Table 6 summarizes the data in figure 12 by year. The annual average of monthly returns for 2025 came in at $556.70 per head, with 2026 (through May) averaging $496.37 per head. These returns reflect how the twin forces of tight supply and record demand are providing especially strong returns at a time when feed costs are down from recent highs.

**Table 6. Averages of Monthly Estimated Returns to Finishing Steer Calves in Iowa, Total Profit (Loss), $/head**

| | Average Total profit (loss), $/hd | Average of Feed Costs, $/hd | Average of Nonfeed Costs, $/hd |
|---|---|---|---|
| 2002 | -$84.49 | $247.42 | $146.05 |
| 2003 | $172.04 | $270.09 | $142.22 |
| 2004 | $49.97 | $293.40 | $146.46 |
| 2005 | $26.79 | $232.59 | $154.90 |
| 2006 | -$72.68 | $251.50 | $172.48 |
| 2007 | -$29.40 | $347.65 | $179.23 |
| 2008 | -$156.52 | $471.98 | $186.14 |
| 2009 | -$124.44 | $395.09 | $166.50 |
| 2010 | $90.83 | $354.10 | $156.98 |
| 2011 | $14.21 | $558.35 | $166.93 |
| 2012 | -$121.08 | $645.59 | $177.25 |
| 2013 | -$167.84 | $704.06 | $184.88 |
| 2014 | $266.13 | $500.40 | $179.94 |
| 2015 | -$213.73 | $417.86 | $212.06 |
| 2016 | -$269.91 | $390.37 | $198.44 |
| 2017 | $145.63 | $361.55 | $187.34 |
| 2018 | -$61.25 | $385.83 | $196.00 |
| 2019 | -$51.62 | $416.19 | $199.82 |
| 2020 | -$100.20 | $402.58 | $200.04 |
| 2021 | -$52.72 | $541.81 | $200.82 |
| 2022 | -$5.33 | $680.11 | $214.16 |
| 2023 | $156.03 | $693.63 | $265.26 |
| 2024 | $181.77 | $662.49 | $392.75 |
| 2025 | $556.70 | $569.50 | $419.28 |
| 2026* | $496.37 | $533.00 | $441.81 |
| 2002-2026* | $14.57 | $451.18 | $206.01 |

*Note:* * 2026 data is for January through May.
*Data source*: Iowa State University (2026).

Turning now to Iowa's hog industry, which ranks first among all states in hog and pig inventories (USDA-NASS 2026), figure 13 shows monthly results from Iowa State University's Estimated Returns model for Farrow to Finish Swine. Figure 13 highlights that Iowa's hog producers as a whole are experiencing several years of profitability following one of the most difficult 18-month stretches in the history of the industry.

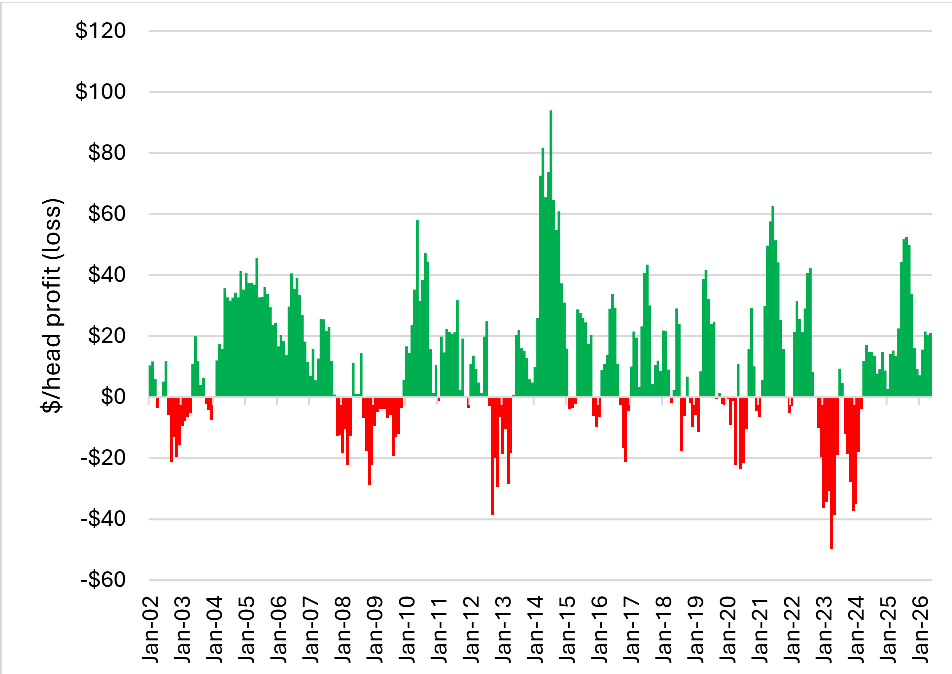


**Figure 13. Estimated returns to farrow-to-finish hogs in Iowa, total profit (loss), $/head.**
*Source*: Iowa State University (2026).

Table 7 summarizes the data in figure 13 by year, with the annual average of monthly returns for 2025 at $27.17 per head. So far, through May, estimated returns for 2026 are $17.16 per head. Given the pork supply and demand situation described earlier, present profitability in Iowa's hog and pig industry is in no small part due to moderated feed costs, with table 7 showing that the annual average of monthly feed cost estimates fell by nearly $40 per head from the peak in 2022 to 2025. Had feed costs remained at 2022 levels through 2025, all else equal, producers would have lost $11.62 per head in 2025. Hence, lower corn and soybean prices do have a silver lining in Iowa, where many agricultural producers are also diversified into livestock production. Also worth noting is the impact of inflation on nonfeed costs, which have increased every year since 2020, and in 2026 are 55% higher than they were in 2020. As this is examining farrow-to-finish operations, feeder pig costs are not part of nonfeed costs, as the pigs are produced within the farm.

**Table 7. Averages of Monthly Estimated Returns to Farrow to Finish Hogs in Iowa, Total Profit (Loss), $/head**

| | Average Total profit (loss), $/hd | Average of Feed Costs, $/hd | Average of Nonfeed Costs, $/hd |
|---:|---:|---:|---:|
| 2002 | -$2.74 | $45.49 | $52.64 |
| 2003 | $0.93 | $48.78 | $55.75 |
| 2004 | $26.84 | $55.86 | $53.94 |
| 2005 | $34.27 | $45.11 | $51.70 |
| 2006 | $25.36 | $47.27 | $51.53 |
| 2007 | $10.40 | $63.50 | $53.41 |
| 2008 | -$9.20 | $87.11 | $54.23 |
| 2009 | -$6.63 | $73.13 | $51.49 |
| 2010 | $28.14 | $71.89 | $49.93 |
| 2011 | $14.09 | $105.46 | $55.26 |
| 2012 | -$1.01 | $115.55 | $56.49 |
| 2013 | $1.86 | $122.23 | $52.43 |
| 2014 | $56.07 | $95.44 | $52.12 |
| 2015 | $11.33 | $81.69 | $47.85 |
| 2016 | $7.13 | $74.51 | $48.37 |
| 2017 | $18.94 | $70.99 | $48.45 |
| 2018 | $6.48 | $74.86 | $49.21 |
| 2019 | $12.40 | $76.17 | $49.37 |
| 2020 | -$2.17 | $75.35 | $48.87 |
| 2021 | $27.55 | $104.51 | $51.32 |
| 2022 | $15.66 | $124.39 | $60.29 |
| 2023 | -$24.10 | $120.36 | $70.45 |
| 2024 | $4.70 | $93.37 | $73.08 |
| 2025 | $27.17 | $85.60 | $74.51 |
| 2026* | $17.16 | $85.63 | $75.91 |
| 2002-2026* | $11.90 | $81.68 | $55.06 |

*Note*: * 2026 data is for January through May.
*Data source*: Iowa State University (2026).

## Looking Forward

History shows these positive margins will not persist indefinitely. Looking forward, there are several key issues the livestock sector will need to manage or address. For cattle, the first major obstacle to expansion remains the drought conditions across the western half of the country. The herd can only grow relative to the grassland and pasture's ability to support it. The second major obstacle is the cost of replacement animals. As the data above highlighted, that cost has increased more quickly than output prices, straining the finances of livestock producers. Elevated interest rates only compound the effects of higher replacement animal costs. The third obstacle is that beef packers have started to trim excess slaughter capacity, with 2026 plant closures in Lexington, NE (Tyson Foods 2025), and Souderton, PA (JBS Foods 2026), and the reduction of activities to one shift at the slaughter plant in Amarillo, TX (Tyson Foods 2025). These and any subsequent multi-plant coordination shutdowns could cap cattle industry expansion even when the weather and economics ultimately permit (Pudenz and Schulz 2024). The fourth major obstacle is one that many segments of the livestock industry face, the aging of our existing ranchers and the relative lack of new entrants in the industry. Just like with the grass or the packing plants, it is hard to grow the herd if you do not have enough ranchers. And finally, the impacts of the New World screwworm and the potential for other disease or pest pressures loom over the market.

For hogs, the challenge is to rekindle demand as consumers continue to deal with inflationary pressures coming from multiple fronts. The hog industry has reduced its breeding herd and limited its production over the past few years in an attempt to avoid oversupplying the market. At the meat counter, pork has become the relative bargain in the case, especially as beef prices have soared. This is readily seen in figure 14, which compares retail prices for beef, pork, and chicken. Beef prices have increased steadily since 2021, and though pork prices have been more or less flat since 2021, pork prices have not been attractive enough to pull consumer demand. The National Pork Board launched a new consumer marketing campaign in 2025. The "Taste What Pork Can Do" campaign is seeing positive demand effects, but it will take time for those impacts to be fully felt.

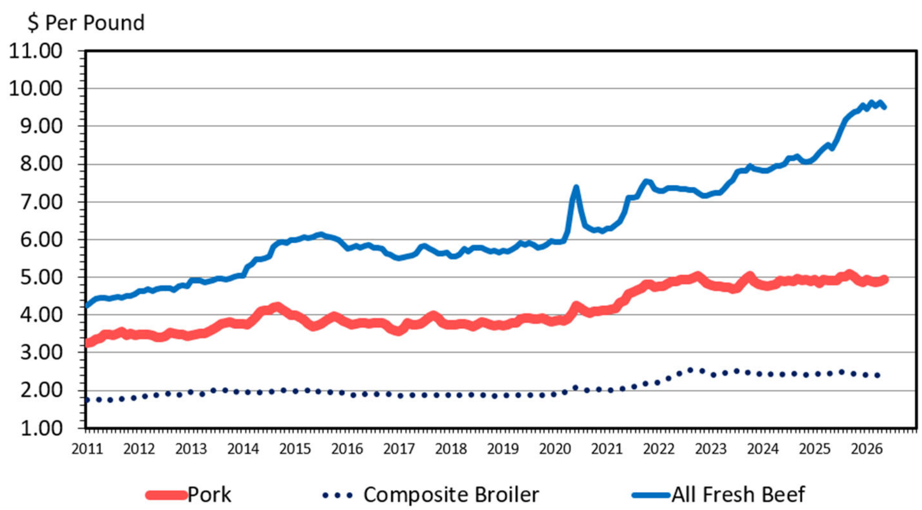


**Figure 14. Monthly meat retail price comparison.**
*Source*: LMIC (2026), based on data from BLS and USDA-ERS.

For the turkey and egg segments, the next couple of years are focused on resetting production following the ravages of HPAI. While the outbreak has significantly slowed over the past few months, both segments are still producing at reduced levels.

Despite these challenges, the livestock sector has been the stronger of the two sides of agriculture in recent years (livestock vs. crop). At the national level, livestock revenues have exceeded crop revenues for the last three years, and there are signals that livestock will continue to present profitable opportunities. Iowa specifically has recently attracted several key infrastructure investments that point to the perceived economic health of the industry now and in the future. Following Tyson's 2024 closure of its hog slaughter plant in Perry, IA (Schulz and Crespi 2024), in 2025, JBS USA broke ground on the construction of a $135 million new sausage plant in Perry (JBS Foods 2025). In 2025, Daisy Brand broke ground on a $676 million dairy processing facility in Boone, IA (Leach 2025). This is part of a broader trend of increased milk production in Iowa, which recently cracked the top ten among all states (USDA-NASS 2026).

In conclusion, the livestock sector presents partial solutions to several key issues presently facing agriculture. First, livestock remains a more consistent avenue for new and beginning producers than row crop production. Second, livestock presents an opportunity to manage supply chain risk internally through value added production (Crespi 2025).

## References


Barchart.com. 2026. "Monthly Price Series for Cash Livestock." https://www.barchart.com/futures/livestock?viewName=main. Accessed throughout May and June 2026.

Crespi, J.M. 2025. "Risk and Market Structure under Tariff Volatility." Policy brief 25-PB 50. Center for Agricultural and Rural Development, Iowa State University. https://www.card.iastate.edu/publications/25-pb-50. Accessed June 2026.

Crespi, J.M. and C.C. Pudenz. 2025. "Possible Economic Impacts from aMPV and HPAI in the Iowa Turkey Industry." Policy brief 25-PB 47. Center for Agricultural and Rural Development, Iowa State University. https://www.card.iastate.edu/publications/25-pb-47. Accessed June 2026.

Federal Reserve Bank of St. Louis. 2026. "Federal Reserve Economic Data [FRED]." https://fred.stlouisfed.org/. Accessed throughout May and June 2026.

Iowa State University. 2026. "Estimated Livestock Returns." https://estimatedreturns.econ.iastate.edu/. Accessed June 2026.

JBS Foods. 2025. "JBS USA Breaks Ground on New Perry Facility." https://jbsfoodsgroup.com/articles/jbs-usa-breaks-ground-on-new-perry-facility. Accessed June 2026.

JBS Foods. 2026. "JBS USA Announces Network Changes to Strengthen Operations." https://jbsfoodsgroup.com/articles/jbs-usa-announces-network-changes-to-strengthen-operations. Accessed June 2026.

Leach, T. 2025. "Daisy Brand Breaks Ground on New $676M Iowa Facility." Farm Journal, Inc. https://www.dairyherd.com/news/business/daisy-brand-breaks-ground-new-676m-iowa-facility. Accessed July 2026.

Livestock Marketing Information Center (LMIC). 2026. https://lmic.info/. Accessed throughout June 2026.

Pudenz, C.C., and L.L. Schulz. 2024. "Multi-plant Coordination in the U.S. Beef Packing Industry." American Journal of Agricultural Economics 106(1):382–415. https://doi.org/10.1111/ajae.12391. Accessed June 2026.

Schulz, L.L., and J.M. Crespi. 2024. "Economic Impact of Perry Pork Processing Plant Closure." Ag Decision Maker 28(7):11-13. Iowa State University Extension and Outreach. https://www.extension.iastate.edu/Agdm/newsletters/nl2024/may24.pdf. Accessed June 2026.

Tyson Foods. 2025. "Tyson Foods Announces Network Changes to Strengthen Long-Term Beef Business." https://www.tysonfoods.com/news/news-releases/2025/11/tyson-foods-announces-network-changes-strengthen-long-term-beef-business. Accessed June 2026.

United States Bureau of Labor Statistics (BLS). 2026. "Percentage Change in CPI – All Items." https://www.bls.gov/cpi/. Accessed throughout May and June 2026.

United States Department of Agriculture Agricultural Marketing Service (USDA-AMS). 2026. "National Direct Feeder Pig Report." Various issues. https://www.ams.usda.gov/mnreports/ams_2810.pdf. Accessed June 2026.

United States Department of Agriculture Economic Research Service (USDA-ERS). 2026. "Farm Income and Wealth Statistics." https://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics. Accessed June 2026.

United States Department of Agriculture Economic Research Service (USDA-ERS). 2026. "Meat Price Spreads." https://www.ers.usda.gov/data-products/meat-price-spreads.

United States Department of Agriculture National Agricultural Statistics Service (USDA-NASS). 2026. "Quick Stats." https://quickstats.nass.usda.gov/. Accessed throughout June 2026.


## Suggested Citation


Hart, C., and C.C. Pudenz. 2026. "The Ag Economy in 2026: A Livestock Marketing Perspective." In J.M. Crespi and C.C. Pudenz (Eds.) "2026 Iowa Agricultural Outlook: The Pressure is Rising." Center for Agricultural Development at Iowa State University, Iowa Farm Bureau Federation, and Iowa Bankers Association.

# Iowa Agricultural Exports and the Local Impacts of the China Trade War

**John M. Crespi, Chad Hart, and Sunghun Lim**

## Iowa's Agricultural Trade

What was Iowa agriculture like before it was a major agricultural exporter?[1] Figure 1 is a good starting point. Prior to the 1930s, protectionist trade policies around the globe contributed to a worldwide depression,[2] followed by a rise of authoritarianism, and the second world war. After the war, as the nations of the world took sides in what was to become the Cold War, leaders earnestly sought economic ties to bolster their political ones. The General Agreement on Tariffs and Trade (GATT) came into effect three years after the end of World War II, and for decades the world moved toward a more globalized network where tariff averages were much lower than the pre-war years with trade barriers mostly coming down and firms specializing in what they do best. An integrated world with trade negotiations becoming contractualized on longer and longer terms lowered the costs of specific assets by lowering their riskiness, setting the stage for businesses to take advantage of comparative advantages—not only in hard-to-find products but in higher qualities of products because manufacturers could rely on their input needs.

You can see this impact in Iowa agriculture. Figure 1 shows acreages of 12 major crops grown in Iowa from 1909 to 2025. Nineteen sixty-two was of major importance to US globalization efforts because that is the year Congress allowed the president to enter multilateral tariff negotiations rather than slower bilateral agreements (the Trade Expansion Act of 1962). The Senate was still required to ratify an agreement, but the United States, as much of the rest of the world, was moving into an era where multilateral trade agreements were *en vogue*. Look at figure 1 before and after 1962 and you can see Iowa taking advantage of its comparative advantage in corn and soybean production. An argument that expansion of corn and soy had as much to do with farm bill policies favoring those crops misses the connection that the same people in Washington writing trade bills are also writing farm bills: the two polices work together.[3] With the riskiness of the spot markets removed due to trade agreements, world buyers could count on a steady supply of consistent quality agricultural commodities from the United States, and Iowa farmers could replace their portfolio risk management with trade contracts allowing them to invest in specific assets for the cultivation of higher value corn and soy.

[1] The next two paragraphs and figure 1 are taken from: Crespi, J.M. 2025. "Risk and Market Structure under Tariff Volatility." Policy brief 25-PB 50. Center for Agricultural and Rural Development, Iowa State University.

[2] The well-known United States' Smoot-Hawley Act of 1930, was just one of them.

[3] Aside: soybeans, did not explicitly enter into the farm bills until the Food Security Act of 1985. Soybean exports precede the 1985 Farm Bill and it was almost immediately on the heels of the Trade Expansion Act of 1962 that the United States became a dominant player on the world soy market.

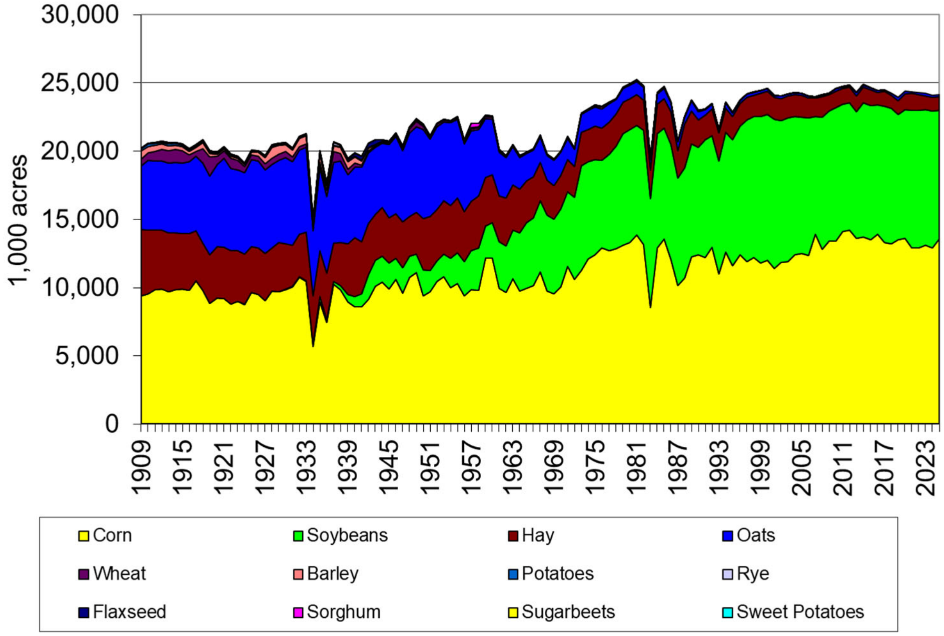


**Figure 1. Iowa acreage devoted to specific crops, 1909–2025.**
*Source*: USDA-NASS (2026).

As seen in figure 1, corn and soybeans became the dominant crops in Iowa and are today Iowa's top crop exports. Figures 2 and 3 show how these exports have typically moved throughout the year and where things look currently relative to previous years. Corn exports in 2025 were not only above their five-year average, they were above the maximum since 2004. Conversely, 2025 soy sales were below their five-year average. There are several factors currently shaping export markets: disease/pest issues and the border restrictions attached to them, the demand for protein worldwide, and the seemingly ever-changing trade policy front. For corn, the first two factors have been positive, while the third has not been a hindrance. As live animals are not moving across national borders as much due to issues such as highly pathogenic avian influenza (HPAI) and New World screwworm, many countries are in need of additional feedgrains for the retained livestock. Meanwhile, increasing consumption of meat across the planet is also driving the need for feed and US corn is filling that need. However, not all crops are enjoying that same pull. Soybean exports have been challenging as the multiple waves of tariff hikes in the United States and China disrupted normal trading patterns. And while there is chatter of a partial reversal of tariff settings between the two countries, those adjustments have not occurred yet.

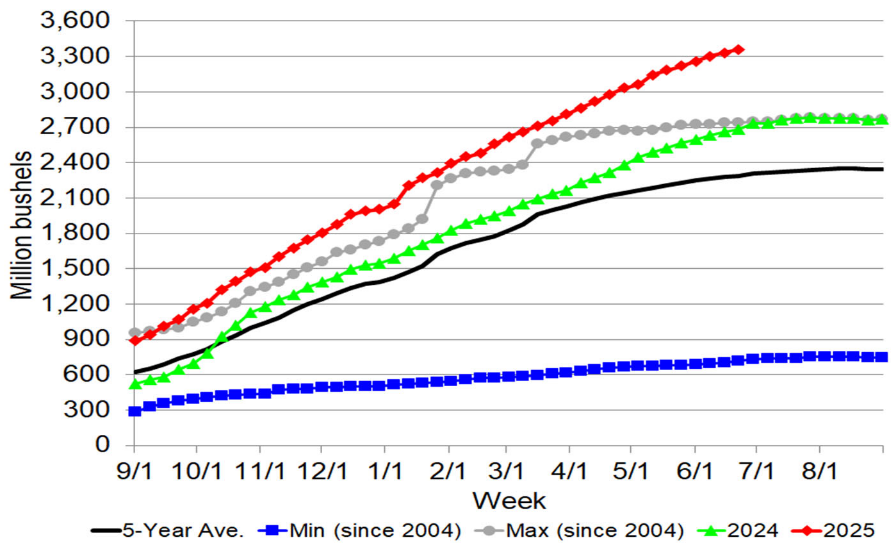


**Figure 2. US corn export sales by month and year.**
*Source*: USDA-FAS (2026).

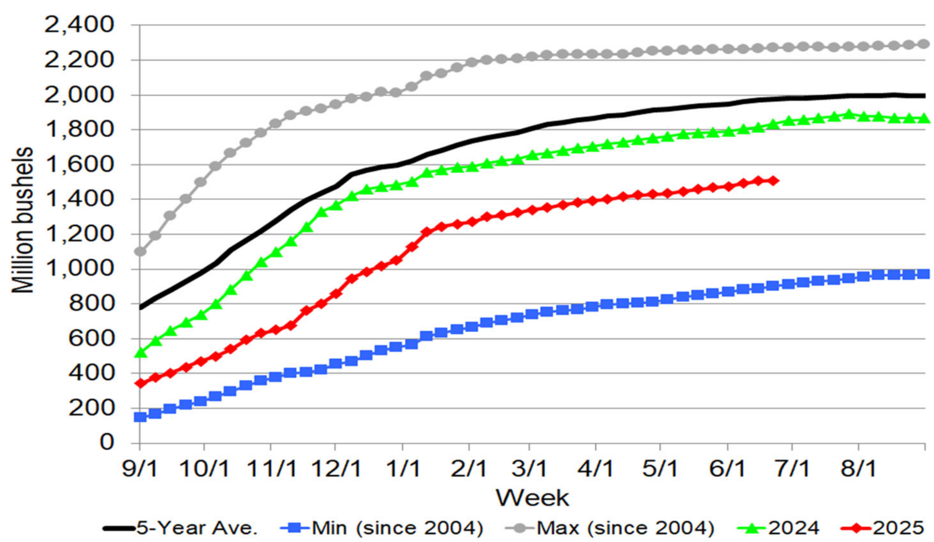


**Figure 3. US soy export sales by month and year.**
*Source*: USDA-FAS (2026).

Increasing the production of corn and soybeans lowers the cost of feed, thus increasing the production of animals, which also become a big portion of Iowa's exports. Table 1 shows this. Determining Iowa's exports is a little tricky since Iowa does not have a port where export shipments can be recorded. The US Department of Agriculture relies on estimates from Iowa's farm cash receipts and compares this with other measures (USDA, State Agricultural Trade Data 2026) to estimate the value of Iowa agricultural products going to other nations. Table 1 shows the 2024 (the latest year available) USDA estimates in millions of US dollars. In terms of total commodity exports, Iowa's $13.7 billion in 2024 ranks second in the United States to California ($26.4 billion). Export values vary, however, Iowa is consistently in the top-four states for all agricultural exports. The last two columns of table 1 show the record export values for each of the commodities and the year in which the record was achieved. The 2022 calendar year was a banner year for Iowa agricultural exports, as many commodities set their export record then, along with record values for total plant product, total animal product, and total agricultural exports. The surge in export values in 2022 was driven by several factors, including the post-COVID-19 economic recovery and the Phase One trade deal with China. Table 1 also highlights how quickly export values can change. Within two years (2022–2024), soybean export values dropped by nearly $1.4 billion, while corn export values declined by roughly $900 million.

**Table 1. Top 10 Iowa Agricultural Exports, 2024.**

| Rank | Commodity | $ millions | Record level ($ million) | Record year |
|---|---|---|---|---|
| 1 | Soybeans | 3,483 | 4,868 | 2022 |
| 2 | Pork | 2,852 | 2,852 | 2024 |
| 3 | Corn | 2,390 | 3,285 | 2022 |
| 4 | Feeds/feed grains | 1,665 | 2,014 | 2022 |
| 5 | Soybean meal | 909 | 956 | 2023 |
| 6 | Grain products | 621 | 621 | 2024 |
| 7 | Beef and veal | 578 | 722 | 2022 |
| 8 | Vegetable oils | 389 | 632 | 2008 |
| 9 | Poultry products | 270 | 270 | 2024 |
| 10 | Dairy products | 214 | 235 | 2022 |

*Source*: USDA-ERS (2026).

Because of Iowa's export exposure, Iowa farmers are on the front lines of any trade wars. Figures 3 and 4 show the current situation for corn and soybean exports to major trade partners. For each figure, the listed countries are the current top-six export markets for the commodity. While corn exports (of which China is a not a major importer) have increased worldwide by 25.4%, soy exports have fallen by almost 18% with a 46% drop in exports to China reflecting the impacts of the recent US-China trade war.

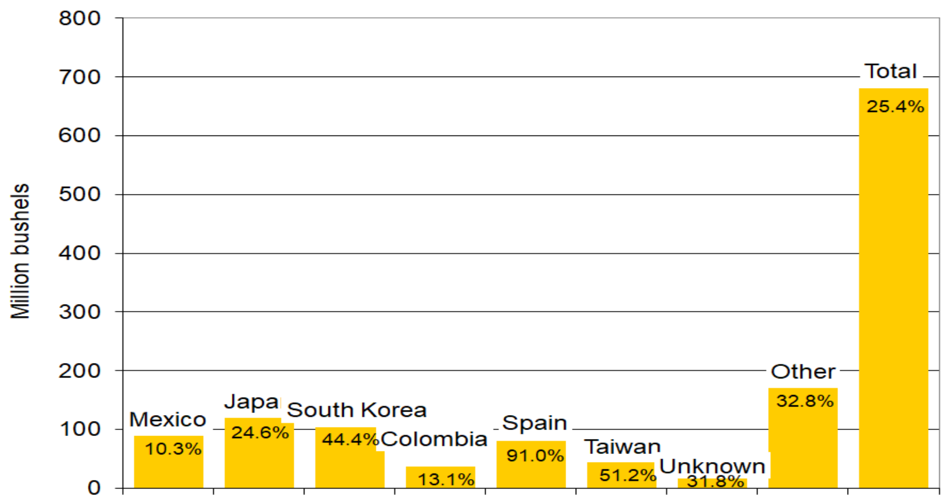


**Figure 4. US corn export shifts (2025).**
*Note*: "Unknown" stands for unknown destinations, export sales where the final delivery has not been set. "Other" stands for the rest of the world, combining sales to all other countries.
*Source*: USDA-FAS (2026).

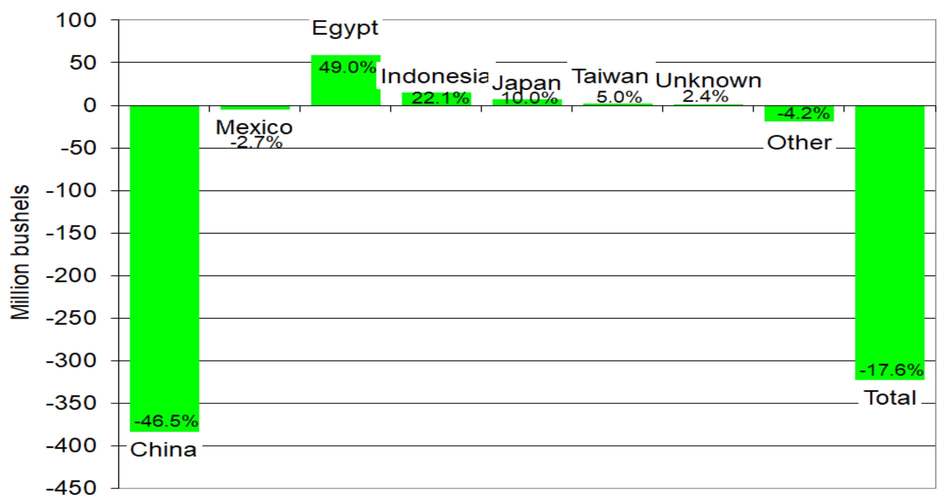


**Figure 5. US soy export shifts (2025).**
*Note*: "Unknown" stands for unknown destinations, export sales where the final delivery has not been set. "Other" stands for the rest of the world, combining sales to all other countries.
*Source*: USDA-FAS (2026).

Since 2018, a number of CARD policy briefs and working papers have examined the issue of the recent US-China trade wars. The takeaway from these studies is that billions of dollars of revenue are lost due to the trade wars and even with compensation to farmers, Iowa's economy is at risk because of the uncertainty that trade wars bring. Without a stable trade partner, the rest of the world needs to look for backups to the United States, as China has increasingly done with commodities from Brazil and Argentina and its investment in South American infrastructure like roads and ports.[4]

## County-Level Exposure to China's Retaliatory Tariffs

In the following section, we focus on an area of recent concern for Iowa farmers, namely, the dependence on exports to China and exposure to tariff retaliation by China. We present this differently than in the above-cited reports. Rather than focusing on the overall impacts on the United States and Iowa, we examine county-level impacts. Figures 6–11 demonstrate county-level trade exposure (USD per resident) to China's retaliatory tariffs on US agricultural products during the US-China trade war of President Trump's first administration. The exposure metric follows Choi and Lim (2022) and is intended as a tariff exposure index rather than a direct measure of realized welfare losses.[5]

- Darker shading indicates counties with higher exposure per resident—typically where production of tariff-targeted commodities is high relative to population.

- The 'Total (Major Crops)' maps aggregate exposure across five major retaliated crops (soybeans, cotton, sorghum, hay, and wheat). In Choi and Lim (2022), these five crops account for 92.6% of the total agricultural retaliatory tariff shock.

- The 'Soybean' and 'Corn' maps show commodity-specific exposure. Soybeans account for most of the total exposure nationally; corn exposure is comparatively smaller because 2017 US corn exports to China were much smaller than soybean exports.

- For visual clarity, the US maps display the contiguous (lower 48) states. Alaska and US territories are excluded.

Figures 6–8 show the exposure to the trade war across the United States. Figures 9–11 focus on Iowa counties. The main takeaways are:

- High-exposure counties are generally agriculture-oriented and specialize in commodities directly targeted by retaliation.

- Because soybeans dominate US agricultural exports to China (in the 2017 baseline used to calculate the tariff shock per product), the soybean exposure map closely resembles the total exposure map.

- Corn exposure is geographically concentrated in major corn-producing regions but is smaller in magnitude on a per-resident basis.

---

[4] The interested reader is referred to the following two CARD reports for more detail on the impacts to Iowa: Crespi et al. (2025) and Balistreri et al. (2018).

[5] Following Choi and Lim (2022), county exposure is computed by allocating a national tariff shock to counties proportional to each county's share of US production value for a commodity, then normalizing by county population. Key equations may be found in the cited paper. Data inputs: county production values are from the 2017 Census of Agriculture (USDA-NASS 2017); population is from US Census county population estimates; retaliatory tariff changes are from Bown (2020) and trade-flow values are from the US International Trade Commission (USITC), as described in Choi and Lim (2022). *Important interpretation note*: This measure holds 2017 trade flows constant and therefore captures potential tariff exposure, not actual realized price changes, quantity adjustments, trade diversion, or post-tariff adaptation.

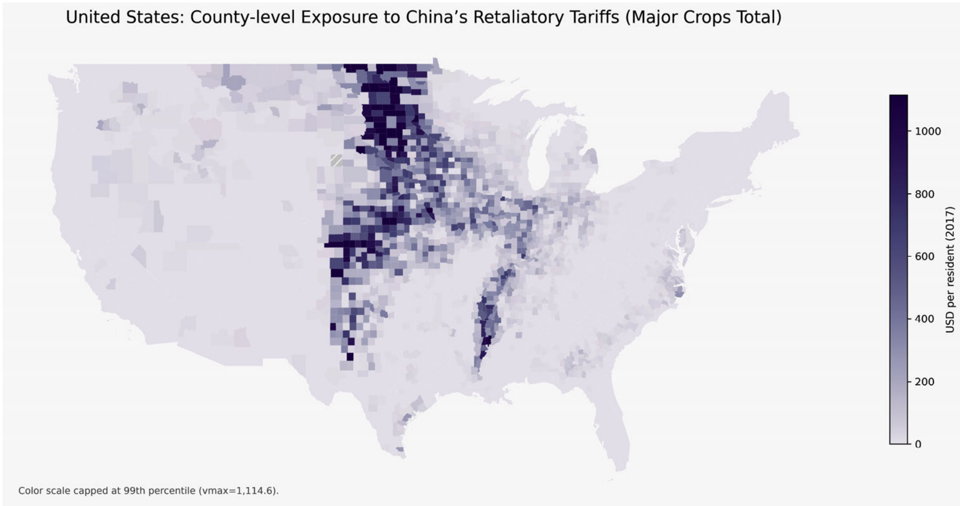


**Figure 6. Contiguous US county-level exposure to China's retaliatory tariffs (USD per resident), aggregated across major crops (AJAE 2022-based).**

*Note*: Major crops include soybeans, cotton, sorghum, hay, and wheat.

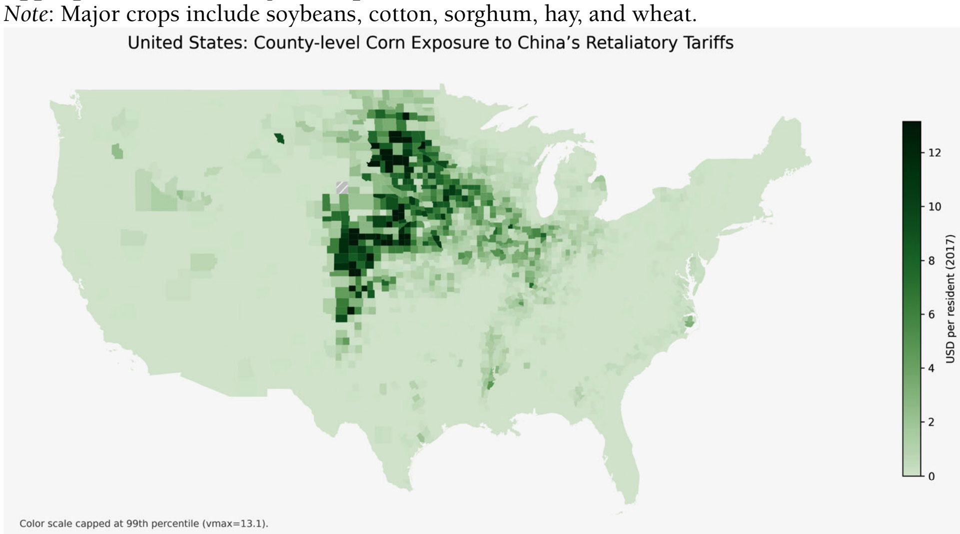


**Figure 7. Contiguous US county-level corn exposure to China's retaliatory tariffs (USD per resident), computed using county corn production-value shares.**

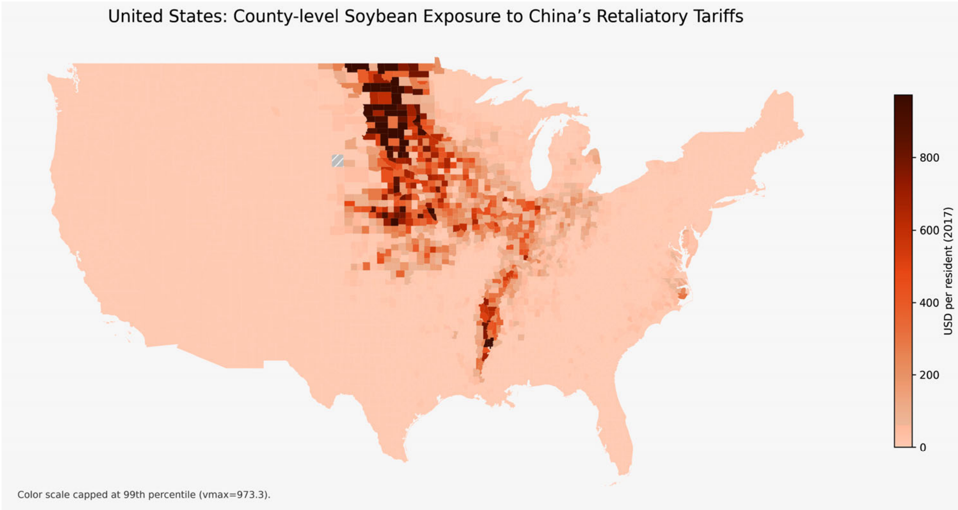


**Figure 8. Contiguous US county-level soybean exposure to China's retaliatory tariffs (USD per resident), computed using county soybean production-value shares.**

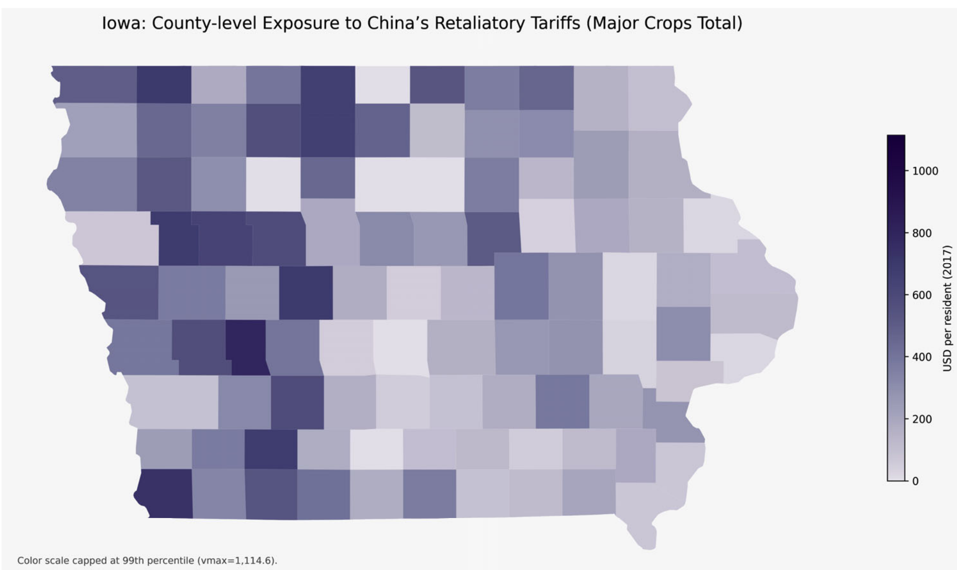


**Figure 9. Iowa county-level exposure to China's retaliatory tariffs (USD per resident), aggregated across major crops (AJAE 2022-based).**

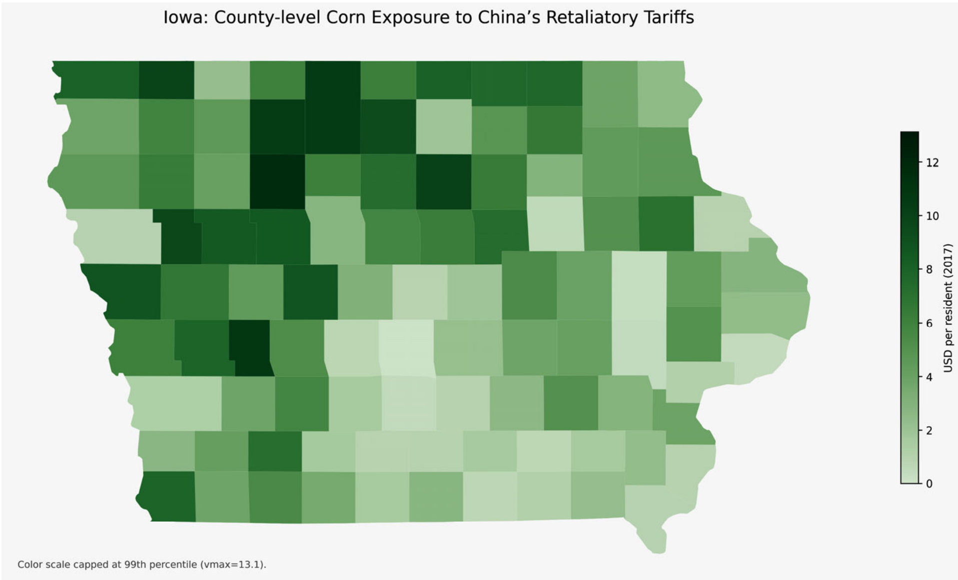


**Figure 10. Iowa county-level corn exposure to China's retaliatory tariffs (USD per resident).**

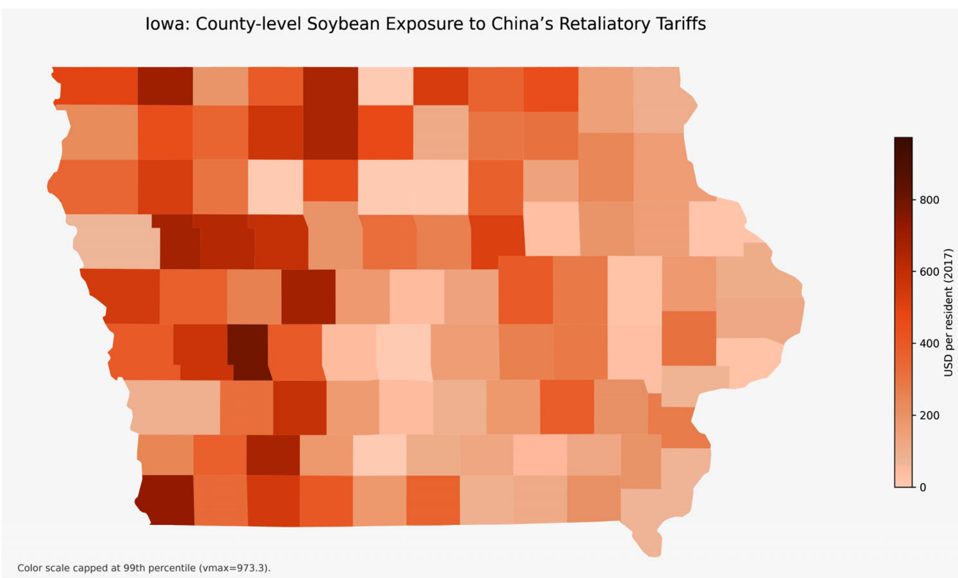


**Figure 11. Iowa county-level soybean exposure to China's retaliatory tariffs (USD per resident).**

## References


Balistreri, E.J., C.E. Hart, D.J. Hayes, M. Li, L.L. Schulz, D.A. Swenson, W. Zhang, and J.M. Crespi. 2018. "The Impact of the 2018 Trade Disruptions on the Iowa Economy." Policy brief 18-PB 25. Center for Agricultural and Rural Development, Iowa State University. https://www.card.iastate.edu/publications/18-pb-25

Bown, C.P. 2020. Tariff Measures in the U.S.–China Trade War [retaliatory tariff dataset]. Peterson Institute for International Economics.

Choi, J., and S. Lim. 2022. "Tariffs, Agricultural Subsidies, and the 2020 US Presidential Election." American Journal of Agricultural Economics. DOI: 10.1111/ajae.12351.

Crespi, J.M. 2025. "Risk and Market Structure under Tariff Volatility." Policy brief 25-PB 50. Center for Agricultural and Rural Development, Iowa State University. https://www.card.iastate.edu/files/publications/pdf/25PB50.pdf

Crespi, J.M., C.E. Hart, D.J. Hayes, and L.L. Schulz. 2025. "Modeling the Impacts of Reciprocal Tariffs on the 2025 Iowa Economy." Policy brief 25-PB 48. Center for Agricultural and Rural Development, Iowa State University. https://www.card.iastate.edu/publications/25-pb-48

United States Department of Agriculture. 2026. "State Agricultural Trade Data–Documentation." https://www.ers.usda.gov/data-products/state-agricultural-trade-data/documentation. Last accessed 7/6/2026.

United State Department of Agriculture Economic Research Service (USDA-ERS). 2026. "State Agricultural Trade Data - Annual State Agricultural Exports." https://www.ers.usda.gov/data-products/state-agricultural-trade-data/annual-state-agricultural-exports. Last accessed 7/6/2026.

United States Department of Agriculture Foreign Agricultural Service (USDA-FAS). 2026. "Weekly Export Sales." https://apps.fas.usda.gov/esrqs/#/reports, last accessed 7/2/2026.

United States Department of Agriculture National Agricultural Statistics Service (USDA-NASS). 2017. "Census of Agriculture." https://www.nass.usda.gov/Publications/AgCensus/2017/index.php.

United States International Trade Commission (USITC). 2017 HS-level trade data for U.S. exports to China (used to construct X_p).


## Suggested Citation

Crespi, J.M., C. Hart, and S. Lim. 2026. "Iowa Agricultural Exports and the Local Impacts of the China Trade War." In J.M. Crespi and C.C. Pudenz (Eds.) "2026 Iowa Agricultural Outlook: The Pressure is Rising." Center for Agricultural Development at Iowa State University, Iowa Farm Bureau Federation, and Iowa Bankers Association.

# Land Markets in Context: What Farmland Values Say About the Farm Economy

**Rabail Chandio**

Farmland values are one of the clearest indicators of the financial health of the farm sector. Land values are closely tied to farm income, interest rates, inflation, credit conditions, and expectations about the future of agriculture. When farm incomes are strong and buyers expect those income streams to continue, land values tend to rise. When margins tighten, borrowing costs increase, or uncertainty grows, the land market often becomes more cautious.

This matters because farmland is not just another production input. For many producers, it is the largest purchase they will make in their lifetime. For farm families, land is often the foundation of business growth, retirement security, borrowing capacity, and intergenerational wealth. For lenders and rural communities, land values affect collateral, credit conditions, tax bases, rental markets, and the financial position of producers. At the national level, farm real estate accounts for the overwhelming majority of US farm sector assets. USDA Economic Research Service estimates that farm real estate accounted for a forecasted $3.67 trillion, or 83.6%, of total US farm assets in 2025.

Because land makes up such a large share of farm-sector wealth, changes in farmland values carry meaning well beyond the price of an acre. They reflect the market's expectations about future farm income, the cost of capital, alternative investment returns, and the long-run value of agricultural production. In this sense, the farmland market provides a balance-sheet view of agriculture: it shows not only where the sector has been, but also what buyers, sellers, lenders, and investors believe the future may hold.

This chapter examines Iowa farmland values in that broader context and shows why the answer to whether farmland has performed well is: it depends. The answer changes with the time period, inflation adjustment, benchmark asset, and whether current income or long-term appreciation is being considered.

## Where Did We Come From?

Iowa farmland values have generally increased over the long run, but the path has been uneven. A century-long view shows three "golden eras" of rapid farmland appreciation: 1910–1920, the 1970s, and the early 2000s through mid-2010s. The first two were driven by non-farm expansion in demand and export growth and were followed by major declines. The third was supported by strong farm incomes, especially during the ethanol boom, and was followed by a much slower adjustment rather than a sharp crash. A more recent surge began after 2020, when strong commodity prices, low interest rates, government payments, inflation concerns, and strong liquidity pushed land values sharply higher. Unlike earlier boom periods, however, the post-2020 market is now being tested by tighter crop margins and higher interest rates, making it better described as a transition from rapid appreciation to a more selective, cautious market.

A useful starting point is the difference between nominal and inflation-adjusted land values. Nominal land values show the dollar value observed in the market. Inflation-adjusted values show the purchasing power of those dollars after accounting for changes in the general price level. Periods of high inflation, especially the

1970s and the period after 2020, can make nominal land values look especially strong. Inflation-adjusted values provide a clearer view of whether landowners gained purchasing power or simply kept pace with rising prices.

For instance, Iowa farmland values in 2025 were substantially higher than the 2013 peak in nominal terms, but in inflation-adjusted terms, current values fall below 2013 levels. This distinction matters because a landowner may see a higher dollar value on paper while still holding an asset with less purchasing power than at a previous peak.

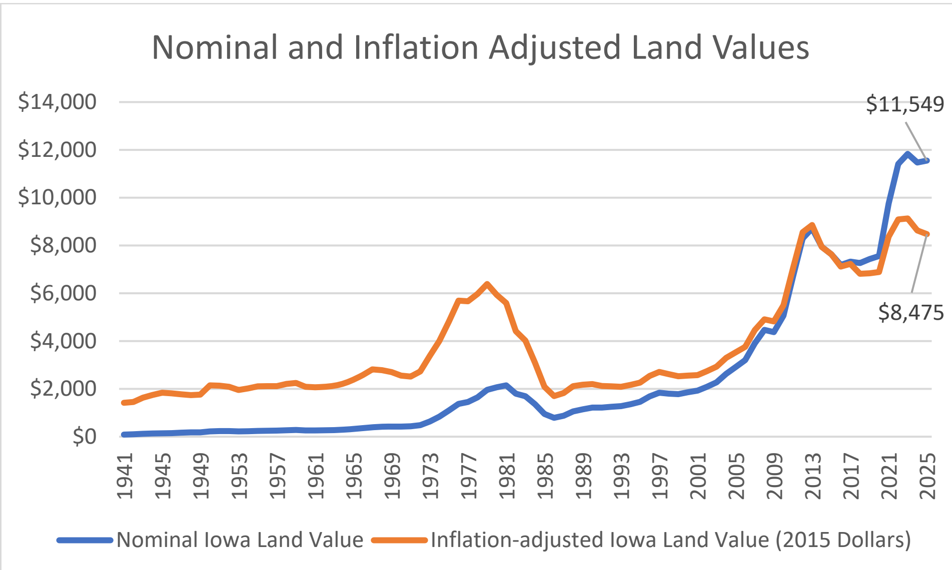


**Figure 1. Nominal and inflation-adjusted Iowa farmland values.**
*Note*: Nominal land values show the dollar value observed in the market, while inflation-adjusted values show purchasing power over time. This distinction is especially important after high-inflation periods, when nominal values may rise even if real purchasing power gains are more limited.

The statewide average also masks important differences across land quality and region. In 2025, high-quality Iowa farmland averaged $14,271 per acre, medium-quality land averaged $10,058, and low-quality land averaged $7,649. Values also varied widely across crop reporting districts, with Northwest Iowa remaining the highest-valued district at $14,522 per acre and South Central Iowa the lowest at $7,623 per acre. These differences matter because the land market is not a single statewide market—local productivity, livestock demand, buyer competition, and alternative uses can cause values to move differently across regions and land types.

## How Should We Think About Farmland Values?

Before comparing farmland with other assets, it is useful to remember what land values represent. Land values reflect the present value of expected future income from the land. For Iowa farmland, that income usually comes from crop production, rental income, or both. Higher expected income supports higher land values, while higher interest rates reduce the present value of those future income streams. This is why farm income and interest rates are the two most important starting points for understanding the land market.

Interest rates are especially important because farmland is a capital-intensive asset. Higher interest rates increase borrowing costs and raise the opportunity cost of holding land. When safe or lower-risk investments offer higher returns, buyers may be less willing to pay high prices for land unless expected farm income, rental income, or appreciation also increases.

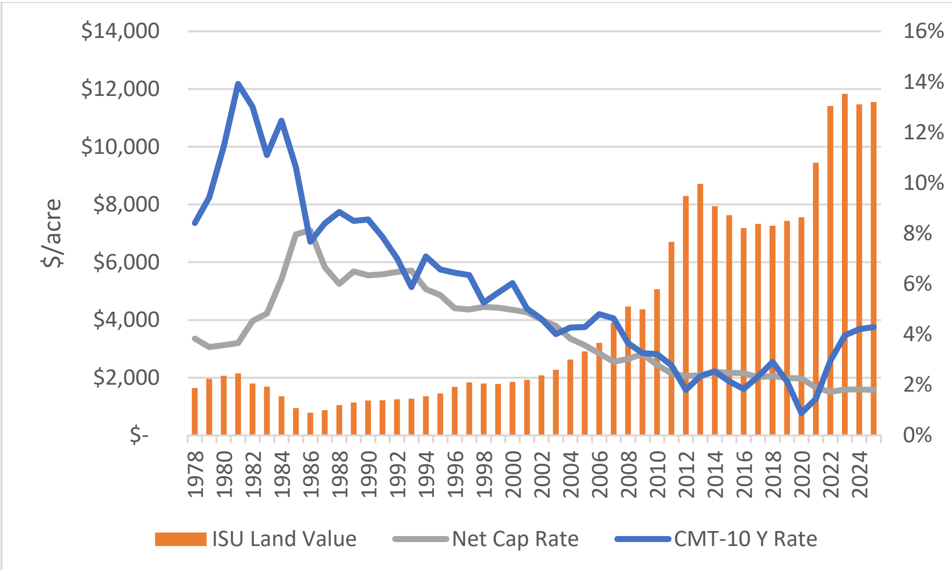


**Figure 2. Farmland values and returns compared with the 10-year Treasury rate.**
*Note*: The 10-year Treasury rate provides a benchmark for long-term interest rates and alternative returns. Net capitalization rates have declined over time, meaning annual rental income represents a smaller share of farmland values than it did in earlier decades. As a result, more of farmland ownership's expected return is reflected in long-term appreciation rather than current income.

Figure 2 connects these ideas by comparing Iowa farmland values, farmland returns, and the 10-year Treasury rate. The 10-year Treasury rate is not the same as a farmland loan rate, but it provides a useful benchmark for long-term capital costs and alternative returns. Periods of low interest rates can support higher land values by lowering borrowing costs and making land more attractive relative to interest-bearing assets. Periods of rising interest rates can create pressure by increasing financing costs and giving investors other ways to earn returns.

Figure 2 also highlights a longer-run shift in farmland returns. Net capitalization rates have declined from roughly 8% in the mid-1980s to around 2% in recent years, meaning less of the return to land ownership comes from annual rental income and more is reflected in land appreciation. This matters for the comparisons that follow: the land returns shown here are based only on changes in land values and do not include cash rents, so they understate total returns to land ownership, especially in earlier periods when rents represented a larger share of returns.

Because farmland serves both as a productive farm asset and a long-term store of wealth, its performance is often evaluated not only against farm income conditions, but also against alternative investments. Comparing farmland with assets such as stocks, gold, Treasury rates, and corn prices helps show whether land values have performed strongly in a broader economic context, rather than only within agriculture.

## How Has Farmland Performed Compared with Other Assets?

Because farmland is both a productive asset and a store of wealth, it is useful to compare land with other assets. Table 1 compares Iowa farmland with gold, the Dow Jones Industrial Average, the S&P 500, and corn prices using average annual returns, inflation-adjusted returns, standard deviations, and maximum drawdowns. Note that these comparisons measure changes in asset values only. They do not include cash rent for farmland or dividends for stocks, so they should be interpreted as appreciation-based comparisons rather than total investment returns.

Average annual return shows the typical yearly gain or loss. Inflation-adjusted return shows whether the asset gained purchasing power. Standard deviation measures how much annual returns varied from year to year. Maximum drawdown shows the worst decline from a previous peak before recovery.

**Table 1. Annual Returns, Inflation-Adjusted Returns, Volatility, and Maximum Drawdowns by Asset**

| Asset | Avg annual return | Real avg annual return | Standard deviation | Max drawdown |
|---|---|---|---|---|
| **Panel A: 1941–2025** | | | | |
| **Land** | 6.57% | 2.71% | 11.16% | -63.34% |
| **Gold** | 7.18% | 3.21% | 19.66% | -55.39% |
| **Dow** | 7.99% | 4.27% | 12.46% | -32.57% |
| **S&P 500** | 8.80% | 5.05% | 13.15% | -35.82% |
| **Corn** | 4.18% | 0.32% | 22.22% | -51.01% |
| **Panel B: 2000–2025** | | | | |
| **Land** | 7.95% | 5.20% | 10.73% | -17.58% |
| **Gold** | 11.07% | 8.32% | 14.54% | -31.42% |
| **Dow** | 6.31% | 3.64% | 11.29% | -32.57% |
| **S&P 500** | 7.01% | 4.32% | 13.65% | -35.82% |
| **Corn** | 5.93% | 3.18% | 25.07% | -48.25% |

*Note*: This table measures return as the annual change in value of the asset. Dividends for stocks and cash rents for land are not included. Annual values for gold, the S&P 500, the Dow, and corn are from Macrotrends.

Table 1 shows why farmland has attracted attention from producers, landowners, and investors alike. Over the long period shown in panel A, farmland generated meaningful appreciation with lower measured volatility than several of the other assets. Since 2000, shown in panel B, farmland has performed especially well relative to many alternatives, reflecting strong commodity periods, low interest rates during much of the period, the post-2020 inflation environment, and strong demand for limited available land. Gold had higher appreciation over the post-2000 period but also had a larger maximum drawdown.

However, lower measured volatility does not mean farmland is risk-free. Farmland is not traded daily, sales are infrequent, and annual survey values may smooth changes that would appear more sharply in financial markets. Drawdown is especially important because it reminds us that land values can fall substantially when farm income, credit conditions, and expectations deteriorate. A large decline in land values affects not only paper wealth, but also borrowing capacity, debt coverage, farm expansion plans, and retirement or estate decisions.

The largest drawdown in Iowa farmland values since the Iowa State Farmland Value Survey began occurred after the 1980s farm financial crisis, which explains the -63% drawdown for land in panel A, larger than any of the other assets considered, though several others also experienced substantial declines. In panel B, which focuses on the post-2000 period, the story is quite different. Farmland shows a much more stable pattern, with the smallest maximum drawdown among the assets considered, at about -18%, compared with roughly -31% for gold over the same period. This contrast highlights why farmland, like any asset or investment, should be evaluated over a clearly defined time period, with attention to the beginning year, ending year, and whether returns are adjusted for inflation.

Table 1 summarizes performance over fixed periods, but it does not show how performance changes depending on the starting and ending year. A single year may reflect weather, commodity prices, inflation, financial market shocks, policy changes, or local sales conditions. Figure 3, therefore, shows rolling 10-year annualized returns, which smooth some of that year-to-year variation and show how longer-term performance changes over time.

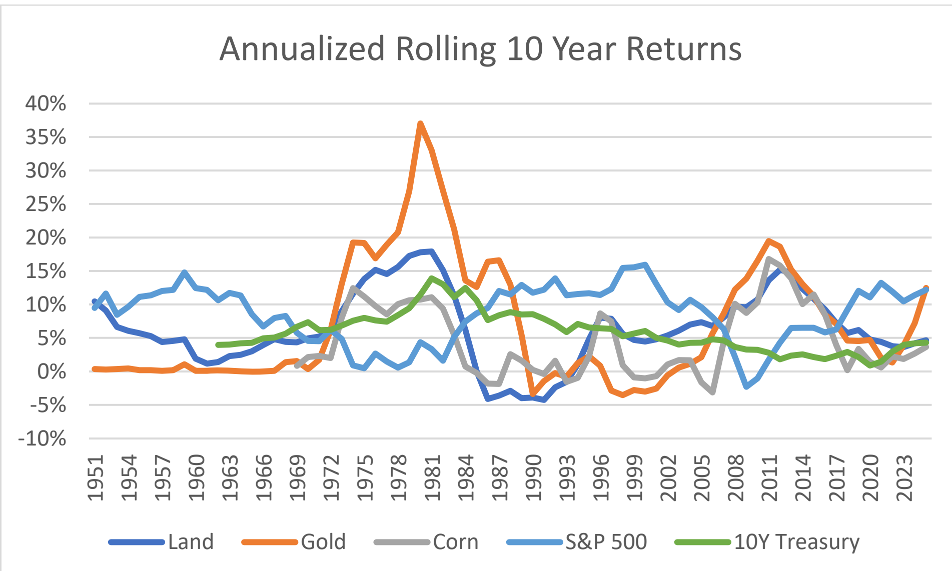


**Figure 3. Annualized rolling 10-year returns for land, gold, S&P 500, corn, and the 10-year Treasury rate.**
*Note*: Rolling 10-year returns show how asset performance changes over the course of a decade, depending on the ending year. Farmland returns were strong during the 1970s and early 2000s run-ups but turned negative during and after the 1980s farm financial crisis.

Figure 3 shows moving 10-year average returns for each asset, with each return ending in the year marked on the x-axis. The best-performing asset changes over time. Farmland provided relatively steady 10-year returns through much of the period, with very strong performance during the 1970s boom and again during the 2000s land-value run-up. However, farmland also experienced negative 10-year returns during and after the 1980s farm financial crisis, the only period since 1941 when land values declined for an extended time.

Gold shows the sharpest spike, especially around the late 1970s and early 1980s, but also long periods of weak or negative 10-year performance. Stock-market returns, represented by S&P 500, were generally strong over many rolling periods but declined around major market downturns. Corn prices were more volatile, reflecting commodity price cycles that are often connected to farmland value movements. Overall, figure 3 reinforces that investment performance depends heavily on the selected time window.

Another way to compare these assets is to place them on the same starting line. Because farmland, gold, corn, and the S&P 500 are measured in different units, each can be converted to an index with a common base year. Setting each asset equal to 100 in a base year shows how much each grew from that common starting point. Figures 4a and 4b use two starting points: 1965 for a longer historical perspective and 2000 for the more recent period.

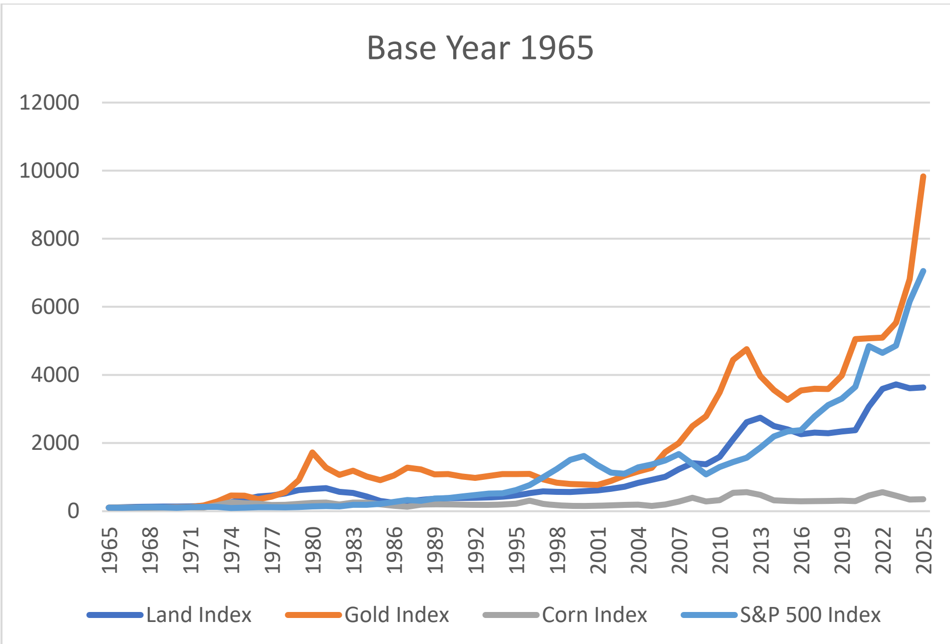


**Figure 4A. Indexed values for land, gold, S&P 500, and corn, base year=1965.**
*Note*: Indexing each asset to 100 in 1965 places them on a common starting line. Figure 4a highlights how long-run performance depends heavily on the starting year and on major economic cycles, including the inflationary 1970s, the 1980s farm financial crisis, and the post-1990 stock-market expansion.

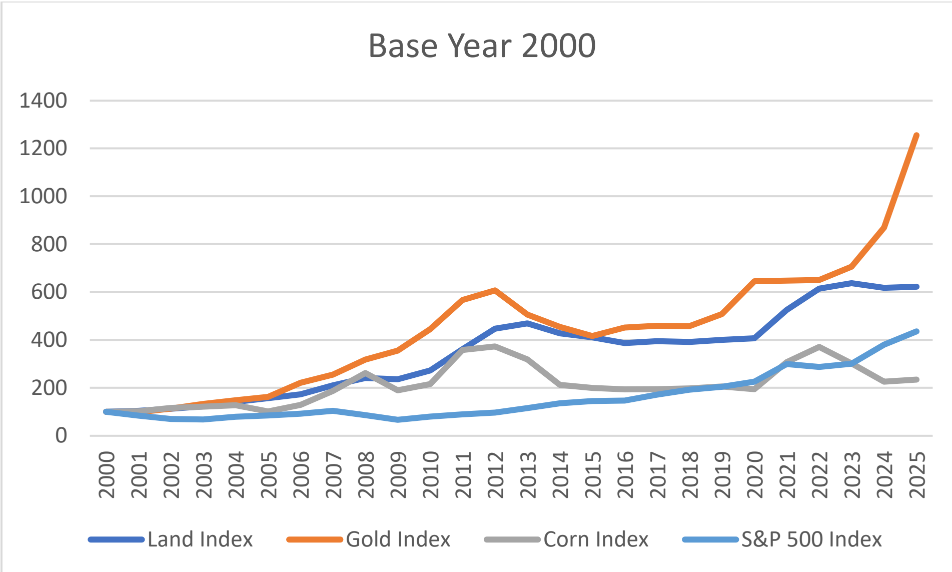


**Figure 4B. Indexed values for land, gold, S&P 500, and corn, base year=2000.**
*Note*: Using 2000 as the base year emphasizes farmland's strong performance during the 2000s and early 2010s, as well as the renewed increase after 2020. It also shows how gold and stocks gained relative strength by 2025, while corn remained more cyclical.

Figures 4A and 4B show how much each asset grew when placed on the same starting line. With 1965 as the base year, gold and stocks show the largest long-run appreciation by 2025, while farmland also rises substantially and remains well above corn, which serves as a rough proxy for commodity-price conditions facing crop agriculture. The 1965 chart highlights the importance of timing: gold surged during the inflationary 1970s, farmland rose sharply into the early 1980s before the farm financial crisis, and stocks accelerated more strongly after the 1990s and again after 2020.

The 2000 base-year chart tells a different story. Farmland performs very strongly through the 2000s and early 2010s, rising faster than stocks and corn for much of the period. After 2020, land values increase again but flatten relative to gold, which rises sharply by 2025. Stocks also recover strongly after the 2008 recession and post-COVID-19 period, while corn remains much more cyclical and ends far below the other assets. The two charts reinforce that asset comparisons depend heavily on the starting year, and farmland's relative performance looks different across long-run and recent-period windows.

## What Is Different About the Current Market?

The current farmland market is best understood as a transition away from the unusually strong conditions of 2021 and 2022, when high commodity prices, low interest rates, government payments, inflation concerns, and strong liquidity all supported land demand. Since then, the major forces have become more mixed.

Crop margins have tightened, interest rates remain elevated, and inflation has reduced the real gains from recent nominal land appreciation. These pressures help explain why land values have cooled. At the same time, limited land supply, strong balance sheets, and continued demand from farmers and individual investors have prevented a sharper adjustment. The buyer-seller mix helps explain that resilience. In the 2025 Iowa State Land Value Survey, existing farmers accounted for 68% of land purchases, while investors accounted for 26%. On the seller side, estate sales accounted for 55% of sales, and retired farmers accounted for 22%. This reinforces the idea that land often comes to market due to life-cycle and ownership transitions rather than short-run price expectations. Sales activity also cooled: 42% of respondents reported fewer sales in 2025 than in 2024, compared with 17% who reported more sales. The 2025 survey also points to important regional differences: values generally held up better or increased in more livestock-dense areas of western and eastern Iowa, while more crop-dependent areas saw greater downward pressure. This pattern is consistent with the idea that local income conditions, livestock demand, and land-use competition can cause regional land markets to diverge even when the statewide average appears relatively stable.

Other local factors can also shape values. Potential income from wind turbines, solar leases, conservation payments, or recreational uses may support values in some markets by adding income streams beyond crop production or cash rent. Credit availability also matters, because the effect of interest rates depends partly on whether lenders remain willing to finance purchases and how much equity buyers must provide. Livestock-sector strength, policy uncertainty, and differences in land quality or location can also affect how statewide pressures show up locally.

This fits the comparative performance shown earlier in the article. Farmland has often provided relatively stable long-run appreciation, but its performance depends heavily on the period being analyzed. It is not immune to downturns, yet its thinly traded nature, limited supply, and role as a productive asset often make adjustments slower than in more liquid markets such as stocks, or gold.

The 2025 Iowa State Land Value Survey shows the same split between short-run caution and longer-run optimism (see figure 5). In regards to the next year, respondents were divided: about 40% expected values to decline, 28% expected no change, and about 30% expected an increase. Over a five-year horizon, however, expectations were much more positive, with 82% expecting land values to increase and the most common response being a 10% to 20% increase. That pattern is similar to expectations reported through the 2026 Soil Management and Land Valuation conference data shown in table 2: limited change in the near term, followed by stronger gains over longer horizons.

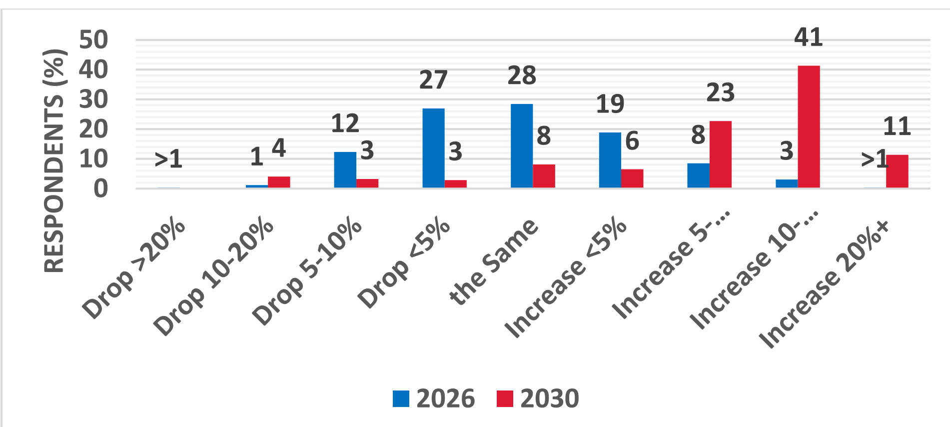


**Figure 5. One- and five-year expectations from the 2025 Iowa State Land Value Survey.**
*Note*: Respondents were divided about the one-year outlook, but much more optimistic over a five-year horizon. This contrast supports the broader theme of short-run caution and longer-run confidence in the farmland market.

**Table 2. Expected Percent Change in Land Value Since May 2026**

| | Iowa | NW | NE | SW | SE |
|---|---|---|---|---|---|
| Nov. 2026 | -0.15% | 0.79% | -1.25% | -0.75% | -0.34% |
| Nov. 2027 | 2.18% | 4.16% | 1.08% | 0.70% | 1.28% |
| Nov. 2028 | 5.59% | 7.84% | 3.64% | 4.55% | 4.42% |
| Nov. 2030 | 14.29% | 17.04% | 9.26% | 11.39% | 15.74% |
| Nov. 2040 | 32.48% | 37.90% | 31.56% | 21.83% | 34.66% |

What does this mean for the future? The expectations in table 2 point to a market that is cautious in the short run but still optimistic over longer horizons. Respondents expect little change by late 2026, modest gains by 2027 and 2028, and stronger appreciation by 2030 and 2040. This pattern is consistent with the broader story in the data: farmland values may pause or adjust when margins tighten and interest rates rise, but limited supply, strong balance sheets, investor interest, and confidence in agriculture's future continue to support long-run expectations.

Overall, the current farmland market is neither repeating the sharp 1980s crash nor continuing the rapid appreciation seen in 2021 and 2022. Instead, it appears to be moving through a slower and more selective adjustment. That slower adjustment matters for farm solvency. Strong land values continue to support balance sheets, collateral positions, and borrowing capacity, which helps explain why the sector has not experienced a sharper financial adjustment despite tighter margins. At the same time, if land values soften further, highly leveraged farms or farms relying on land equity to support operating credit could face greater pressure.

The broader lesson is that farmland values should not be judged by a single year or a single comparison. Their performance depends on the starting point, the inflation adjustment, the benchmark asset, and whether current income or long-term appreciation is being considered. Farmland remains distinct because it is both a productive asset and a major store of farm-sector wealth. For producers, landowners, lenders, and investors, understanding farmland values in context provides one of the clearest views of the financial health and expectations of the farm economy.

## Suggested Citation

Chandio, R. 2026. "Land Markets in Context: What Farmland Values Say About the Farm Economy." In J.M. Crespi and C.C. Pudenz (Eds.) "2026 Iowa Agricultural Outlook: The Pressure is Rising." Center for Agricultural Development at Iowa State University, Iowa Farm Bureau Federation, and Iowa Bankers Association.

# The Ag Economy in 2026: A Farm Finance Perspective

**Alejandro Plastina, Joohun Han, and Chad Hart**

The national agricultural economic picture has provided a number of mixed signals about its health. One key indicator many focus on is national estimates for net farm income and net cash farm income. Figure 1 displays the latest update from USDA, as of February 2026. As the figure shows, farm incomes reached a record peak in 2022, fell significantly in 2023, and have seemingly stabilized over the past couple of years. The forecast for 2026 placed net farm income at $153.4 billion, roughly $50 billion below the 2022 record, but $25 billion above the 20-year average. However, this income stability since 2023 is glossing over several significant shifts in where income is being derived.

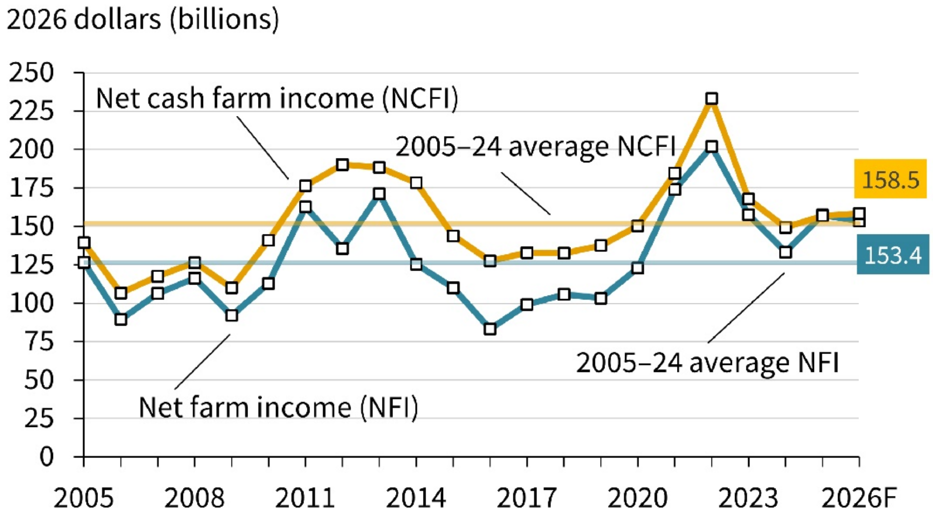


**Figure 1. US inflation-adjusted net farm and cash farm income.**
*Note*: F=forecast; data for 2025 and 2026 are forecasts. Values are adjusted for inflation using the US Department of Commerce Bureau of Economic Analysis Gross Domestic Product Price Index (BEA API series code: A191RG) rebased to 2026 by USDA Economic Research Service.
*Source*: USDA-ERS (2026).

Figure 2 gets at the heart of the matter—it shows the direct government payments flowing to producers over the past few years and the forecast for 2026. The stability in net farm income have been created as government support has offset declines in market revenue. And that support has been especially critical within the past couple of years. From 2022 to 2024, direct government support averaged roughly $14 billion per year. In 2025, that support leaped to over $30 billion. In 2026, the projected total reaches nearly $45 billion. Without this support, national net farm income would have fallen well below the historical average. Additionally, farmers could not necessarily incorporate this financial support as they developed their financial plans since much of this support is ad hoc in nature, for example, the Farmer Bridge payments and natural disaster assistance.

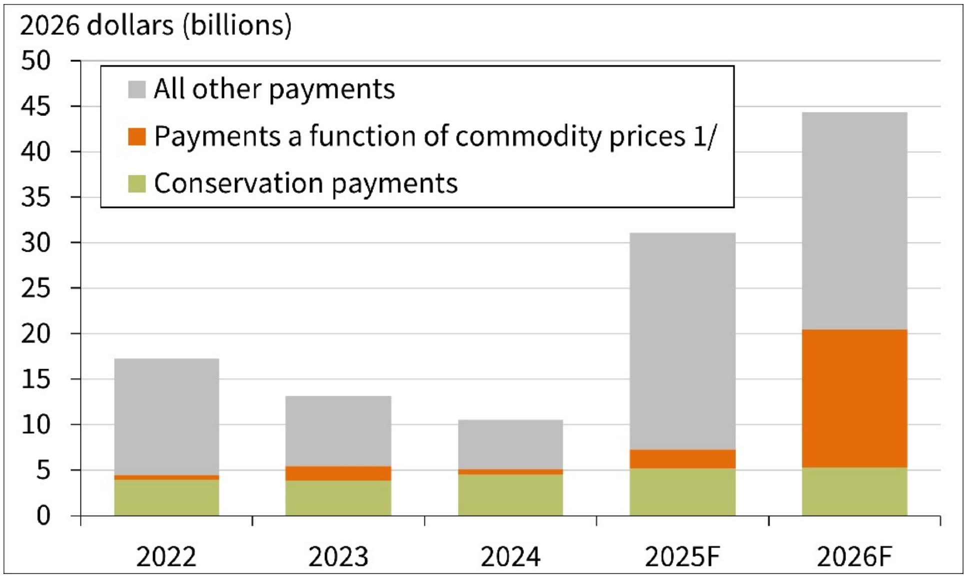


**Figure 2. Direct government payments to US farmers.**
*Note*: F=forecast; Values are adjusted for inflation using the US Department of Commerce Bureau of Economic Analysis Gross Domestic Price Index (BEA API series code: A191RG) rebased to 2026 by USDA Economic Research Service. 1/Includes Price Loss Coverage, Agricultural Risk Coverage, loan deficiency payments (excluding grazeout payments), marketing loan gains, and Dairy Margin Coverage payments.
*Source*: USDA-ERS (2026).

To obtain a more micro-level understanding of the agricultural economy and to understand how farmers are adjusting their farm finances in this uncertain environment, we have partnered with the Iowa Farm Business Association (IFBA) to examine anonymized data from mid- to large-size farms across the state.[6] This data partnership allows us to not only observe the current financial standing of these farms, but also to explore the evolution of their farm finances. In August, we will complete a detailed analysis with this data, to be summarized in the updated Ag Decision Maker Files C1-10, *Iowa Farm Costs and Returns*, and C1-12, *Liquidity Analysis of Iowa Farms*. For the analysis in this chapter, we focus on four financial indicators: working capital per acre, the current ratio (the value of current assets to current liabilities), the share of farms with less than $250 in working capital per acre, and the share of farms with vulnerable liquidity ratings.

When profit margins are squeezed or are negative on the farm, farmers have to use either existing resources on the farm or debt to cover costs. Working capital is a measure of the existing resources on the farm that can be used to pay the bills. It is typically calculated as the difference between a farm's current assets and current liabilities. Current assets are the cash the farm has on hand and assets that are typically sold over the course of the year. For example, crops held in storage or feeder animals on the farm are current assets, along with government support. Current liabilities are payments that are due during the current year, including accounts payable, loan payments, and interest. Changes in working capital reflect the combination of shifts in profitability and the farmers' responses to cover costs. Figure 3 illustrates changes in working capital per acre between January 1 and December 31 for the same set of farms at those two points in time. For this analysis, we have data going back to January 1, 2017. Below each year, the number of farms tracked that year is given. As the data show, in the late 2010s, working capital was slowly being drained from farms. With the resurgence of agricultural prices following the COVID-19 pandemic, farmers were able to significantly replenish working capital. However,

[6] The IFBA is an independent association, managed and controlled by its farmer-members.

as crop prices declined in 2023, the average decline in working capital per acre was substantial at $204 per acre. Those losses continued into 2024, with an additional $118 per acre disappearing on average. And despite the continuation of low crop prices, farmers within this dataset were able to control costs, develop revenues, and receive additional government support to partially rebuild working capital in 2025, adding $64 per acre on average.

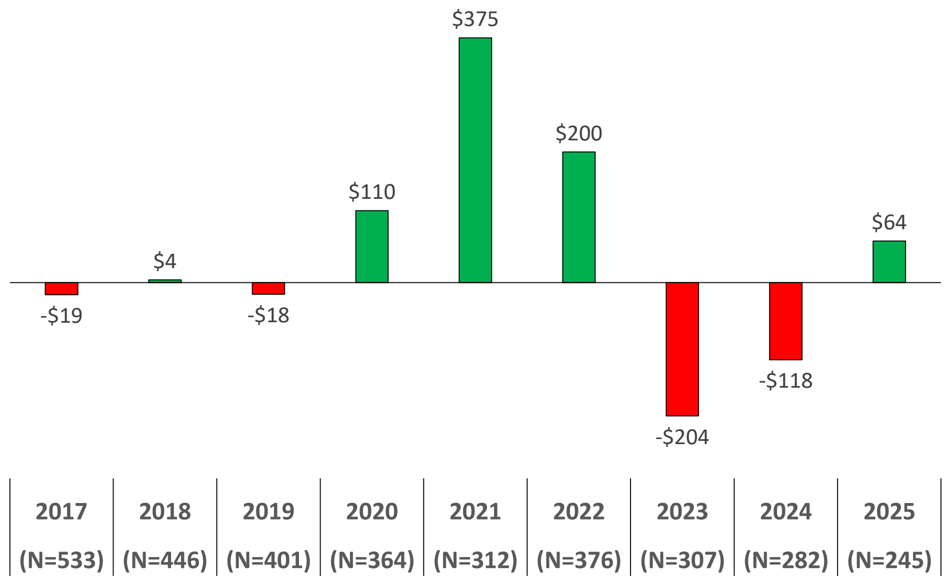


**Figure 3. Average change in working capital per acre.**
*Source*: IFBA data.

However, again, the average can mask the underlying concern in finances. In an attempt to understand the distribution of liquidity across farms, rather than focusing on the average farm, Figure 4 shows the share of farms with negative working capital, and working capital per acre between $0 and $250, between $250 and $500, and beyond $500, in nominal terms (i.e., not adjusted for inflation). The share of farms with negative working capital increased almost uninterruptedly from 13% in December 2016 to 17% in December 2019, declined to 4% by December 2022, and raced back up to 13% by the end of 2024. By the end of 2025, that percentage has eased back to 12%. Similarly, the share of farms with positive working capital up to $500 per acre increased from 10% to 21% between December 2022 and December 2025, resulting in a sudden drop in the share of farms with more than $500 per acre in working capital from 86% to 54% over the same period. Thus, the working capital distribution to begin 2026 is similar to, but slightly better than, what we experienced in the late 2010s.

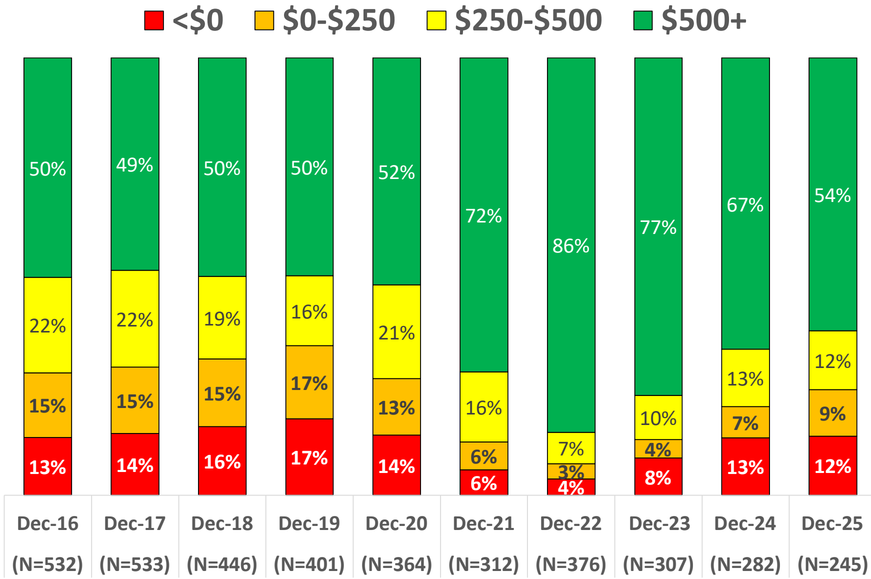


**Figure 4. Distribution of farms with working capital per acre.**
*Source*: IFBA data.

Another financial metric often used to evaluate financial fitness is the current ratio, the ratio of current assets to current liabilities. Many readers may be familiar with Dr. David Kohl's "stoplight" financial benchmarking or the University of Minnesota's *Farm Financial Scorecard*.[7] We will follow the Scorecard's ratings for the farms' ending current ratios, assigning a liquidity rating of vulnerable, normal, or strong. If the farm's current ratio is above 2, this indicates a **strong** liquidity position. If the farm has a ratio below 1.3, that indicates a **vulnerable** liquidity position. A ratio between 1.3 and 2 is **normal**. To avoid outliers, only farms with current ratios between 0 and 50 were selected. Given the large number of farms in the sample with no short-term liabilities, a fourth category (no current liabilities) is shown in figure 5, along with the three liquidity categories.[8]

In December 2016, roughly 22% of the farms were in a vulnerable liquidity position, 11% of the farms held a normal current ratio, and approximately 66% of the farms were in strong liquidity positions. As the agricultural economy continued to struggle throughout the rest of the 2010s, the proportion of farms landing in a vulnerable liquidity position rose to nearly 30%, as we saw declines in all of the other categories, including those farms with no current liabilities. As the working capital data showed, the post-COVID-19 boom led to significant improvement. By December 2022, the percentage of farms in a vulnerable liquidity position fell to less than 8%, while the proportion of farms with strong current ratios or no current liabilities rose to nearly 85%. But as crop prices have fallen and stayed lower over the past few years, current ratios are sliding once again. By December 2025, 19% of farms were rated as vulnerable, 11% held a normal rating, and 70% were in a strong liquidity position. Thus, we see a similar pattern, where today's data are similar to, but slightly better than, the late 2010s.

---

[7] Becker, K., Kauppila D., Rogers G., Parsons R., Nordquist D., and R. Craven. 2014. Farm Finance Scorecard. Center for Farm Financial Management, University of Minnesota. Available online. Last accessed July 2026.

[8] Due to rounding, some shares might not sum to 100%.

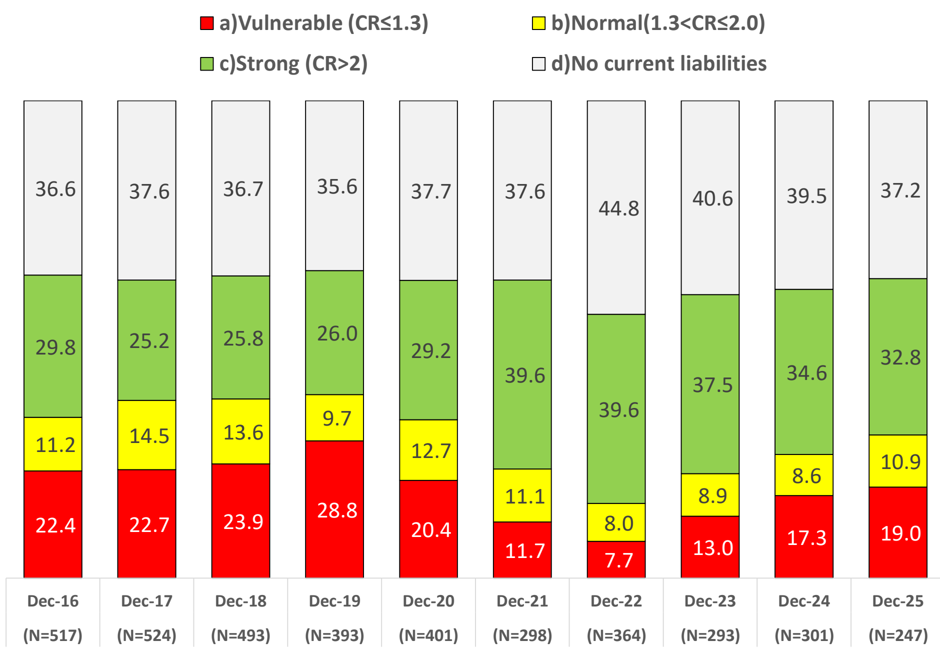


**Figure 5. Distribution of farms by current ratio status.**
*Source*: IFBA data.

Figure 6 shows the evolution of working capital per acre for each of the four groups of farms presented in figure 3. In December 2016, those farms considered vulnerable had an average working capital value of -$143 per acre, those in the normal range had $330 per acre, farms in the strong range had $646 per acre, and the farms with no current liabilities had $882 per acre. As figure 6 displays, the working capital shifts have led to both higher and lower values. For the vulnerable farms, the 2023 calendar year was the most extreme, with the average working capital falling to -$346 per acre. For these farms, the last couple of years have actually led to some improvement in the average, back up to roughly -$240 per acre, but that level is below the average of the late 2010s. For farms with normal current ratios, there has been a general increase in working capital per acre over time. The peak came in 2024, with $892 per acre in working capital, but these farms saw a nearly $100 per acre decrease last year. Still, with an average of $787 per acre of working capital, these farms have over twice the working capital per acre now than they did in the late 2010s. The farms with strong current ratios have also experienced a sizable upward shift, with the 2025 data showing $1,193 per acre in working capital, the highest over the entire period. Meanwhile, the farms that had no current liabilities had relatively steady working capital levels from 2016 to 2020, captured a significant spike in working capital in 2021 and 2022, and utilized some of that working capital over the past three years. In fact, for the first time, the average working capital per acre for farms with a strong current ratio exceeded the level held farms with no current liabilities.

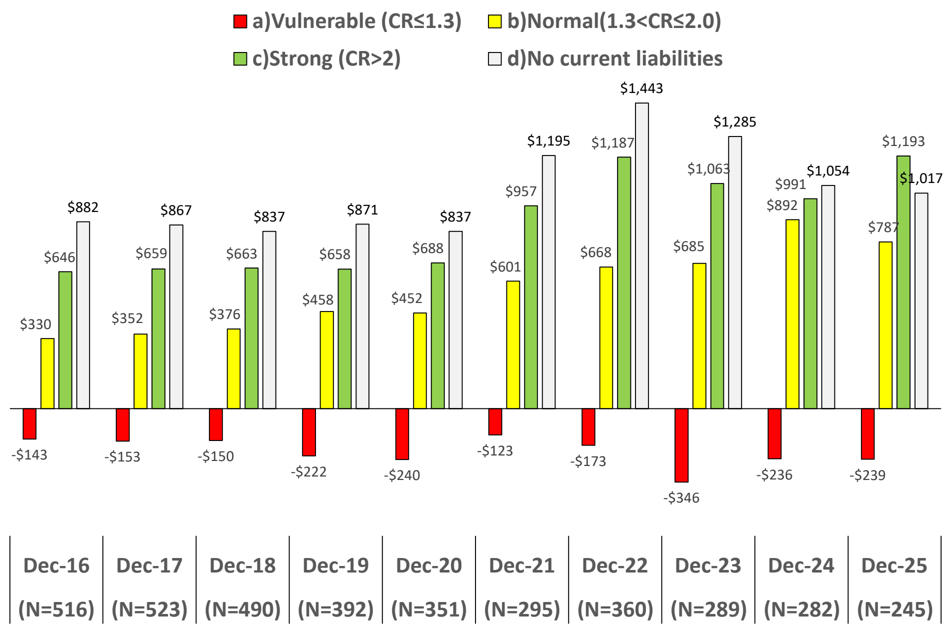


**Figure 6. Average working capital per acre by current ratio status.**
*Source*: IFBA data.

It must be noted that the sample size became smaller through time, from 516 farms in 2016 to 245 farms in 2025, affecting the robustness of the comparisons discussed in the present section. The next section explores the overall liquidity situation for the same subset of farms over the most recent three years.

## Analysis of Farms with Full Financial Records over the Most Recent Years

The declining number of farms in our sample through the years and the changing composition of the annual samples might drive some of the results presented in the previous section. In what follows, the analysis is limited to a subset of 199 farms with detailed balance sheet records from 2022 to 2025. Figure 7 displays the 199 farms by current ratio status over the past four years. As we are tracking the same farms across all four years, we see a slightly different pattern to the financial shifts. For this panel of farms, we saw a slight improvement in current ratios in 2023, as the percentage of vulnerable farms fell to 9%, while farms in strong liquidity positions rose to over 80%. But the 2024 calendar year reversed those fortunes, as the percentage of vulnerable farms rose to over 20%, the proportion of with strong current ratios fell by 6.5%, and the number of farms that held no current liabilities shrank by 4%. That financial pressure did not dissipate in 2025. While the percentage of farms in a vulnerable position did retreat by 2%, the percentage of farms in a strong position also retreated by 4.6%. So both farms in the vulnerable and strong categories were shifting into the normal category, some improved and some did not.

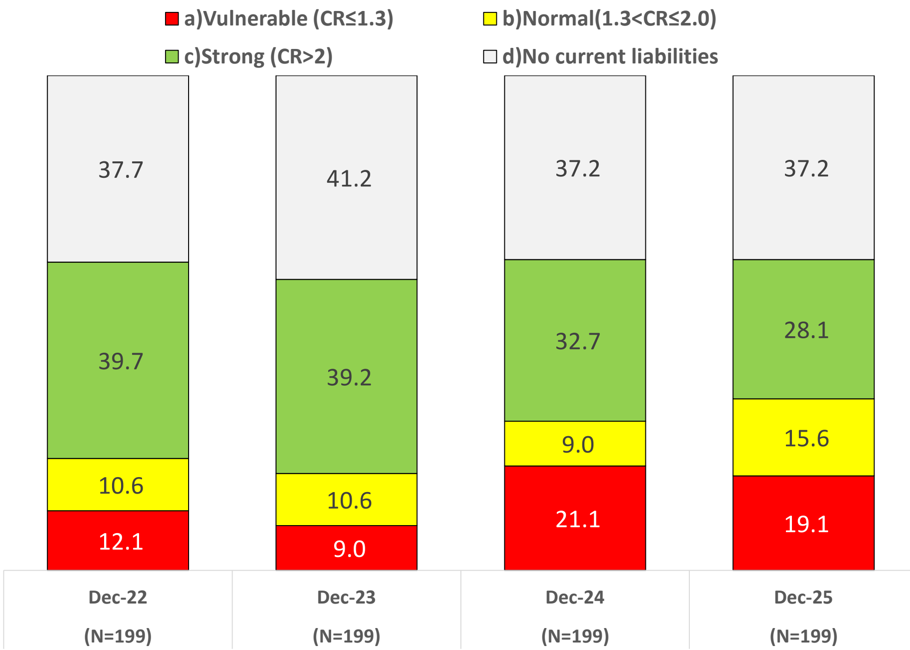


**Figure 7. Distribution of farms by current ratio status.**
*Source*: IFBA data.

Figure 8 shows the evolution of working capital per acre for each of the four groups of farms presented in figure 5. Again, here we are tracking the same 199 farms over time. These farms tell a similar story to the overall sample of farms shown in figures 5 and 6. For the farms classified as vulnerable, the average working capital per acre has declined each year since 2022. The working capital deficit has more than doubled in three years. For the farms in the other categories, the movement has been mixed. Farms with normal current ratios have, in general, built up working capital, with most of the gain occurring in 2024. And while their average working capital declined by over $100 per acre last year, these farms still have, on average, roughly 50% more working capital than they had in 2022. For farms with strong current ratios, the average working capital has seesawed up and down, peaking in the odd years and falling in the even ones, but again, on average, working capital for these farms is up roughly 25%. For the farms with no current liabilities, the working capital peak came in 2023. Since then, the average working capital for this group has fallen by roughly $350 per acre since 2023 and is down approximately 13% since 2022.

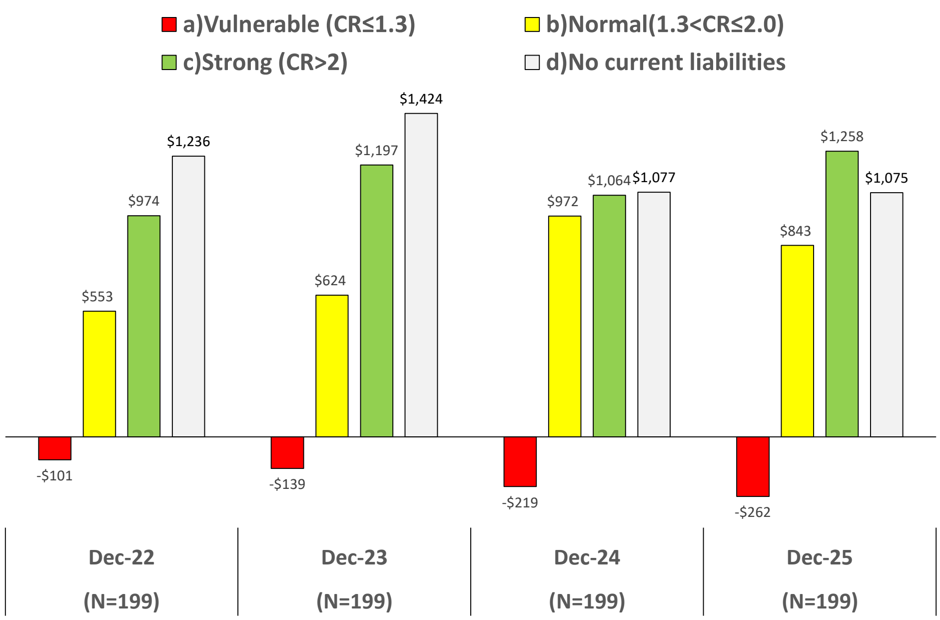


**Figure 8. Average working capital per acre by current ratio status.**
*Source*: IFBA data.

## Conclusions

This chapter explores the evolution of financial liquidity among mid- and large-size Iowa farms against a backdrop of lower net farm income and increased government support over the past few years. The financial indicators studied show a deterioration of the liquidity situation and an overall increased need for working capital financing in 2026. However, the data also show that the proportion of farmers in a vulnerable financial situation is less currently than it was in the late 2010s, but the gap in working capital has grown larger for these farms. The financial pressure has also not been avoided by farms in stronger financial positions. Some farms that had no current liabilities in 2022 or 2023 have had to take on debt, while others that were rated as strong at that time have moved into the normal range with their increased debt loads. But not all farms have experienced deteriorating finances. Within the last year, we did see an increase in the average working capital per acre and a decline in the percentage of vulnerable farms in the 2022–2025 panel. While it will take additional research to specifically detail where the financial improvement in those farms came from, we can tell a general story that these farms are finding methods to control their costs, increase revenue opportunities, and capture additional government support. One of the more effective tools to help farmers better manage liquidity is the use of a realistic cash-flow budget. Over the years, Iowa State University Extension and Outreach has published several articles and decision tools to discuss how to develop and implement effective cash-flow budgets. For example, on the Ag Decision Maker site, there are files covering steps to cash flow budgeting (C1-15), understanding cash flow analysis (C3-14), and ways to stretch cash flow (C3-58). As the longer term data show, the agricultural economy will eventually improve, with that farm liquidity will also. The challenge for now is to steady the financial ship, similar to what farmers did in the late 2010s, survive today to thrive tomorrow.

## References

US Department of Agriculture Economic Research Service (USDA-ERS). 2026. “Farm Sector Income & Finances - Farm Sector Income Forecast.” https://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/farm-sector-income-forecast.

## Suggested Citation

Plastina, A., J. Han, and C. Hart. 2026. “The Ag Economy in 2026: A Farm Finance Perspective.” In J.M. Crespi and C.C. Pudenz (Eds.) “2026 Iowa Agricultural Outlook: The Pressure is Rising.” Center for Agricultural Development at Iowa State University, Iowa Farm Bureau Federation, and Iowa Bankers Association.

# Reading the Credit: What Farm Lending Data Say About Financial Pressure

**Rabail Chandio**

Farm financial pressure rarely appears all at once. It usually develops as farm income weakens, production costs remain elevated, working capital declines, and farms depend more heavily on borrowed funds. By the time that pressure appears in a bankruptcy filing, many producers have already spent several years adjusting expenses, refinancing obligations, selling assets, or drawing down equity.

There can be different sides to that adjustment: the crop-income cycle and the pressure created when commodity prices weaken while production costs remain elevated; and, farmland values and the importance of land as a source of wealth, collateral, and long-term financial capacity. This chapter follows those conditions through the agricultural credit system: how weaker margins affect borrowing and repayment, how lenders respond, and when financial pressure begins to appear in noncurrent loans and bankruptcy filings.

Credit indicators can be loosely organized by when they tend to respond. Banker surveys often provide relatively early signals through changes in repayment, renewals, and loan demand. Noncurrent loans show when financial pressure has reached lender balance sheets. Chapter 12 bankruptcy filings tend to emerge later and capture only the most severe outcomes. Read together, the indicators suggest that farm financial pressure is broadening, but realized credit distress remains low relative to earlier downturns.

## The Farm Financial Squeeze

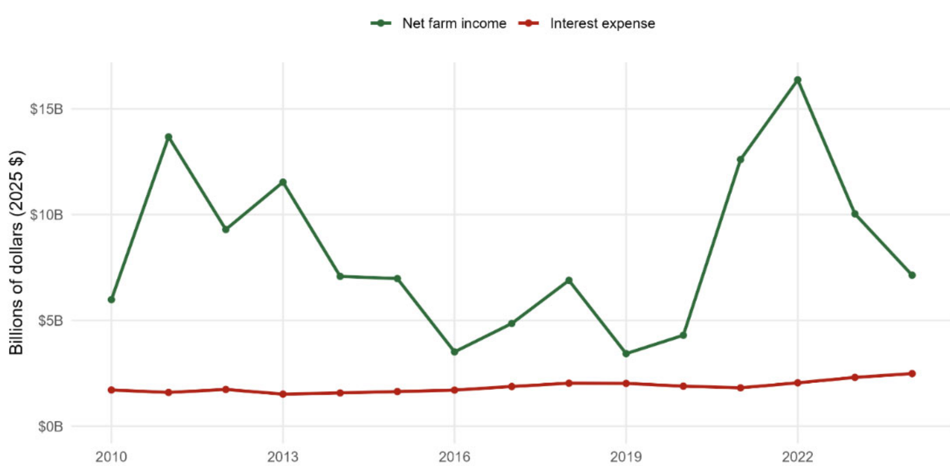


**Figure 1. The farm financial squeeze: Iowa farm income falls as interest expense rises.**
*Source*: USDA Economic Research Service, Farm Income and Wealth Statistics.

The starting point is farm income.

In 2025 dollars, Iowa net farm income reached $16.4 billion in 2022 and then declined to $7.1 billion in 2024, a reduction of 56% in two years. Over the same period, Iowa farm interest expense increased from about $2.0 billion to $2.5 billion, an increase of 21%. These series should be interpreted carefully. Interest expense is already deducted in the calculation of net farm income, so the distance between the two lines is not a measure of remaining farm margin. Instead, figure 1 shows two developments occurring simultaneously: farm earnings have fallen sharply, while the cost of carrying farm debt has continued to rise.

Interest expense increases for more than one reason. Higher interest rates raise the cost of existing variable-rate debt and new borrowing, but total expense can also rise when farms carry larger balances or refinance obligations over longer periods. Figure 1, therefore, reflects both the price of credit and the amount of credit being used.

This combination helps explain many of the lending conditions discussed ahead. When income falls faster than costs can adjust, farms may rely more heavily on operating credit, renew existing obligations, postpone principal repayment, or use working capital to cover shortfalls. Earlier FDIC analysis of the 2014–2019 downturn found that farm debt continued rising even as income weakened, creating a widening gap between debt growth and the income available to service it (FDIC 2021).

## What Agricultural Bankers Are Seeing

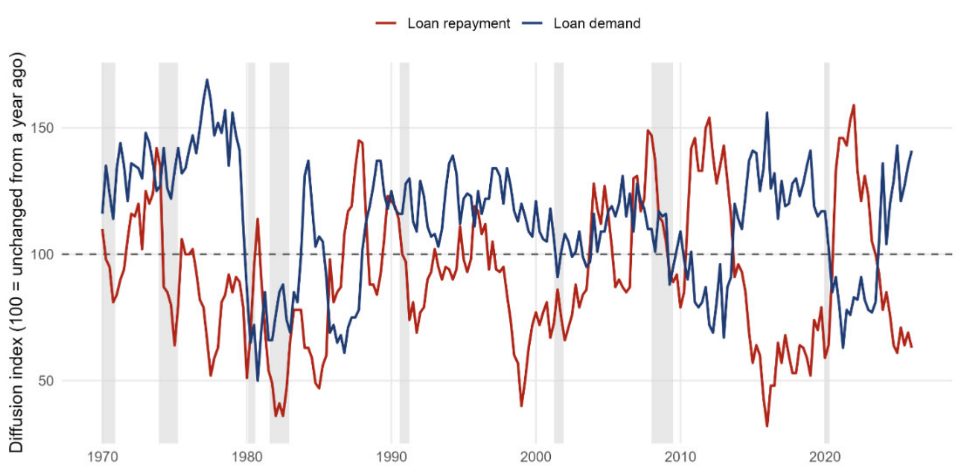


**Figure 2. Seventh district loan repayment and loan demand.**
*Note*: Diffusion indexes measure the direction and breadth of change from the previous year. Shaded areas indicate US recessions.
*Source*: Federal Reserve Bank of Chicago, Seventh District Agricultural Credit Survey.

The Federal Reserve Bank of Chicago surveys agricultural bankers across the Seventh Federal Reserve District, which includes Iowa. The survey reports diffusion indexes centered on 100. A reading above 100 means more bankers reported an increase than a decrease from one year earlier and a reading below 100 means more reported a decrease.

In early 2026, the loan repayment index stood at 63, indicating that substantially more bankers reported lower repayment rates than higher repayment rates. At the same time, the loan demand index stood at 141, a historically elevated reading. The two series point in an unfavorable direction: demand for credit is strengthening while repayment conditions are weakening. This pattern is consistent with farms relying more heavily on borrowing as income and working-capital positions tighten. However, diffusion indexes measure the direction and breadth of change, not the level of conditions. A repayment reading of 63 does not mean that repayment is at 63% of normal, nor does a demand reading of 141 mean that borrowing increased by 41%. The indexes show how widely conditions are changing among surveyed lenders, not the dollar size of the change.

The Kansas City Federal Reserve's agricultural credit survey shows a similar relationship between farm income and repayment conditions.

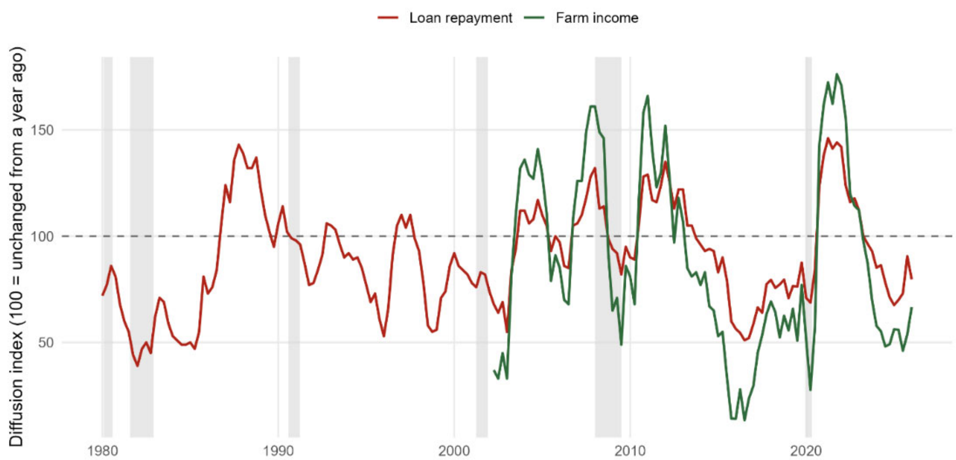


**Figure 3. Kansas City district loan repayment and farm income.**
*Note*: Diffusion indexes measure changes relative to the previous year.
*Source*: Federal Reserve Bank of Kansas City, Agricultural Credit Survey.

Reported farm income and loan repayment generally move together. When more bankers report falling farm income, repayment conditions tend to weaken as well. The recent decline in both measures highlights that the overall cash-flow pressure has become more widespread, even though the survey cannot identify the financial condition of any particular farm.

The distinction between debt level and debt burden is important. The FDIC found that debt-service pressure can increase even when nominal interest rates are relatively low, particularly when debt rises faster than farm income (FDIC 2021).

## What has Reached Lender Balance Sheets

Survey measures indicate changing conditions. Noncurrent loans show when those conditions have begun to affect bank portfolios.[9]

[9] Noncurrent agricultural PRODUCTION loans are reported only by a small number of very large banks, so community banks—including every farm lender in Iowa—are absent from those fields. This analysis therefore relies on farm real estate loans (wherever FFIEC call report data is used), which are reported completely.

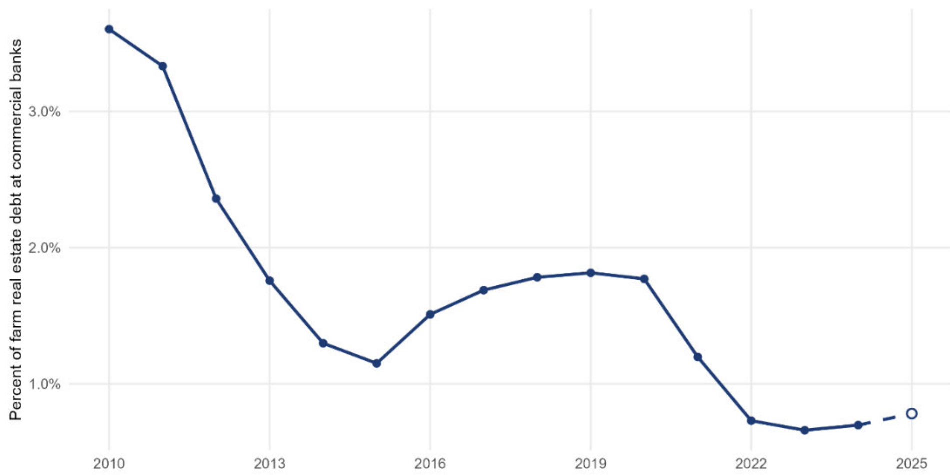


**Figure 4. National farm real estate loan delinquency.**
*Note*: Delinquencies remains low but have recently increased. The two sources treat farm operator dwellings somewhat differently, so the estimated rate is best used to track changes over time rather than as an exact level. The 2025 value, represented by a hollow circle, is estimated because the USDA's lender-level series ends in 2024.
*Source*: Numerator from FFIEC Call Reports; denominator from USDA Economic Research Service estimates of farm real estate debt held by commercial banks.

Farm real estate loans are considered noncurrent when they are in nonaccrual status or at least 90 days past due. As a share of farm real estate debt held by commercial banks, the national noncurrent rate fell sharply after 2010, declining from roughly 3.5% in 2010 to less than 1% in recent years. The rate reached a recent low in 2023 and has since turned upward. The latest estimated value remains below 1%, far below the rates recorded at the beginning of the period and below the levels reached during the 2015–2019 farm-income downturn. The direction, therefore, deserves attention, but it is important to remember that the level remains low. This is an important distinction. A rising delinquency rate indicates some deterioration in credit performance, but current conditions remain far from the broad loan problems associated with earlier farm financial crises.

The sharp improvement after 2020 also occurred under unusually favorable conditions. Commodity prices recovered, farm income reached record highs, interest costs remained historically low, and federal assistance provided substantial support to farm cash flow. Those conditions likely contributed materially to improved repayment performance. The unusually low delinquency values recorded afterward should therefore be viewed partly as the product of exceptionally strong income and policy support, rather than as a normal long-run baseline for evaluating current conditions.

## Financial Pressure is Reaching More Lenders

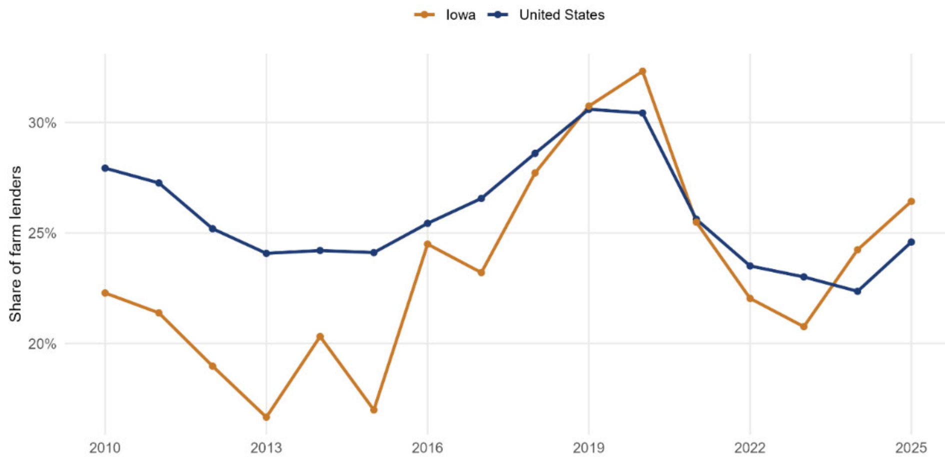


**Figure 5a. Share of farm lenders holding a noncurrent farm real estate loan.**
*Note*: Figure 5a measures the breadth, not the severity, of noncurrent lending. Larger lenders hold more loans and are therefore more likely to report at least one noncurrent loan.

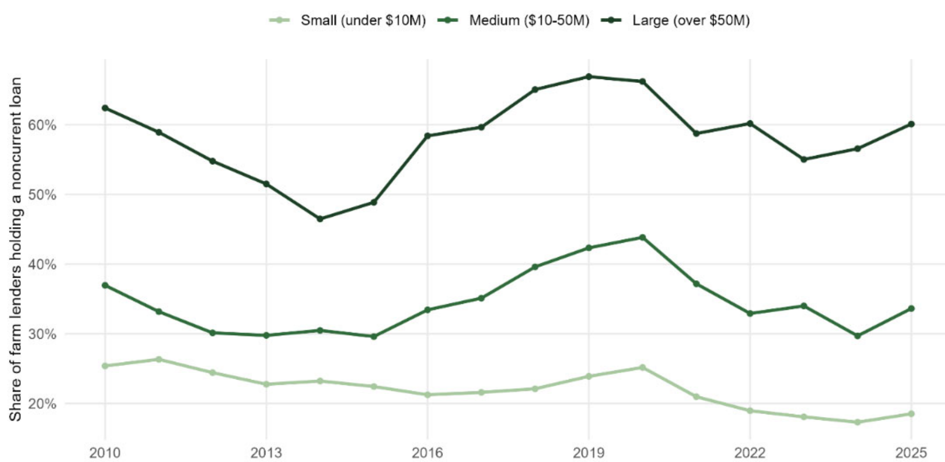


**Figure 5b. Noncurrent farm loans are more common at lenders with larger farm loan portfolios.**
*Note*: Figure 5b does not compare delinquency rates.
*Source*: FFIEC Call Reports (2026).

Another way to evaluate deterioration is to ask how many farm lenders hold at least one noncurrent farm real estate loan. Nationally, the share of farm lenders with at least one noncurrent loan peaked at 30.6% in 2019, fell through 2023, and has since increased to 24.6% in 2025—still below the level reached during the last downturn. In Iowa, the share increased from 20.8% in 2023 to 26.4% in 2025. That was an increase of 5.6 percentage points in Iowa, compared with 1.6 percentage points nationally. This measure captures the breadth of credit deterioration rather than its severity. A bank with one small noncurrent loan counts the same as a bank with several large troubled loans. The measure, therefore, cannot indicate the dollar magnitude of distress at any particular institution.

Larger lenders are naturally more likely to hold at least one noncurrent loan because they serve more borrowers and hold more loans. Figure 5b separates lenders by the inflation-adjusted size of their agricultural production loan portfolios. The level is consistently highest among large lenders and lowest among small lenders, as would be expected from the number of lending relationships each group manages. More importantly, the recent increase is evident across all portfolio-size categories. That suggests the national and Iowa increases are not confined to a single class of lenders and are consistent with a broader deterioration in farm repayment conditions. These figures do not show that larger lenders have higher delinquency rates. They show only that larger lenders are more likely to hold at least one noncurrent farm real estate loan.

## The Dollar Value of Noncurrent Debt Has Also Turned Upward

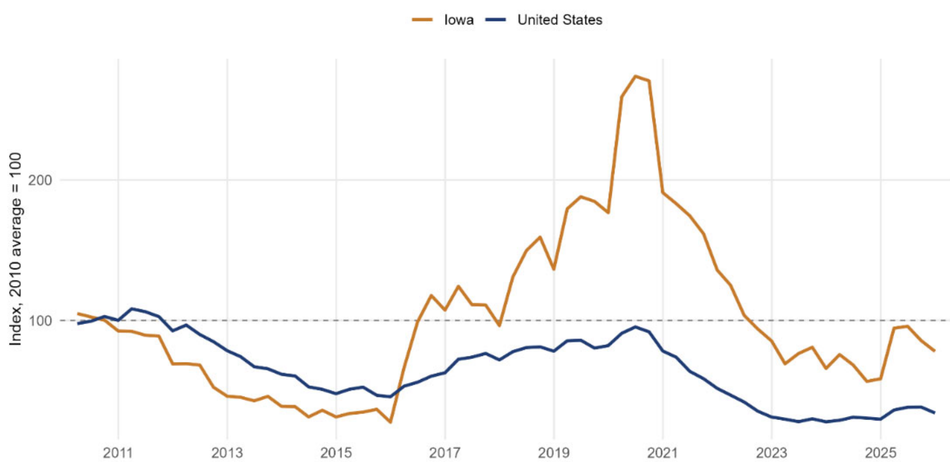


**Figure 6a. Noncurrent farm real estate debt, indexed.**
*Note*: The index measures noncurrent loan dollars. The 2010 annual average equals 100.
*Source*: FFIEC Call Reports (2026).

The indexed series provides another view of the same pattern. It compares the inflation-adjusted dollar value of noncurrent farm real estate debt in Iowa and the United States, with the 2010 annual average set equal to 100.

National noncurrent farm real estate debt remains far below its 2010 level. The series also remains below its 2019 level, but it has increased from the unusually low values recorded in 2023. Iowa shows the same broad pattern, although the state series is more volatile because a relatively small number of large loans can meaningfully affect the total. In Iowa, noncurrent farm real estate debt in Iowa is up about 19% from its 2023 low but remains far below its 2020 peak. These are dollar balances, not counts of farms or loans. An increase can reflect a greater number of troubled loans, larger balances on existing troubled loans, or both. Because a small number of large loans can move the total, this is particularly true for Iowa. Government payments during the pandemic were also associated with greater use of short-term farm debt across most farm and operator groups (Chandio et al. 2025).

Figure 6b reports the same data in dollar terms.

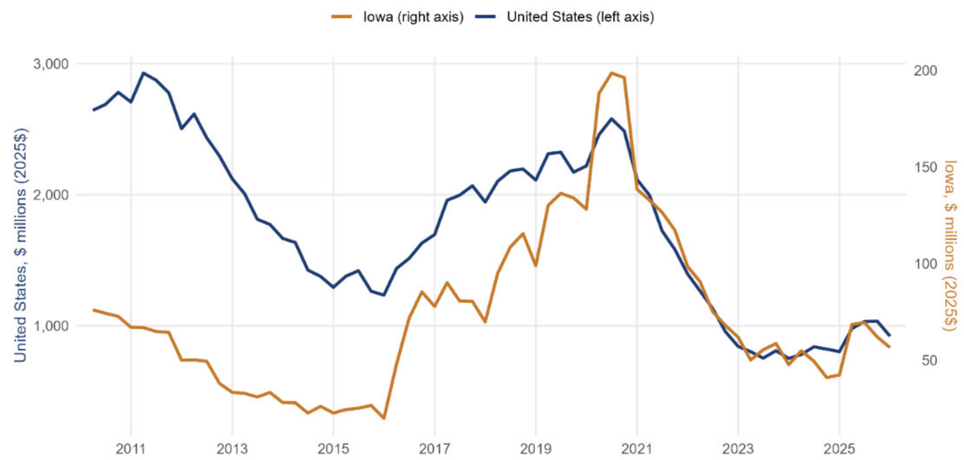


**Figure 6b. Noncurrent farm real estate debt (US dollars).**
*Source*: FFIEC Call Reports (2026).

Because the national and Iowa axes are independently scaled, the levels should not be compared directly—figure 6b is useful only for comparing the timing and direction of the two series.

## Bankruptcy is Increasing from an Exceptionally Low Base

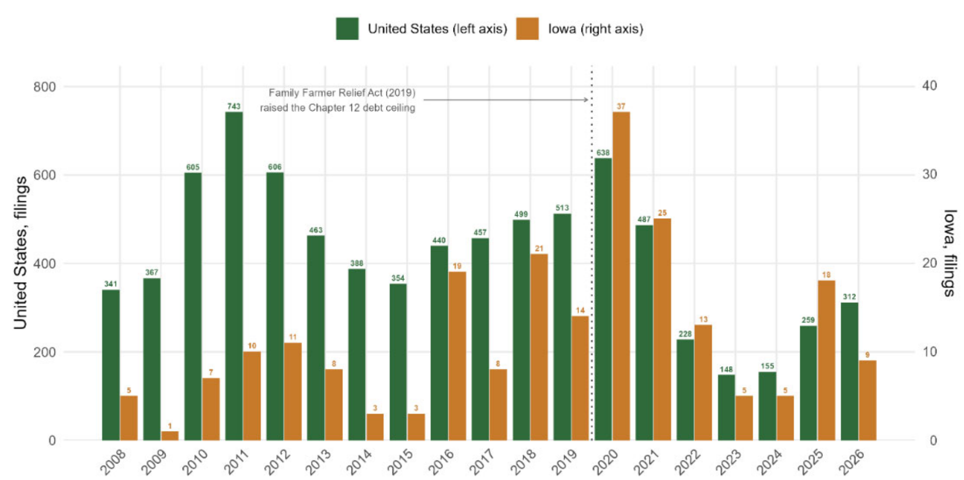


**Figure 7. Chapter 12 farm bankruptcy filings.**
*Note*: Recent values are rolling 12-month totals ending in March. The 2019 debt-ceiling change affects comparisons across the policy change.
*Source*: Administrative Office of the US Courts.

Chapter 12 bankruptcy is designed for family farmers and family fishermen. It is one of the clearest indicators of severe financial distress, but it captures only the most serious cases. Many financially pressured farms never file for bankruptcy. They may refinance debt, restructure loans, sell assets, obtain off-farm income, reduce family living expenses, or leave farming voluntarily.

During the twelve months ending in March 2026, there were 312 Chapter 12 filings nationally, up from 155 during the twelve months ending in March 2024. Iowa filings rose from 5 to 9 over the same period, though small annual counts fluctuate sharply: they reached 18 in the twelve months ending March 2025 before falling back.

The increase is significant, but the level remains modest by historical standards. Even after doubling, national filings remain below the total recorded in every year from 2008 through 2021. That comparison should be read with care: the Family Farmer Relief Act of 2019 raised the Chapter 12 debt ceiling, so more farms became eligible to file after that date than before it.[10]

## Why This Is Not the 1980s

The natural historical comparison is the farm crisis of the 1980s. There are some similarities: weaker income, greater reliance on credit, rising repayment concerns, and uncertainty about the durability of farmland values. There are also major differences.

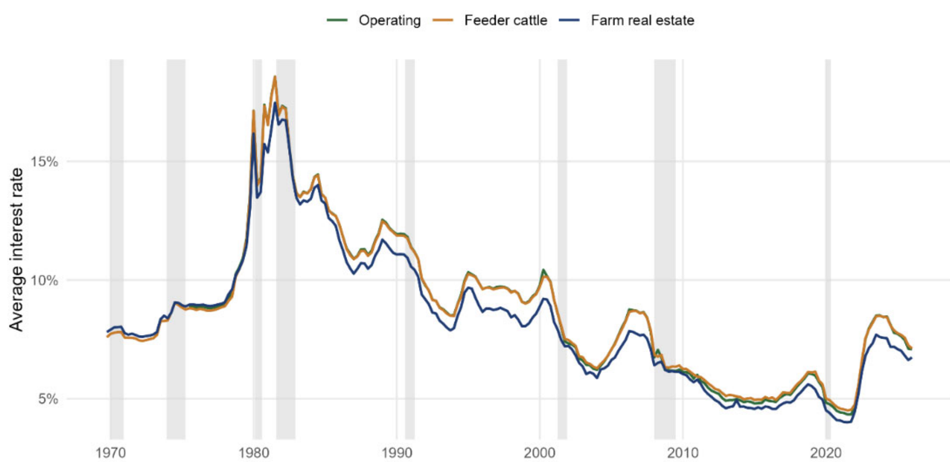


**Figure 8. Seventh district agricultural interest rates.**
*Note*: Rates are nominal quarterly averages reported by surveyed agricultural banks. Shaded areas indicate US recessions.
*Source*: Federal Reserve Bank of Chicago, Seventh District Agricultural Credit Survey.

Agricultural operating rates exceeded 18% at their early-1980s peak. Current rates, generally in the 6–8% range depending on loan type, are materially higher than the rates common during much of the 2010s but remain well below those crisis-era peaks.

The effect of interest rates cannot be considered separately from leverage and income. FDIC analysis shows that the farm-sector debt-service ratio rose from 26% in 1972 to 38% in 1981 and then to 46% in 1983 as high rates, heavy debt, and falling farm income combined (FDIC 2021). More recently, debt-service burdens increased during the 2014–2019 downturn even though rates were historically low, because debt was rising relative to income.

[10] Because rolling 12-month totals and calendar-year totals cover slightly different periods, the comparison is approximate, but the broader conclusion remains: bankruptcies have risen rapidly from an exceptionally low base.

The farm sector also enters the current period of financial pressure with a stronger aggregate balance sheet.

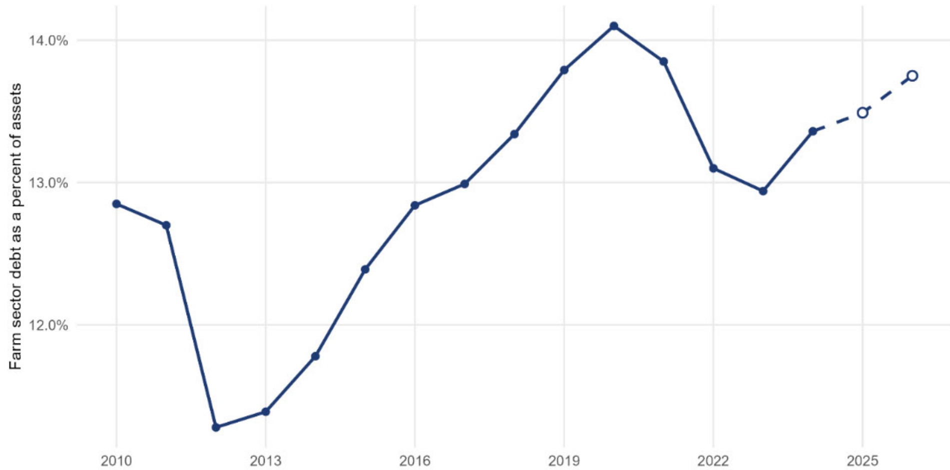


**Figure 9. The US farm sector debt-to-asset ratio.**
*Note*: Hollow points indicate the USDA estimate for 2025 and forecast for 2026. The aggregate ratio does not show differences across individual farms.
*Source*: USDA Economic Research Service.

The US farm-sector debt-to-asset ratio fell to 12.9% in 2023 and is forecast to increase to 13.8% in 2026. The rise indicates that debt is growing faster than assets, but the ratio remains below its recent 2020 peak and far below the levels associated with the 1980s farm crisis.

Aggregate leverage nevertheless conceals the distribution of debt. During the previous downturn, the FDIC found that the shares of crop and livestock farm businesses classified as highly or very highly leveraged increased sharply after the farm-income boom ended (FDIC 2021). A sector can therefore maintain a relatively low average debt-to-asset ratio while a smaller group of farms carries debt burdens that are much more difficult to service.

Farmland remains an important financial buffer.

Farmland values are an important part of that stronger starting position. Land accounts for most farm-sector assets and provides the principal source of collateral for many agricultural borrowers. Strong land values can allow established owners to refinance debt or absorb several years of low income without immediately becoming insolvent.

Earlier FDIC analysis found that farmland equity helped many borrowers and farm banks manage operating shortfalls during the 2014–2019 downturn (FDIC 2021). Sherrick (2018) similarly notes that farm real estate accounts for the overwhelming majority of farm-sector assets and that relatively low aggregate leverage in farmland has historically provided the sector with substantial collateral capacity.

## Agricultural Banks Are Highly Lent Out

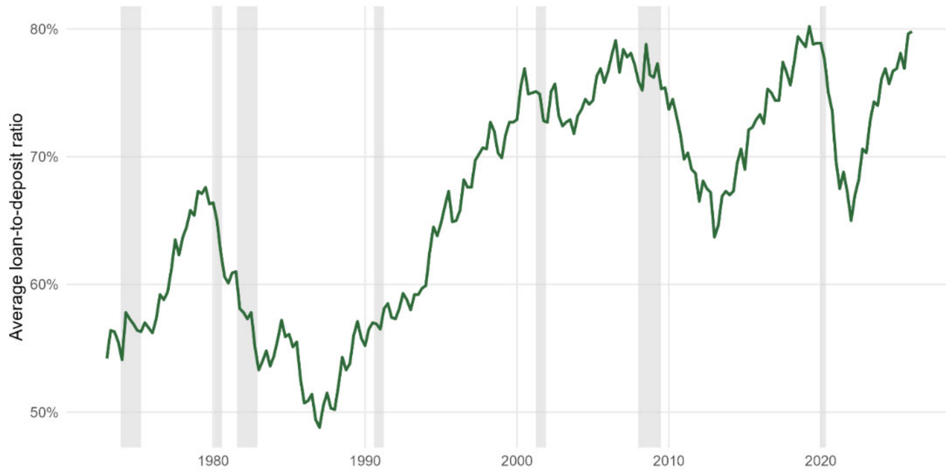


**Figure 10. Seventh district agricultural bank loan-to-deposit ratio.**
*Note*: A higher ratio may reflect rising loans, falling deposits, or both. It is not by itself evidence of bank distress.
*Source*: Federal Reserve Bank of Chicago, Seventh District Agricultural Credit Survey.

The average loan-to-deposit ratio at seventh district agricultural banks has risen to nearly 80%, near the upper end of its historical range. The ratio measures loans relative to deposits. A higher value indicates that more of the deposit base is committed to lending.

A high loan-to-deposit ratio is not, by itself, evidence that a bank is unsafe or that borrowers are in distress. Banks absorb credit losses through capital and loan-loss reserves, not directly through deposits. The ratio can also rise because loans increase, deposits fall, or both.

Farm-bank resilience depends on capital, earnings, asset quality, liquidity, reserves, and management practices. The FDIC found that farm banks generally entered the previous agricultural downturn with strong capital and earnings and were able to manage agricultural stress even as some individual borrowers weakened (FDIC 2021).

Still, a high ratio can indicate less balance-sheet liquidity to accommodate additional loan growth, all else equal. This matters when demand for farm credit is already increasing. Agricultural lenders appear capable of continuing to serve borrowers, but they are doing so from a more heavily lent-out position than during much of the historical period.

## Fewer Banks, but Farm Lending Remains Widespread

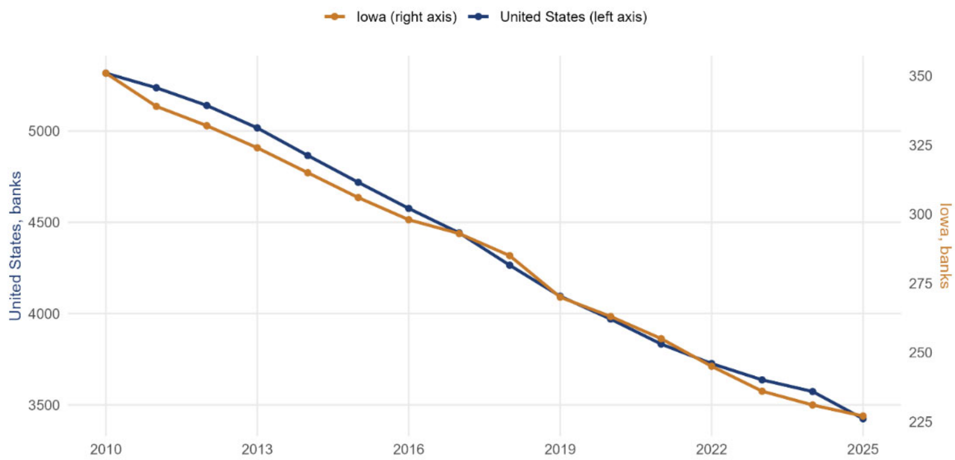


**Figure 11a. Number of banks reporting farm loans outstanding.**
*Note*: Banks are counted when they report farm loan balances outstanding. Figure 11a does not identify new loan originations or directly measure credit access.
*Source*: FFIEC Call Reports (2026).

The number of banks reporting farm loans has declined substantially. Nationally, the count fell from more than 5,300 in 2010 to about 3,400 in 2025. Iowa experienced a similar decline from about 350 in 2010 to 227 in 2025. That pattern does not necessarily mean that farm credit has become less available. The entire commercial banking industry has consolidated through mergers, acquisitions, and charter exits. A smaller number of banks may still supply the same or a greater volume of agricultural credit. Figure 11b provides that context.

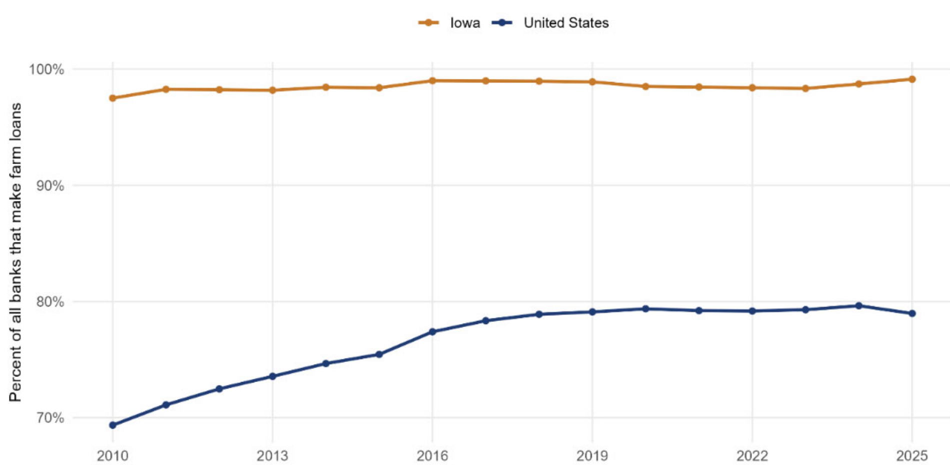


**Figure 11b. Banks reporting farm loans as a percentage of all commercial banks.**
*Note*: The denominator is all commercial banks; the measure does not directly show credit volume, competition, or geographic access.
*Source*: FFIEC Call Reports (2026).

As a share of all commercial banks, farm lenders increased nationally from approximately 69% in 2010 to about 79% in 2025. In Iowa, nearly every commercial bank reports its farm loan outstanding balances, indicating that most banks are involved in agricultural lending. The number of farm lenders has declined because the overall number of banks has fallen, not because the remaining banking system has broadly withdrawn from agriculture. Farm lending continues to be a central activity among Iowa banks and has become more common among the smaller number of banks operating nationally.[11]

## The Aggregate Is Not the Farm

Every measure in this chapter is an aggregate, and aggregates conceal important differences.

A national noncurrent rate below 1% can coexist with serious difficulty among particular borrowers. Financial pressure is likely to be greater among highly leveraged farms, operations with thin working capital, beginning farmers with limited equity, farms that recently financed land or machinery purchases, and those facing high rents or weak commodity margins.

Working capital is especially important because it provides the first line of defense against temporary losses. During the earlier agricultural downturn, US farm working capital declined sharply from its boom-era peak and remained substantially below previous levels even after farm income began recovering (FDIC 2021).

Farmland equity provides another buffer, but mainly for those who own it. Farmland is both a productive asset and a source of collateral that can support refinancing during periods of weak income. Its value reflects expectations about future income and interest rates, however, and should not be treated as permanently fixed.

Aggregate figures describe the capacity of the farm sector and the banking system to absorb deterioration. They do not replace farm-level analysis of cash flow, working capital, leverage, collateral, and debt-service capacity that indicate the individual-/farm-level financial stress.

## What Does the Lending Data Mean?

Banker surveys show that repayment conditions are weakening and demand for credit is increasing. The share of farm lenders holding at least one noncurrent farm real estate loan has risen. Noncurrent balances have turned upward from recent lows, and Chapter 12 filings have increased.

At the same time, the principal measures of realized credit distress remain favorable relative to much of the past 15 years. The commercial-bank farm real estate delinquency rate remains below 1%. Farm-sector leverage remains below its recent peak. Bankruptcy filings remain well below the levels recorded during earlier downturns.

The evidence is therefore most consistent with an early-stage deterioration rather than a mature farm credit crisis. The 2015–2019 downturn is a more useful comparison than the 1980s. Farm banks and many borrowers entered the current period with stronger balance sheets and substantial farmland equity, but those buffers are not unlimited. The unusually low delinquency and bankruptcy levels reached after 2020 also reflected strong commodity prices, federal assistance, and improved farm income. They should not be treated as a normal long-run baseline.

[11] Figures 11a and 11b measure banks with farm loan balances outstanding. They do not show which institutions originated new farm loans in a particular year, nor do they directly measure competition, branch access, loan terms, or the geographic availability of credit.

What happens next will depend heavily on duration. A relatively short period of weak margins may be absorbed through working capital, cost adjustments, refinancing, and existing equity. A downturn that persists for several more years would gradually increase carryover debt, reduce liquidity, weaken repayment capacity, and place greater pressure on the collateral values that currently help protect both borrowers and lenders.

That connection also ties it to the crop markets. Firmer commodity prices, easing production costs, or lower interest rates would improve cash flow before large numbers of loans become noncurrent. Prolonged margin weakness would move in the opposite direction, first through greater credit demand and weaker repayments, and eventually through more serious loan deterioration and financial distress.

For producers, the practical implications are most useful before those later-stage indicators become severe. Priorities include maintaining realistic cash flow projections, protecting working capital, managing operating and carryover debt, reviewing exposure to variable interest rates, and using marketing plans, crop insurance, and farm programs to protect income available for debt service.

Most importantly, conversations with lenders should begin early—while payments remain current, collateral remains strong, and restructuring options remain available. The lending data point in the same general direction: financial pressure is building, but the sector still has time and balance-sheet capacity to respond.

That time is an asset. It is worth using.

## References


Administrative Office of the US Courts. Bankruptcy Filing Statistics (various). https://www.uscourts.gov/data-news/reports/statistical-reports/bankruptcy-filings-statistics, last accessed July 15, 2026.

Chandio, R., A.L. Katchova, D. Subedi, and A.K. Giri. 2025. "Government Payments and Farm Debt Utilization During the Pandemic." *Agricultural Finance Review* 85(2):289-314. https://doi.org/10.1108/AFR-09-2023-0127.

Federal Deposit Insurance Corporation (FDIC). 2021. "Farm Banks: Resilience Through Changing Conditions." FDIC Quarterly 15(1):31-49.

Federal Financial Institutions Examination Council (FFIEC). 2026. Call Report (various). Central Data Repository's Public Data Distribution. https://cdr.ffiec.gov/public/ManageFacsimiles.aspx, last accessed July 15, 2026.

Federal Reserve Bank of Chicago, Seventh District Agricultural Credit Survey (various). https://www.chicagofed.org/research/data/ag-conditions/index, last accessed July 15, 2026.

Sherrick, B.J. 2018. "Understanding Farmland Values in a Changing Interest Rate Environment." Choices 33(1):1-8.

US Dept of Agriculture, Economic Research Service (USDA ERS). 2026. Farm Sector Income & Finances - Farm Sector Income Forecast. https://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/farm-sector-income-forecast, last accessed July 15, 2026.


## Suggested Citation


Chandio, R. 2026. "Reading the Credit: What Farm Lending Data Say About Financial Pressure." In J.M. Crespi and C.C. Pudenz (Eds.) "2026 Iowa Agricultural Outlook: The Pressure is Rising." Center for Agricultural Development at Iowa State University, Iowa Farm Bureau Federation, and Iowa Bankers Association.

# The Statewide Economic Impact of Iowa Agriculture

**John M. Crespi**

What is the economic impact to the State of Iowa from its agricultural production and from the manufacturing industries and input supplying industries that provide for or use that production? In this chapter, we examine Iowa's state Gross Domestic Product (GDP), or "value added" for 60 industries encompassing agricultural production, processing or agricultural adjacent industries. Value added is the contribution to GDP, the difference between the sales output and the cost of intermediate inputs used to produce the output. We use an economic impact model maintained by the IMPLAN Group, LLC, Huntersville, NC (IMPLAN), which is often called an input-output (IO) production model. In this model, think of all industries in the economy as feeding inputs into each other to produce outputs that are then sold to consumers or sold to another industry along a supply chain. IO models make adjustments for imports and exports as well as government services while accounting for employment and taxes to the various industrial sectors in order to calculate how much additional value is added to the economy, as opposed to only examining sales receipts. IO models determine the linkages between and among different industries in the production of goods and services in the economy and can measure how dollars spent in one industry impact another.

Our definition of agricultural industries includes farm production (e.g., soybeans), processing of production into a new, manufactured product (e.g., soymeal, biodiesel), as well as the creation of products used in agricultural production (e.g., nitrogen fertilizer) and affiliated services like veterinary services. The specific industries as well as their general definitions are shown in appendix table A.[12]

In an IO framework, the total demand for the commodities must equal the amount produced, and the equation that converts supply into demand via a calibrated IO multiplier (also called a "technology") matrix is known as the Leontief Production Function (Leontief 1986). The values in the matrix are based on data gathered by a variety of entities, most notably, but not entirely, the US Bureau of Economic Analysis (BEA) and the US Department of Agriculture (USDA). IMPLAN is the most widely used IO model in the United States and has been used in countless analyses. IMPLAN uses publicly available data along with its own data acquisitions and calculations to relate all purchasing and expenditure relationships between and among industries in an economy.[13] We use IMPLAN's inflation adjustments so that all values are in 2026 dollars. There are known drawbacks of IO studies in general and IMPLAN in particular as noted by Crespi (2024).

---

[12] We base the definitions on those provided by IMPLAN. Along with the IMPLAN industry codes, table A also provides the six-digit North American Industrial Classification System (NAICS) codes. Readers curious about the components of each industry can consult the documentation provided by these two establishments for more detail. The US Census provides definitions for the NAICS codes at: https://www.census.gov/naics/?58967?yearbck=2022. IMPLAN (2017a; 2017b) discusses how data are collected by IMPLAN and Nealy (2024) discusses the definitions used for IMPLAN's industries and how they relate to the NAICS codes. One thing to notice is that some industries are quite broad. Ethanol, for example, is encompassed in the larger "other organic chemical" industry. Researchers are limited to the industries as defined by the NAICS and the government agencies that collect the data, and although future research could attempt to create specific industries in IO models, we do not attempt to do so here.

[13] For more information, see IMPLAN Data Sources 2025; IMPLAN Farm Data Procedures 2025.

We present the four main economic impact variables defined below, as well as tax revenue losses.

I. Output: Output is generally the revenues generated in a year although it also includes inventory in IMPLAN.

II. Jobs: The column marked "Jobs" is IMPLAN's estimate of the number of jobs created in the economy. "Jobs" in IMPLAN can be both full and part time and is not necessarily full-time employment.

III. Labor Income: This is wage, salary, and benefits to workers and employers.

IV. Value Added: This is the regional equivalent to an industry's addition to GDP. It is the difference between output and the costs of the inputs used for the creation of that output including the labor costs as well as the taxes on production and any imports. It can be thought of as that portion of profit that does not include the capital expenses. Value added is what gets added on net to the economy.

For each of the above economic impact variables, IMPLAN generates three economic impact effects:

1. Direct Effects: These are the changes to an economy's final demand directly from the hypothesized change to the industry under examination.

2. Indirect Effects: These occur through industry-to-industry (business-to-business) purchases within and across industrial supply chains.

3. Induced Effects: These measure the flow of money from wages and income throughout the economy beyond the specific supply chain impacts.

As discussed in an earlier CARD document (Crespi 2024), relying on data collected by a variety of agencies in federal and state governments, an IO model determines the production linkages of an economy's industries. IMPLAN uses a Leontief production function that assumes inputs are used in fixed proportions by value. Once measured, the interactions of the inputs to production across the economic system and along its supply chains can be related to government agency data creating an economic snapshot of an economy's linkages. Economists recognize that assuming fixed proportions technologies for production functions is sometimes problematic; however, IO models are regularly used in economic development studies because they allow hypothesizing changes to an industry's employment or revenue to measure the impacts on the rest of the productive inputs in the economic model. For this study, we use IMPLAN's Industry Contribution Analysis (ICA) tool. ICA can be used to gauge the aggregate economic importance of a particular industry, in this case, the industries in appendix table A, on the rest of the Iowa economy.

As in Crespi (2024), we take a conservative approach whereby we remove the effects along the supply chain for these industries where the industry is interacting with itself, so as to focus only on the impacts of an industry on the rest of the economy. We restrict buybacks in the supply chains using IMPLAN's industry contribution analysis. Thus, we are measuring the contribution of the industries; and, buybacks, if allowed, in such a context would be a form of double counting (see Lucas 2019; Miller and Blair 2022, ch. 7). Following previous studies by Iowa State University researchers and others, we present the results in two ways in tables 1 and 2. All dollar values in tables 1 and 2 are in billions of 2026 dollars (adjusted by the Consumer Price Index).

Because agricultural profits can vary widely from year to year, tables 1 and 2 look at an average of the industry data for the five most recent years where full data are available (2020–2024). Table 1 presents the direct, indirect, and induced effects for the state and by major industry categories and for jobs, labor income, value added (GDP), and output (sales plus inventories). Table 1 also presents the 2024 output (sales plus inventories) for comparison with the average output. Table 2 presents the average value added (GDP) impacts showing both Iowa and the entire United States.

Begin by looking at the upper section of table 1 denoted “Total Ag-Related Industries.” Table 1 shows that the direct impact from all 60 of the industries in the state of Iowa is on average about 198,000 jobs per year, which leads to an additional increase of jobs across the economy, so that the total number of jobs related to these industries in Iowa alone is about 329,000. These are jobs and not necessarily full-time equivalent positions; still, the impact shows that every job in Iowa in these 60 industries leads to 1.65 jobs. Likewise, an average of about $18 billion in labor income increases to about $27 billion in labor income across the state.

Value added represents the contribution to the state’s GDP. Iowa’s GDP over this period was roughly $271 billion per year. Table 1 shows that $34 billion is contributed on average each year directly from the 60 industries with a total contribution of $51.5 billion. In other words, every dollar of GDP from Iowa’s agriculturally related industries contributes 1.5 (=51.5/34) times to Iowa’s GDP.

Output represents sales and inventory, thus we find $127.5 billion in sales being part of $158 billion in total sales, or, for every dollar sold directly from the 60 industries represents $1.23 for the Iowa economy on average from 2020–2024. We call 1.23 the output multiplier. We also present the output for 2024 for comparison. Output in 2024 was higher than the five-year average by 7% when looking at the direct impacts of ag-related industries and by 16% looking at the total impacts. The multiplier in 2024 was slightly higher than the average at 1.35.

Table 1 also shows the same values disaggregated into finer industry components of production, processing, and “Other.” Looking at the “Production” values, we see that 2024 output was lower than the average by 2%; however, the indirect and induced impacts in production were higher than average leading to an overall increased total economic impact for the state even though farmers were arguably less well off. Likewise, “Processing” and “Other” saw sales and inventory increases over the average.

We then perform the same analysis for the United States as a whole. Table 2 focuses on the GDP aspects of the IMPLAN analysis in order to compare Iowa and US GDP. As seen in table 2, Iowa’s average GDP of roughly $272 billion is about 1% of US GDP. In terms of GDP linked to the 60 agricultural industries of this study, Iowa’s (total) value added is about 19% of Iowa’s GDP (=51.5/271.6). For the whole country, these 60 industries represent about 7% of the US GDP. Looking specifically at these 60 industries (“GDP Linked to Ag-Related Industries”), Iowa’s industries contribute about 3% of the US share or $51.5 billion versus nearly $1.8 trillion in total value added. The Iowa shares in the last column may seem small for some industries, but recall these industries are very broadly defined in some cases. For example, Iowa’s production of ethanol over this time period averaged about 29% of US ethanol (Iowa Renewable Fuels Association 2026), but table 2 shows that the total processing industry including ethanol is about 2% of US GDP. This is indicative of just how large the total processing industry is in the country.

**Table 1. Iowa's Annual Economic Impacts from Agriculture and Ag-related Industries, 2020–2024 Averages and 2024 Output**

**All 60 industries**

| Impact | Jobs (1000s) | Labor Income | Value Added | Output | Output 2024 |
|---|---|---|---|---|---|
| 1 - Direct | 198.19 | $17.83 | $34.21 | $127.53 | $136.30 |
| 2 - Indirect | 72.70 | $5.96 | $10.61 | $19.92 | $30.76 |
| 3 - Induced | 57.88 | $3.13 | $6.65 | $10.65 | $17.10 |
| Total | 328.78 | $26.93 | $51.47 | $158.11 | $184.16 |

**Production (crops, livestock, forestry, fishing, etc.)**

| Impact | Jobs (1000s) | Labor Income | Value Added | Output | Output 2024 |
|---|---|---|---|---|---|
| 1 - Direct | 110.32 | $9.04 | $15.53 | $46.37 | $45.61 |
| 2 - Indirect | 22.27 | $1.73 | $3.34 | $6.25 | $9.45 |
| 3 - Induced | 26.39 | $1.43 | $3.03 | $4.86 | $7.00 |
| Total | 158.97 | $12.20 | $21.91 | $57.47 | $62.07 |

**Processing (food & kindred; ethanol)**

| Impact | Jobs (1000s) | Labor Income | Value Added | Output | Output 2024 |
|---|---|---|---|---|---|
| 1 - Direct | 67.09 | $6.32 | $11.90 | $64.07 | $72.15 |
| 2 - Indirect | 39.10 | $3.27 | $5.63 | $10.49 | $16.35 |
| 3 - Induced | 23.18 | $1.26 | $2.66 | $4.27 | $7.42 |
| Total | 129.37 | $10.86 | $20.20 | $78.82 | $95.92 |

**Other Ag-Related Manufacturing (chemicals, machinery, etc.)**

| Impact | Jobs (1000s) | Labor Income | Value Added | Output | Output 2024 |
|---|---|---|---|---|---|
| 1 - Direct | 20.79 | $2.47 | $6.78 | $17.09 | $18.54 |
| 2 - Indirect | 11.34 | $0.96 | $1.64 | $3.19 | $4.96 |
| 3 - Induced | 8.32 | $0.45 | $0.95 | $1.53 | $2.68 |
| Total | 40.44 | $3.88 | $9.37 | $21.81 | $26.17 |

*Note*: Values are in billions of (2026) dollars.

**Table 2. Iowa and US Average GDP (Average 2020–24; values are in billions of 2026 dollars)**

| | Iowa | United States | Iowa Share of US |
|---|---|---|---|
| GDP | $271.62 | $25,653.01 | 1% |
| Ag-Related GDP (Total) Percentage of GDP | 19% | 7% | 0.2% |
| Total Ag-Related Industries | | | |
| Direct | $34.21 | $681.67 | 5% |
| Total | $51.47 | $1,757.65 | 3% |
| Production (crops, livestock, forestry, fishing, etc.) | | | |
| Direct | $15.53 | $272.82 | 6% |
| Total | $21.91 | $546.30 | 4% |
| Processing (food & kindred, ethanol) | | | |
| Direct | $11.90 | $320.61 | 4% |
| Total | $20.20 | $1,011.73 | 2% |
| Other Ag-Related Manufacturing (chemicals, machinery, etc.) | | | |
| Direct | $6.78 | $88.24 | 8% |
| Total | $9.37 | $199.62 | 5% |

*Sources*: Iowa GDP from Iowa Legislature (2026) and US GDP from Federal Reserve Bank of St. Louis (2026); Other values calculated from IMPLAN outputs.

## References


Council for Agricultural Research, Extension, and Teaching (CARET). "Impact, Jobs and Consumers." Iowa State University. Various years 2015 to 2025. https://aes.cals.iastate.edu/council-agricultural-research-extension-and-teaching-caret

Crespi, J.M. 2024. "The Contribution of Agricultural, Forestry, and Fisheries, Production to the US and Iowa Economies." Agricultural Policy Review, Winter 2024. Center for Agricultural and Rural Development, Iowa State University. https://agpolicyreview.card.iastate.edu/winter-2024/contribution-agricultural-forestry-and-fisheries-production-us-and-iowa-economies

Crespi, J.M. 2025. "Jobs and Value Added from Agricultural Production, Processing, and Services in Iowa, 2025." Policy brief 25-PB 49. Center for Agricultural and Rural Development, Iowa State University. https://www.card.iastate.edu/publications/25-pb-49

Decision Innovation Solutions. 2024. "Coalition to Support Iowa's Farmers 2024 Iowa Agriculture Economic Contribution Study." Urbandale, Iowa. June 2024. https://www.supportfarmers.com/wp-content/uploads/2024/07/240628-FINAL-CSIF-2024-AECS.pdf

Federal Reserve Bank of St. Louis. 2026. "Gross Domestic Product." https://fred.stlouisfed.org/series/GDP

IMPLAN. 2017a. Data Sources. https://support.implan.com/hc/en-us/articles/115009674448-IMPLAN-Data-Sources, June 27, 2017, last accessed December 1, 2025.

IMPLAN. 2017b. "Data Sources for Select Industries: Farm, Construction, Rail Transportation, and Government." https://support.implan.com/hc/en-us/articles/115009505787-Data-Sources-for-Select-Industries-Farm-Construction-Rail-Transportation-and-Government, June 27, 2017, last accessed December 1, 2025.

Iowa Renewable Fuels Association. 2026. "Iowa Biofuels Industry at a Glance." https://iowarfa.org/resource-center/statistics/. Last accessed 6/16/2023.

Iowa Legislature. 2026. "Iowa Economic Trends." https://www.legis.iowa.gov/publications/fiscal/economicTrends

Leontief, W. 1986. *Input-Output Economics*, 2nd ed. Oxford University Press, Oxford, UK.

Lucas, M. 2019. "ICA: Introduction to Industry Contribution Analysis." https://support.implan.com/hc/en-us/articles/360025854654-ICA-Introduction-to-Industry-Contribution-Analysis. Last accessed February 21, 2024.

Miller, R.E., and P.D. Blair. 2022. *Input-Output Analysis: Foundations and Extensions*, 3rd ed. Cambridge University Press, Cambridge, UK.

NAICS Executive Office of the President, Office of Management and Budget. 2022. "North American Industrial Classification System, United States, 2022." Washington, D.C.: Bureau of the Census.

Nealy, M. 2024. "U.S. 528 Industries, Conversions & Bridges." IMPLAN. https://support.implan.com/hc/en-us/articles/30545246649115-U-S-528-Industries-Conversions-Bridges, last accessed December 1, 2025.


## Suggested Citation


Crespi, J.M. 2026. "The Statewide Economic Impact of Iowa Agriculture." In J.M. Crespi and C.C. Pudenz (Eds.) "2026 Iowa Agricultural Outlook: The Pressure is Rising." Center for Agricultural Development at Iowa State University, Iowa Farm Bureau Federation, and Iowa Bankers Association.

**Appendix Table A. Industries Examined**

| Line # | Industry | IMPLAN (528) codes | NAICS codes |
|---|---|---|---|
| | Production | | |
| 1 | Oilseed farming | 1 | 111110, 111120, 111191 |
| 2 | Grain farming | 2 | 111130, 111140, 111150, 111160, 111199 |
| 3 | Vegetable and melon farming | 3 | 111211, 111219 |
| 4 | Fruit farming | 4 | 111310, 111320, 111331, 111332, 111333, 111334, 111336, 111339 |
| 5 | Tree nut farming | 5 | 111335 |
| 6 | Greenhouse, nursery, and floriculture production | 6 | 111411, 111419, 111421, 111422 |
| 7 | All other crop farming | 10 | 111940, 111992, 111998 |
| 8 | Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming | 11 | 112111, 112112 |
| 9 | Dairy cattle and milk production | 12 | 112120 |
| 10 | Poultry and egg production | 13 | 112310, 112320, 112330, 112340, 112390 |
| 11 | Animal production, except cattle and poultry and eggs | 14 | 112210, 112410, 112420, 112511, 112512, 112519, 112910, 112920, 112930, 112990 |
| 12 | Forestry, forest products, and timber tract production | 15 | 113110, 113210 |
| 13 | Commercial logging | 16 | 113310 |
| 14 | Commercial fishing | 17 | 114111, 114112, 114119 |
| 15 | Commercial hunting and trapping | 18 | 114210 |
| 16 | Support activities for agriculture and forestry | 19 | 115111, 115112, 115113, 115114, 115115, 115116, 115210, 115310 |
| 17 | Other nonmetallic mineral mining and quarrying | 29 | 212390 |
| | Processing | | |
| 18 | Dog and cat food manufacturing | 58 | 311111 |
| 19 | Other animal food manufacturing | 59 | 311119 |
| 20 | Flour milling | 60 | 311211 |
| 21 | Wet corn milling | 63 | 311221 |
| 22 | Soybean and other oilseed processing | 64 | 311224 |
| 23 | Fats and oils refining and blending | 65 | 311225 |
| 24 | Breakfast cereal manufacturing | 66 | 311230 |
| 25 | Nonchocolate confectionery manufacturing | 69 | 311340 |

| Line # | Industry | IMPLAN (528) codes | NAICS codes |
|---|---|---|---|
| | Processing, continued. | | |
| 26 | Chocolate and confectionery manufacturing from cacao beans | 70 | 311351 |
| 27 | Confectionery manufacturing from purchased chocolate | 71 | 311352 |
| 28 | Frozen specialties manufacturing | 73 | 311412 |
| 29 | Canned fruits and vegetables manufacturing | 74 | 311421 |
| 30 | Cheese manufacturing | 77 | 311513 |
| 31 | Dry, condensed, and evaporated dairy product manufacturing | 78 | 311514 |
| 32 | Fluid milk manufacturing | 79 | 311511 |
| 33 | Creamery butter manufacturing* | 80 | 311512 |
| 34 | Ice cream and frozen dessert manufacturing | 81 | 311520 |
| 35 | Frozen cakes and other pastries manufacturing | 82 | 311813 |
| 36 | Poultry processing | 83 | 311615 |
| 37 | Animal, except poultry, slaughtering | 84 | 311611 |
| 38 | Meat processed from carcasses | 85 | 311612 |
| 39 | Rendering and meat byproduct processing | 86 | 311613 |
| 40 | Bread and bakery product, except frozen, manufacturing | 88 | 311811, 311812 |
| 41 | Cookie and cracker manufacturing | 89 | 311821 |
| 42 | Dry pasta, mixes, and dough manufacturing | 90 | 311824 |
| 43 | Tortilla manufacturing | 91 | 311830 |
| 44 | Roasted nuts and peanut butter manufacturing | 92 | 311911 |
| 45 | Other snack food manufacturing | 93 | 311919 |
| 46 | Coffee and tea manufacturing | 94 | 311920 |
| 47 | Flavoring syrup and concentrate manufacturing | 95 | 311930 |
| 48 | Mayonnaise, dressing, and sauce manufacturing | 96 | 311941 |
| 49 | Spice and extract manufacturing | 97 | 311942 |
| 50 | All other food manufacturing | 98 | 311991, 311999 |
| 51 | Breweries | 101 | 312120 |
| 52 | Wineries | 102 | 312130 |
| 53 | Distilleries | 103 | 312140 |
| | Other Ag-Related Manufacturing or Services | | |
| 54 | Other basic organic chemical manufacturing (incl. ethanol, biodiesel, methane from digesters) | 155 | 325193, 325194, 325199 |

| Line # | Industry | IMPLAN (528) codes | NAICS codes |
|---|---|---|---|
| | Other, continued. | | |
| 55 | Nitrogenous fertilizer manufacturing | 159 | 325311 |
| 56 | Phosphatic fertilizer manufacturing | 160 | 325312 |
| 57 | Fertilizer mixing | 161 | 325314, 325315 |
| 58 | Pesticide and other agricultural chemical manufacturing | 162 | 325320 |
| 59 | Farm machinery and equipment manufacturing | 252 | 333111 |
| 60 | Veterinary services | 449 | 541940 |

# Long-Term Projections for Corn, Soy, Beef, Pork, and Biofuels

**Amani Elobeid, Miguel Carriquiry, and Jerome Dumortier**

In this chapter, we examine projected trends in global agricultural prices, production, consumption, and trade from 2025 to 2050 using CARD's Long-Run Land Use (LRLU) model.[14] This chapter focuses on the following commodities that are of importance to Iowa:

- Corn
- Soybeans
- Oilseed products: soybean meal and soybean oil
- Beef
- Pork
- Biofuels: ethanol and biomass-based diesel

Global agricultural markets are projected to expand steadily over the outlook period, with incremental adjustments rather than through abrupt structural shifts. Total area harvested for corn, rice, soybeans, and wheat increases by 5.9% from 742.2 to 785.9 million hectares (ha) globally. This additional area of 43.7 million ha is mostly allocated to wheat (13.1 million ha), corn (11.0 million ha), and rice (10.7 million ha).

Although the average increase in area harvested is at most 6.3% (soybeans and rice), production increases by at least 13.4% (wheat). Corn and soybean production increase by 19.9% and 17.7%, respectively. Corn production increases steadily alongside moderate expansion in harvested area, consistent with the gradual scaling of existing production systems.

Soybean-derived products, that is, soybean meal and soybean oil, continue to dominate processing markets. Soybean meal maintains a key role in international feed markets increasing production by 17.9% over the projection period with the domestic consumption in China increasing by 19.2%. Soybean oil production increases by 18.1% over the projection period with some large consumers such as the United States, Brazil, and India seeing above average consumption increases of 12.4%, 32.1%, and 15.6%, respectively. The livestock sector reinforces these dynamics, with beef, broiler, and pork production and consumption concentrated in major regions including the United States, China, Brazil, and the European Union. China remains central to global pork markets by increasing domestic consumption and production by 10.5% and 10.5%, respectively. The United States maintains a leading role in pork and broiler production as well with an increase in production over the projection period by 15.9% and 11.4%, respectively.

Biofuel output expands over the projection period, with ethanol growing faster than biomass-based diesel. Global ethanol production over the 2025–2050 projection period increases by 26.2% from 117.7 to 148.5 billion

[14] Much of this chapter is taken verbatim from the following CARD document: Elobeid, A., M. Carriquiry, and J. Dumortier. 2026. "Long-Term Agricultural Outlook." Technical report 26-TR 52. Center for Agricultural and Rural Development, Iowa State University. While every effort has been made to ensure the accuracy and robustness of the data, methods, and models used in this chapter, the projections and forecasts presented herein are subject to uncertainty. The authors do not provide any warranty, express or implied, regarding the accuracy, completeness, or reliability of the predictions. Users of this report should exercise their own judgment when interpreting the results.

liters. Growth is driven primarily by Brazil, where production rises by 66.7%, while the United States increases more moderately by 8.8%. Smaller production increases occur in India (15.8%) and China (6%), while production in the European Union declines slightly by 3.3%. Biomass-based diesel production increases by 13.4%, rising from 66.2 to 75.1 billion liters over the projection period. Production expansion is led by the United States (19.3%), Argentina (18.4%), and Brazil (18.1%), with smaller increases in the European Union (6.8%) and China (5.1%), and declines in Canada (4.5%) and India (2.9%).

Between 2025 and 2050, all major agricultural commodities experience sustained annual nominal price increases ranging from 0.9% (soybeans) to 1.5% (biomass-based diesel) associated with demand growth alongside supply expansion. Biomass-based diesel shows the strongest price growth, followed by ethanol (1.4%) and broiler meat (1.4%), while corn exhibits a moderate increase (1.2%).

Overall, the projections describe a global agricultural system characterized by steady expansion driven primarily by macroeconomic fundamentals rather than rapid structural transformation. Growth occurs in the crops, livestock, and biofuels sectors simultaneously, resulting from rising population and income levels and evolving demand patterns across food, feed, and energy markets.

## Macroeconomic Patterns (2025–2050)

The macroeconomic and population numbers are exogenous drivers, which condition this outlook. Data and projections until 2034 are obtained from the International Macroeconomic Dataset published by the US Department of Agriculture's (USDA) Economic Research Service (ERS) and linearly extrapolated to extend the relevant drivers until 2050.

Assumed world real Gross Domestic Product (GDP) increases on average by 2.6% while global population expand on average by 0.8% over the projection period (see table 1.) As a result, global per-capita income rises throughout the projection period. Real GDP grows in all cases, with higher growth in developing regions including China, India, and the Rest of the World. Advanced economies, such as the United States and European Union experience lower growth consistent with mature economic structures and aging populations.

Population dynamics introduce substantial cross-regional heterogeneity that results in differences in long-run food demand. Advanced economies (e.g., China, European Union) experience slow, flat, or negative population growth. In contrast, developing regions (e.g., Rest of the World and India) account for the majority of global population growth, although population growth rates gradually decline over time.

Table 2 shows world consumer price indices increase on average by 3.1%, which is more rapidly than the GDP deflator (1.6%), consistent with moderate long-run inflation in the baseline. GDP deflators and consumer price indices increase in all regions, but with important cross-regional differences. Consumer price inflation is lowest and most stable in advanced economies, moderate in middle-income economies such as Brazil, and higher in parts of the developing world. GDP deflator growth is more muted, especially in the Rest of the World, indicating that consumer price inflation growth generally exceeds deflator growth. Exchange rates remain broadly stable in advanced economies, exhibit policy-managed near stability in China, and depreciate gradually in developing regions.

**Table 1. Evolution of Real GDP and Population in Selected Countries, Regions, and the World**

| Region | Real GDP % Change | Real GDP CAGR | Population % Change | Population CAGR |
|---|---|---|---|---|
| Argentina | 49.9 | 1.2 | 19.0 | 0.7 |
| Brazil | 109.4 | 2.9 | 12.7 | 0.5 |
| China | 131.9 | 3.4 | 0.1 | 0.0 |
| European Union | 31.1 | 1.1 | -1.5 | -0.1 |
| India | 123.9 | 3.1 | 19.2 | 0.7 |
| United States | 52.0 | 1.6 | 15.6 | 0.6 |
| Rest of World | 76.1 | 2.4 | 42.2 | 1.4 |
| World | 94.7 | 2.6 | 22.8 | 0.8 |

*Note*: For China, population peaks early and then slowly declines. The percent change is calculated for the period 2024–2050 while the compound annual growth rate (CAGR) is calculated for the period 2025–2050.

**Table 2. Evolution of Consumer Prices, GDP Deflator, and Exchange Rates (in the local currency per US dollar in nominal terms) in Selected Countries, Regions, and the World**

| Region | Consumer Prices % Change | Consumer Prices CAGR | GDP Deflator % Change | GDP Deflator CAGR | Exchange Rate % Change | Exchange Rate CAGR |
|---|---|---|---|---|---|---|
| Argentina | 333.3 | 3.8 | 203.6 | 2.3 | 98.9 | 0.4 |
| Brazil | 103.1 | 2.7 | 80.0 | 2.2 | 31.2 | 1.0 |
| China | 63.9 | 1.9 | 36.6 | 1.2 | -5.0 | 0.0 |
| European Union | 61.0 | 1.8 | 49.3 | 1.5 | -11.0 | -0.4 |
| India | 157.6 | 3.7 | 109.5 | 2.8 | 11.2 | 0.4 |
| United States | 65.9 | 2.0 | 46.1 | N/A | N/A | N/A |
| Rest of World | 238.0 | 4.5 | 13.2 | 0.4 | 93.8 | 2.5 |
| World | 127.8 | 3.1 | 53.8 | 1.6 | 46.2 | 1.5 |

*Note*: The percent change is calculated for the period 2024–2050 while the compound annual growth rate (CAGR) is calculated for the period 2025–2050.

## World Prices

Between 2025 and 2050, projected global prices for agricultural commodities show an upward trend in nominal terms in nearly all major categories, with some products experiencing sharper increases (tables 3a–3d). Most commodities experience price growth within a relatively tight range (0.9–1.5%), suggesting that common macroeconomic drivers, particularly rising global population and sustained real GDP growth, underpin price dynamics in multiple markets.

Among all commodities, biomass-based diesel exhibits the strongest price increase with a compound average annual growth rate (CAGR) of 1.5% or 45.5% between 2025 and 2050, resulting from the growing demand for renewable fuels and possibly tighter supply of feedstock such as soybean and palm oil. Soybean meal and oil show a price growth of roughly 28.6% (CAGR 1.1%) and 31.5% (CAGR 1.2%), respectively.

Grain prices increase at slightly lower rates compared to soybean meal and oil. The highest increase is observed for corn with a CAGR of 1.2% over the 2025–2050 period. The total increase over the entire period is 35.6% for corn.

Livestock prices follow a similar upward trajectory with a CAGR range of 1.2–1.4%. Beef and pork meat prices increase by 39.2% and 36.0%, respectively. Ethanol prices rise by 42.2% and biomass-based diesel prices increase by 46.8% over the entire projection period.

Macroeconomic drivers explain the price growth across commodity groups. Global population growth increases aggregate food demand while rising real incomes support higher consumption in food, feed, and livestock products. Exchange rate projections also contribute to price movements by influencing competitiveness in exporting regions and maintaining alignment throughout internationally traded commodities.

When compared with production projections, price changes appear broadly consistent with gradual expansion in supply alongside persistent demand growth. A key driver for prices are commodity yields which experience continued growth over the projection period. Corn yields in Brazil increase by 35.5% over the projection period and by 21.1% in the Rest of the World. The United States as the major corn exporter sees an increase of 15.0% in corn yield over the projection period.

**Table 3a. Commodity Prices by Year and Compound Annual Growth Rate (CAGR), Field Crops**

| Commodity | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 | CAGR |
|---|---|---|---|---|---|---|---|
| Corn | 212.05 | 226.04 | 251.33 | 265.52 | 278.00 | 288.51 | 1.2% |
| Soybeans | 354.58 | 378.86 | 412.29 | 427.83 | 438.46 | 444.51 | 0.9% |

*Note*: Prices in US dollars per metric ton for all commodities except biofuels.

**Table 3b. Commodity Prices by Year and Compound Annual Growth Rate (CAGR), Oilseed Products**

| Commodity | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 | CAGR |
|---|---|---|---|---|---|---|---|
| Soybean Meal | 310.27 | 331.80 | 360.47 | 376.64 | 389.33 | 399.09 | 1% |
| Soybean Oil | 1,045.17 | 1,138.47 | 1,239.24 | 1,297.58 | 1,341.72 | 1,373.99 | 1.1% |

*Note*: Prices in US dollars per metric ton for all commodities except biofuels.

**Table 3c. Commodity Prices by Year and Compound Annual Growth Rate (CAGR), Livestock Products**

| Commodity | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 | CAGR |
|---|---|---|---|---|---|---|---|
| Beef | 8,830.06 | 9,756.12 | 10,786.00 | 11,426.24 | 11,914.41 | 12,265.44 | 1.3% |
| Pork | 2,863.81 | 3,080.32 | 3,409.03 | 3,605.75 | 3,763.66 | 3,883.96 | 1.2% |

Note: Prices in US dollars per metric ton for all commodities except biofuels.

**Table 3d. Commodity Prices by Year and Compound Annual Growth Rate (CAGR), Biofuels**

| Commodity | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 | CAGR |
|---|---|---|---|---|---|---|---|
| Biomass-Based Diesel | 1.12 | 1.25 | 1.38 | 1.48 | 1.56 | 1.63 | 1.5% |
| Ethanol | 0.45 | 0.49 | 0.54 | 0.57 | 0.61 | 0.64 | 1.4% |

*Note*: Prices in US dollars per metric ton for all commodities except biofuels. Biomass-based diesel and ethanol are reported in US dollars per liter.

## Corn

The corn market projections are shown in tables 4a–4e. Corn production increases by 19.9% globally while harvested area expands by 5.4%. Among major producers, the United States increases corn production by 6.5% even though harvested area declines by 7.4%, implying that higher yields account for the increase in output. Brazil records the highest production increase among large producers, with corn production rising by 59.7%. This growth is supported by both expanding harvested area (17.3%) and substantial improvements in yields (36.1%). The increase in double-cropping (that is, second-crop corn following soybeans) is partly responsible for this increase in Brazilian production. China's corn production increases by 11% as harvested area grows modestly by 2.4% and yields improve by 8.4%.

Global corn consumption increases by 21.9% between 2025 and 2050, led by rapid growth in Brazil where corn consumption rises by 62.5%. Consumption also increases substantially in China by 17.7% and in the United States by 12.3%, with additional growth in India of 16% and Mexico of 17.1%.

Regarding corn exporting nations, Brazil strengthens its export position as net exports increase by 49.7%, while Argentina and Ukraine expand exports by 13.8% and 27.3%, respectively. The United States remains a major exporter, but its net exports decrease slightly by 2.0%. Net corn imports increase by 25.6% in the Rest of the World and by 19% in Mexico; China's net corn imports also rise, increasing by 4.3%.

**Table 4a. Corn Supply, Area Harvested (1,000 hectares)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 6,726.4 | 7,044.1 | 7,028.7 | 7,005.2 | 6,989.1 | 6,975.5 |
| Australia | 46.9 | 46.9 | 46.7 | 46.0 | 45.3 | 44.5 |
| Brazil | 22,575.8 | 22,944.8 | 23,885.6 | 24,655.4 | 25,546.5 | 26,491.2 |
| Canada | 1,495.7 | 1,503.8 | 1,536.0 | 1,549.1 | 1,565.5 | 1,582.3 |
| China | 43,931.8 | 43,814.1 | 44,253.7 | 44,467.3 | 44,716.6 | 44,975.8 |
| European Union | 8,015.1 | 7,943.5 | 8,062.5 | 8,141.0 | 8,228.3 | 8,315.8 |
| India | 11,256.3 | 11,571.0 | 11,752.1 | 11,921.2 | 12,091.6 | 12,258.5 |
| Mexico | 6,200.1 | 6,282.3 | 6,371.5 | 6,418.3 | 6,471.7 | 6,526.2 |
| Russia | 2,606.0 | 2,613.4 | 2,642.7 | 2,648.2 | 2,659.0 | 2,670.4 |
| Ukraine | 4,461.8 | 4,541.0 | 4,665.3 | 4,724.5 | 4,776.4 | 4,819.8 |
| United States | 35,881.8 | 35,155.7 | 34,998.5 | 34,384.2 | 33,819.7 | 33,230.4 |
| Rest of the World | 60,568.7 | 61,610.4 | 63,259.6 | 64,415.3 | 65,634.9 | 66,858.2 |

**Table 4b. Corn Supply, Production (1,000 metric tons)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 51,318.5 | 54,332.0 | 54,924.1 | 55,718.5 | 56,480.1 | 57,268.4 |
| Australia | 368.2 | 381.9 | 392.3 | 401.4 | 409.6 | 417.1 |
| Brazil | 134,086.5 | 144,498.9 | 159,558.0 | 176,555.2 | 194,553.8 | 214,168.2 |
| Canada | 15,452.4 | 15,713.4 | 16,196.1 | 16,585.5 | 16,994.8 | 17,414.1 |
| China | 286,757.8 | 290,349.7 | 296,390.4 | 303,719.6 | 310,947.0 | 318,332.8 |
| European Union | 54,864.0 | 54,611.4 | 55,686.1 | 57,153.8 | 58,590.1 | 60,054.7 |
| India | 42,772.4 | 44,752.3 | 45,857.7 | 47,186.9 | 48,467.7 | 49,756.6 |
| Mexico | 24,203.4 | 25,030.9 | 25,824.5 | 26,730.7 | 27,631.9 | 28,551.9 |
| Russia | 15,906.4 | 16,210.3 | 16,560.0 | 16,899.2 | 17,238.6 | 17,586.6 |
| Ukraine | 32,192.6 | 33,002.8 | 33,990.0 | 34,825.7 | 35,552.2 | 36,228.8 |
| United States | 419,258.1 | 410,233.3 | 421,509.4 | 430,604.9 | 439,070.1 | 446,718.5 |
| Rest of the World | 323,104.0 | 341,523.4 | 362,959.3 | 385,516.1 | 408,398.3 | 431,930.4 |

**Table 4c. Corn Supply, Yield (metric tons per hectare)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 7.6 | 7.7 | 7.8 | 8.0 | 8.1 | 8.2 |
| Australia | 7.8 | 8.1 | 8.4 | 8.7 | 9.1 | 9.4 |
| Brazil | 5.9 | 6.3 | 6.7 | 7.2 | 7.6 | 8.1 |
| Canada | 10.3 | 10.4 | 10.5 | 10.7 | 10.9 | 11.0 |
| China | 6.5 | 6.6 | 6.7 | 6.8 | 7.0 | 7.1 |
| European Union | 6.8 | 6.9 | 6.9 | 7.0 | 7.1 | 7.2 |
| India | 3.8 | 3.9 | 3.9 | 4.0 | 4.0 | 4.1 |
| Mexico | 3.9 | 4.0 | 4.1 | 4.2 | 4.3 | 4.4 |
| Russia | 6.1 | 6.2 | 6.3 | 6.4 | 6.5 | 6.6 |
| Ukraine | 7.2 | 7.3 | 7.3 | 7.4 | 7.4 | 7.5 |
| United States | 11.7 | 11.7 | 12.0 | 12.5 | 13.0 | 13.4 |
| Rest of the World | 5.3 | 5.5 | 5.7 | 6.0 | 6.2 | 6.5 |

Table 4d. Corn Demand, Domestic Consumption (1,000 metric tons)

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 14,942.5 | 15,318.0 | 15,556.3 | 15,858.8 | 16,156.6 | 16,453.3 |
| Australia | 251.4 | 257.6 | 258.9 | 263.3 | 268.3 | 273.6 |
| Brazil | 95,141.9 | 105,328.9 | 114,905.0 | 126,514.7 | 139,653.2 | 154,561.0 |
| Canada | 15,169.1 | 15,416.5 | 15,574.9 | 15,789.0 | 15,986.9 | 16,186.2 |
| China | 291,945.8 | 304,542.2 | 314,014.4 | 324,331.8 | 334,049.5 | 343,591.0 |
| European Union | 77,801.9 | 79,650.4 | 80,559.9 | 81,703.0 | 82,726.1 | 83,694.2 |
| India | 42,225.3 | 44,142.8 | 45,308.1 | 46,549.7 | 47,756.5 | 48,983.9 |
| Mexico | 46,052.7 | 48,113.1 | 49,546.2 | 51,080.8 | 52,516.1 | 53,917.7 |
| Russia | 10,083.1 | 10,327.9 | 10,466.9 | 10,618.8 | 10,738.2 | 10,835.2 |
| Ukraine | 5,896.5 | 6,000.4 | 6,000.2 | 6,044.8 | 6,079.1 | 6,105.3 |
| United States | 324,736.2 | 334,495.1 | 341,565.4 | 349,564.6 | 357,181.8 | 364,709.0 |
| Rest of the World | 292,781.6 | 313,363.1 | 330,883.8 | 348,936.9 | 366,568.5 | 384,043.9 |

Table 4e. Corn Demand, Net Exports (1,000 metric tons)

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 35,841.8 | 38,985.6 | 39,355.0 | 39,850.0 | 40,308.9 | 40,797.6 |
| Australia | 121.0 | 124.2 | 133.2 | 138.0 | 141.2 | 143.2 |
| Brazil | 39,825.0 | 39,182.9 | 44,661.3 | 50,044.8 | 54,911.4 | 59,619.4 |
| Canada | -261.2 | 304.8 | 617.7 | 794.3 | 1,005.8 | 1,225.8 |
| China | -23,821.7 | -12,425.8 | -17,789.8 | -20,277.1 | -22,679.1 | -24,853.2 |
| European Union | -23,390.1 | -25,028.2 | -24,911.2 | -24,568.7 | -24,153.7 | -23,656.7 |
| India | 140.0 | 590.0 | 541.3 | 630.3 | 704.4 | 764.0 |
| Mexico | -21,323.1 | -23,090.0 | -23,716.3 | -24,354.2 | -24,885.5 | -25,365.5 |
| Russia | 5,807.0 | 5,885.7 | 6,090.7 | 6,280.4 | 6,500.4 | 6,751.3 |
| Ukraine | 23,579.7 | 26,789.8 | 27,911.5 | 28,686.2 | 29,382.1 | 30,025.7 |
| United States | 83,652.5 | 75,795.8 | 79,898.7 | 80,997.6 | 81,851.5 | 81,975.3 |
| Rest of the World | -106,327.9 | -113,271.9 | -118,949.1 | -124,378.4 | -129,244.4 | -133,583.8 |

## Soybeans

Soybean projections are shown in tables 5a–5e. Soybean production increases by 17.7% globally while harvested area expands by 6.3%. Brazil remains the largest producer and increases soybean production by 25.8%, supported by continued expansion in harvested area (11.8%) as well as improvements in yields (12.5%). In the United States, soybean production grows more moderately, increasing by 12.7% as harvested area expands while yields rise only slightly (5.5%). Argentina records a production increase of 17%, largely driven by higher yields (11.4%) while harvested area remains nearly unchanged (5%).

Global soybean consumption increases by 18.1%, with Brazil showing the strongest rise among large markets at 30.7%, while China increases by 19.8% and the United States by 9.8%, Argentina and India increase by 14.1% and 10.9%, respectively.

For soybean exports, Brazil's net exports rise by 22.3% and US net exports by 15.2%, while China's net imports increase by 20.8% and the Rest of the World's by 36.5%.

**Table 5a. Soybean Supply, Area Harvested (1,000 hectares)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 16,254.3 | 16,363.3 | 16,600.6 | 16,768.9 | 16,922.1 | 17,059.7 |
| Australia | 25.2 | 24.1 | 24.3 | 24.5 | 24.6 | 24.7 |
| Brazil | 48,597.0 | 50,107.5 | 51,451.7 | 52,421.2 | 53,380.5 | 54,312.3 |
| Canada | 2,299.5 | 2,304.4 | 2,324.0 | 2,328.4 | 2,332.3 | 2,334.6 |
| China | 10,510.5 | 10,895.6 | 10,918.0 | 10,859.7 | 10,780.0 | 10,689.9 |
| European Union | 1,180.7 | 1,197.1 | 1,213.8 | 1,228.4 | 1,243.1 | 1,257.6 |
| India | 13,276.2 | 13,217.2 | 13,105.7 | 13,018.9 | 12,941.5 | 12,867.9 |
| Mexico | 133.8 | 133.3 | 134.5 | 134.3 | 134.2 | 134.0 |
| Russia | 3,532.7 | 3,330.7 | 3,356.0 | 3,340.7 | 3,328.6 | 3,316.4 |
| Ukraine | 1,805.5 | 1,719.6 | 1,770.0 | 1,803.0 | 1,834.2 | 1,864.1 |
| United States | 33,045.6 | 33,639.0 | 34,076.4 | 34,506.5 | 34,910.2 | 35,310.9 |
| Rest of the World | 12,686.2 | 12,757.6 | 12,906.1 | 12,984.2 | 13,068.8 | 13,152.5 |

**Table 5b. Soybean Supply, Production (1,000 metric tons)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 48,105.9 | 49,300.1 | 51,057.3 | 52,843.7 | 54,574.2 | 56,268.0 |
| Australia | 45.9 | 45.4 | 47.0 | 49.2 | 51.2 | 53.3 |
| Brazil | 174,102.2 | 183,425.7 | 192,208.5 | 201,094.1 | 210,006.0 | 218,963.9 |
| Canada | 7,296.6 | 7,390.8 | 7,514.0 | 7,640.5 | 7,761.3 | 7,876.4 |
| China | 20,981.2 | 21,826.8 | 21,893.4 | 22,041.0 | 22,115.6 | 22,162.1 |
| European Union | 3,083.1 | 3,213.9 | 3,357.1 | 3,523.4 | 3,690.4 | 3,858.9 |
| India | 12,365.1 | 12,491.3 | 12,542.1 | 12,685.9 | 12,828.8 | 12,971.3 |
| Mexico | 269.2 | 274.3 | 282.5 | 288.9 | 295.2 | 301.3 |
| Russia | 6,117.2 | 5,786.3 | 5,820.5 | 5,831.5 | 5,843.2 | 5,854.1 |
| Ukraine | 4,333.8 | 4,116.3 | 4,213.9 | 4,305.6 | 4,390.2 | 4,472.2 |
| United States | 116,544.4 | 119,568.4 | 121,959.6 | 125,179.1 | 128,261.1 | 131,355.6 |
| Rest of the World | 26,453.8 | 26,902.7 | 27,577.4 | 28,283.9 | 28,994.7 | 29,705.1 |

**Table 5c. Soybean Supply, Yield (metric tons per hectare)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 3.0 | 3.0 | 3.1 | 3.2 | 3.2 | 3.3 |
| Australia | 1.8 | 1.9 | 1.9 | 2.0 | 2.1 | 2.2 |
| Brazil | 3.6 | 3.7 | 3.7 | 3.8 | 3.9 | 4.0 |
| Canada | 3.2 | 3.2 | 3.2 | 3.3 | 3.3 | 3.4 |
| China | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.1 |
| European Union | 2.6 | 2.7 | 2.8 | 2.9 | 3.0 | 3.1 |
| India | 0.9 | 0.9 | 1.0 | 1.0 | 1.0 | 1.0 |
| Mexico | 2.0 | 2.1 | 2.1 | 2.2 | 2.2 | 2.2 |
| Russia | 1.7 | 1.7 | 1.7 | 1.7 | 1.8 | 1.8 |
| Ukraine | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 |
| United States | 3.5 | 3.6 | 3.6 | 3.6 | 3.7 | 3.7 |
| Rest of the World | 2.1 | 2.1 | 2.1 | 2.2 | 2.2 | 2.3 |

**Table 5d. Soybeans Demand, Domestic Consumption (1,000 metric tons)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 49,098.6 | 51,002.4 | 52,497.9 | 53,768.4 | 54,962.0 | 56,020.8 |
| Australia | 42.0 | 41.9 | 41.5 | 41.3 | 41.1 | 41.0 |
| Brazil | 62,510.5 | 66,790.7 | 69,712.6 | 73,604.3 | 77,582.3 | 81,716.5 |
| Canada | 2,407.3 | 2,416.9 | 2,415.3 | 2,424.8 | 2,434.9 | 2,447.2 |
| China | 132,308.6 | 136,645.9 | 142,123.2 | 147,665.6 | 153,080.9 | 158,448.8 |
| European Union | 16,468.5 | 16,633.2 | 16,893.3 | 17,186.5 | 17,470.7 | 17,765.6 |
| India | 12,573.4 | 12,777.2 | 12,885.6 | 13,230.6 | 13,584.1 | 13,946.9 |
| Mexico | 6,460.8 | 6,932.5 | 7,135.8 | 7,395.7 | 7,670.5 | 7,957.0 |
| Russia | 6,004.4 | 6,049.4 | 6,111.4 | 6,186.1 | 6,260.2 | 6,338.2 |
| Ukraine | 1,517.3 | 1,402.0 | 1,325.7 | 1,309.0 | 1,297.3 | 1,288.5 |
| United States | 70,983.6 | 72,709.7 | 73,927.8 | 75,271.7 | 76,588.3 | 77,928.4 |
| Rest of the World | 52,000.2 | 54,265.4 | 56,654.6 | 58,959.1 | 61,105.2 | 63,162.9 |

**Table 5e. Soybeans Demand, Net Exports (1,000 metric tons)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | -2,458.3 | -1,991.0 | -1,572.2 | -1,049.9 | -557.6 | 45.9 |
| Australia | 4.0 | 3.5 | 5.5 | 7.9 | 10.1 | 12.3 |
| Brazil | 112,220.6 | 116,592.8 | 122,486.4 | 127,439.2 | 132,399.1 | 137,223.1 |
| Canada | 4,950.7 | 4,974.3 | 5,097.3 | 5,214.4 | 5,324.9 | 5,427.6 |
| China | -112,906.5 | -114,803.0 | -120,455.7 | -125,779.7 | -131,101.8 | -136,425.0 |
| European Union | -13,212.6 | -13,422.2 | -13,545.7 | -13,670.3 | -13,787.5 | -13,914.2 |
| India | -503.0 | -297.6 | -348.7 | -550.1 | -760.9 | -982.4 |
| Mexico | -6,298.5 | -6,661.0 | -6,853.4 | -7,108.5 | -7,376.7 | -7,657.0 |
| Russia | 276.4 | -262.8 | -292.6 | -355.5 | -418.0 | -485.2 |
| Ukraine | 2,461.9 | 2,680.6 | 2,875.3 | 2,980.4 | 3,076.9 | 3,166.1 |
| United States | 46,335.1 | 46,846.6 | 48,009.3 | 49,879.8 | 51,644.8 | 53,397.7 |
| Rest of the World | -24,517.9 | -27,308.4 | -29,053.6 | -30,655.7 | -32,101.4 | -33,456.9 |

## Oilseed Products

Oilseed product projections are shown in tables 6a–6f. Global soybean meal production increases from 278.7 to 328.6 million metric tons between 2025 and 2050, representing growth of 17.9%. Soybean oil follows a similar trajectory, rising from about 68.8 to 81.2 million metric tons, an increase of 18.1%. These steady gains suggest that expansion in crushing capacity largely follows gradual increases in upstream soybean supply and sustained demand for feed and vegetable oil products.

Soybean meal consumption increases across all major regions except Russia and Ukraine, with particularly strong growth in large livestock-producing countries. China remains the dominant consumer, with domestic soybean meal consumption increasing by 19.2% between 2025 and 2050. Consumption also grows substantially in Brazil and the United States, increasing by 41.1% and 13.3%, respectively, as livestock production continues to expand. Additional growth occurs in India and the Rest of the World, where soybean meal consumption rises by 20.1% and 23.5%. These increases reflect the continued role of soybean meal as a central input in global feed markets.

Global soybean oil demand is supported by both food consumption and industrial uses. In the United States, domestic soybean oil consumption increases by 12.4% over the projection period, while Brazil records a larger increase of 32.1%. India shows the strongest growth among major consumers, with soybean oil consumption rising by 15.6%, reflecting continued expansion in edible oil demand. China also records steady growth, with domestic consumption increasing by 19.1%.

Growth in soybean meal and soybean oil production occurs primarily in countries with large soybean crushing industries. China increases soybean meal production by 17.3%, while Brazil and the United States record increases of 32.1% and 10.1%, respectively. Soybean oil production follows a similar pattern, with increases of 18.1% globally and strong growth in Brazil and India. Overall, the projections indicate that oilseed product markets expand steadily across both developed and emerging economies, with demand growth closely linked to livestock production and food consumption trends.

**Table 6a. Soybean Meal, Production (1,000 metric tons)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 32,328 | 33,763 | 34,910 | 35,807 | 36,641 | 37,351 |
| Australia | 33 | 33 | 33 | 33 | 32 | 32 |
| Brazil | 45,032 | 48,250 | 50,419 | 53,346 | 56,349 | 59,475 |
| Canada | 1,188 | 1,186 | 1,184 | 1,186 | 1,188 | 1,192 |
| China | 84,877 | 87,232 | 90,302 | 93,422 | 96,477 | 99,525 |
| European Union | 11,688 | 11,760 | 11,937 | 12,132 | 12,320 | 12,518 |
| India | 8,310 | 8,388 | 8,420 | 8,651 | 8,891 | 9,136 |
| Mexico | 5,050 | 5,423 | 5,584 | 5,789 | 6,005 | 6,231 |
| Russia | 4,177 | 4,189 | 4,230 | 4,277 | 4,323 | 4,373 |
| Ukraine | 991 | 870 | 786 | 760 | 738 | 718 |
| United States | 53,803 | 55,157 | 56,119 | 57,165 | 58,190 | 59,233 |
| Rest of the World | 31,255 | 32,761 | 34,492 | 36,079 | 37,519 | 38,863 |

**Table 6b. Soybean Meal, Consumption (1,000 metric tons)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 3,469 | 3,504 | 3,557 | 3,631 | 3,710 | 3,793 |
| Australia | 943 | 960 | 979 | 1,001 | 1,025 | 1,049 |
| Brazil | 21,640 | 23,799 | 25,423 | 27,147 | 28,840 | 30,532 |
| Canada | 2,431 | 2,463 | 2,494 | 2,536 | 2,574 | 2,612 |
| China | 81,428 | 84,801 | 87,742 | 90,992 | 94,075 | 97,096 |
| European Union | 30,055 | 30,330 | 30,315 | 30,375 | 30,429 | 30,481 |
| India | 7,201 | 7,567 | 7,850 | 8,124 | 8,388 | 8,648 |
| Mexico | 7,620 | 7,747 | 7,952 | 8,146 | 8,322 | 8,487 |
| Russia | 3,947 | 3,944 | 3,941 | 3,943 | 3,940 | 3,932 |
| Ukraine | 726 | 738 | 735 | 730 | 725 | 722 |
| United States | 38,041 | 39,071 | 39,999 | 41,043 | 42,065 | 43,093 |
| Rest of the World | 74,459 | 77,876 | 81,200 | 84,749 | 88,341 | 91,949 |

Table 6c. Soybean Meal, Net Exports (1,000 metric tons)

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 28,983 | 30,225 | 31,338 | 32,163 | 32,913 | 33,538 |
| Australia | -898 | -927 | -946 | -969 | -992 | -1,016 |
| Brazil | 22,105 | 24,447 | 24,995 | 26,196 | 27,509 | 28,945 |
| Canada | -1,301 | -1,277 | -1,311 | -1,350 | -1,386 | -1,420 |
| China | 3,396 | 2,436 | 2,557 | 2,430 | 2,403 | 2,429 |
| European Union | -17,986 | -18,572 | -18,384 | -18,246 | -18,112 | -17,966 |
| India | 1,014 | 818 | 568 | 526 | 502 | 487 |
| Mexico | -2,520 | -2,325 | -2,368 | -2,358 | -2,317 | -2,255 |
| Russia | 289 | 245 | 288 | 333 | 383 | 440 |
| Ukraine | 246 | 101 | 38 | 15 | -1 | -19 |
| United States | 15,748 | 16,085 | 16,119 | 16,121 | 16,124 | 16,138 |
| Rest of the World | -42,852 | -45,034 | -46,672 | -48,637 | -50,802 | -53,077 |

Table 6d. Soybean Oil, Production (1,000 metric tons)

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 8,269 | 8,636 | 8,929 | 9,159 | 9,372 | 9,554 |
| Australia | 8 | 8 | 8 | 8 | 8 | 8 |
| Brazil | 11,925 | 12,777 | 13,351 | 14,126 | 14,921 | 15,749 |
| Canada | 290 | 289 | 289 | 289 | 290 | 291 |
| China | 20,362 | 20,927 | 21,663 | 22,412 | 23,145 | 23,876 |
| European Union | 2,811 | 2,828 | 2,871 | 2,918 | 2,963 | 3,011 |
| India | 1,870 | 1,887 | 1,894 | 1,947 | 2,001 | 2,056 |
| Mexico | 1,179 | 1,266 | 1,304 | 1,352 | 1,402 | 1,455 |
| Russia | 950 | 953 | 962 | 973 | 984 | 995 |
| Ukraine | 231 | 203 | 183 | 177 | 172 | 167 |
| United States | 13,464 | 13,803 | 14,043 | 14,305 | 14,562 | 14,823 |
| Rest of the World | 7,413 | 7,768 | 8,178 | 8,552 | 8,892 | 9,210 |

**Table 6e. Soybean Oil, Consumption (1,000 metric tons)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 1,811 | 1,914 | 1,980 | 2,050 | 2,117 | 2,178 |
| Australia | 40 | 42 | 45 | 47 | 50 | 53 |
| Brazil | 10,429 | 11,089 | 11,722 | 12,402 | 13,086 | 13,781 |
| Canada | 256 | 266 | 276 | 287 | 298 | 310 |
| China | 20,323 | 21,256 | 22,042 | 22,823 | 23,534 | 24,196 |
| European Union | 2,546 | 2,593 | 2,614 | 2,645 | 2,675 | 2,706 |
| India | 6,084 | 6,320 | 6,514 | 6,692 | 6,863 | 7,036 |
| Mexico | 1,341 | 1,399 | 1,470 | 1,543 | 1,615 | 1,687 |
| Russia | 333 | 331 | 327 | 325 | 322 | 318 |
| Ukraine | 2 | 2 | 2 | 2 | 2 | 2 |
| United States | 13,002 | 13,338 | 13,608 | 13,934 | 14,267 | 14,609 |
| Rest of the World | 10,992 | 11,303 | 11,579 | 11,968 | 12,381 | 12,811 |

**Table 6f. Soybean Oil, Net Exports (1,000 metric tons)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 6,373 | 6,715 | 6,947 | 7,106 | 7,252 | 7,372 |
| Australia | -32 | -35 | -37 | -40 | -43 | -45 |
| Brazil | 1,076 | 1,687 | 1,630 | 1,724 | 1,836 | 1,968 |
| Canada | 133 | 24 | 13 | 2 | -9 | -19 |
| China | -193 | -324 | -380 | -410 | -388 | -319 |
| European Union | 210 | 235 | 254 | 271 | 286 | 303 |
| India | -3,693 | -4,440 | -4,622 | -4,748 | -4,865 | -4,984 |
| Mexico | -182 | -134 | -166 | -192 | -213 | -232 |
| Russia | 647 | 622 | 635 | 648 | 662 | 676 |
| Ukraine | 200 | 199 | 180 | 174 | 169 | 164 |
| United States | 451 | 463 | 434 | 369 | 293 | 212 |
| Rest of the World | -3,493 | -3,516 | -3,392 | -3,408 | -3,483 | -3,599 |

## Beef

Beef (including veal) production remains concentrated in the United States and Brazil. The United States leads in both production and domestic consumption, increasing production from 12.4 to 12.8 million metric tons over the 2025/2050 period. Although the United States remains the largest producer, growth is slow: production increases by 2.8% and domestic consumption by 2.4%. In terms of production, Brazil follows closely, with production rising from 11.3 to 12.8 million metric tons. That is, both countries are expected to produce the same amount of beef at the end of the projection period. Brazil shows stronger expansion on both the supply and demand sides, with production increasing by 12.8% and domestic consumption by 13.5%, while its net exports rise by 11.2%. In terms of domestic demand, the United States remains the largest consumer, with consumption increasing from 12.8 to 13.1 million tons. China shows stronger demand growth, with domestic consumption rising from 11.1 to 11.9 million tons, reinforcing its importance as a major global beef market. Brazil remains the major exporter with a growth of 11.2% over the projection period. China continues to be a major net importer since domestic consumption increases by 7.6% and production by 11.6%, and its net imports decrease slightly by 1.2%. In contrast, the European Union contracts, with production falling by 5.0% and domestic consumption by 4.0%. See tables 7a–7c.

**Table 7a. Beef Production (1,000 metric tons; carcass weight equivalent)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 3,046 | 3,056 | 3,118 | 3,188 | 3,261 | 3,338 |
| Australia | 2,140 | 2,135 | 2,146 | 2,155 | 2,169 | 2,185 |
| Brazil | 11,336 | 11,693 | 11,914 | 12,204 | 12,494 | 12,789 |
| Canada | 1,404 | 1,390 | 1,382 | 1,374 | 1,366 | 1,360 |
| China | 7,564 | 7,848 | 8,001 | 8,157 | 8,303 | 8,443 |
| European Union | 6,600 | 6,522 | 6,447 | 6,379 | 6,318 | 6,267 |
| India | 4,413 | 4,477 | 4,615 | 4,725 | 4,825 | 4,922 |
| Mexico | 2,293 | 2,345 | 2,397 | 2,447 | 2,495 | 2,541 |
| Russia | 1,428 | 1,429 | 1,402 | 1,378 | 1,351 | 1,323 |
| Ukraine | 300 | 291 | 270 | 256 | 245 | 236 |
| United States | 12,426 | 12,478 | 12,559 | 12,622 | 12,696 | 12,779 |
| Rest of the World | 6,732 | 6,823 | 6,858 | 6,931 | 7,028 | 7,147 |

**Table 7b. Beef Consumption (1,000 metric tons; carcass weight equivalent)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 2,413 | 2,424 | 2,441 | 2,481 | 2,525 | 2,577 |
| Australia | 689 | 711 | 734 | 758 | 782 | 807 |
| Brazil | 8,092 | 8,304 | 8,546 | 8,765 | 8,975 | 9,183 |
| Canada | 1,037 | 1,051 | 1,064 | 1,081 | 1,098 | 1,117 |
| China | 11,056 | 11,365 | 11,511 | 11,652 | 11,777 | 11,891 |
| European Union | 6,400 | 6,362 | 6,287 | 6,233 | 6,187 | 6,146 |
| India | 2,906 | 3,055 | 3,176 | 3,271 | 3,363 | 3,456 |
| Mexico | 2,065 | 2,076 | 2,122 | 2,168 | 2,212 | 2,258 |
| Russia | 1,632 | 1,595 | 1,549 | 1,510 | 1,474 | 1,439 |
| Ukraine | 247 | 263 | 260 | 249 | 237 | 226 |
| United States | 12,778 | 12,770 | 12,816 | 12,888 | 12,979 | 13,086 |
| Rest of the World | 8,543 | 8,704 | 8,797 | 8,954 | 9,134 | 9,334 |

**Table 7c. Beef Net Exports (1,000 metric tons; carcass weight equivalent)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 632 | 631 | 677 | 708 | 737 | 761 |
| Australia | 1,451 | 1,424 | 1,412 | 1,397 | 1,386 | 1,379 |
| Brazil | 3,244 | 3,389 | 3,369 | 3,440 | 3,519 | 3,606 |
| Canada | 365 | 340 | 318 | 293 | 268 | 243 |
| China | -3,492 | -3,517 | -3,510 | -3,495 | -3,474 | -3,448 |
| European Union | 200 | 160 | 161 | 146 | 132 | 120 |
| India | 1,507 | 1,422 | 1,439 | 1,454 | 1,463 | 1,465 |
| Mexico | 228 | 269 | 275 | 279 | 282 | 283 |
| Russia | -204 | -166 | -147 | -133 | -123 | -116 |
| Ukraine | 53 | 28 | 10 | 8 | 8 | 10 |
| United States | -376 | -293 | -257 | -267 | -284 | -308 |
| Rest of the World | -1,804 | -1,884 | -1,941 | -2,026 | -2,110 | -2,191 |

## Pork

Pork production and consumption remain heavily concentrated in China, which continues to dominate the global sector. Chinese pork production increases by 10.5%, rising from 55.7 million metric tons in 2025 to 61.5 million metric tons in 2050, while domestic consumption increases by 10.5%, from 58.2 to 64.4 million metric tons. Despite large domestic production, China remains a net importer, with net imports increasing by 11.4%, underscoring persistent supply-demand gaps and the continued role of international trade in balancing global markets.

The United States strengthens its position as a major producer and exporter. Pork production increases by 15.9% over the projection period, while domestic consumption grows by 15.5%. At the same time, US net exports expand by 18.1%, reinforcing the country's role as a key supplier to international markets. In contrast, the European Union shows slower growth and modest structural adjustment. Pork production increases slightly by 1.5%, rising from 21.6 to 21.9 million metric tons, while domestic consumption declines by 3.7%, falling from 18.4 to 17.7 million metric tons. Despite weaker domestic demand, the European Union increases its export position, with net exports rising by 31.1%. See tables 8a–8c.

Table 8a. Pork Production (1,000 metric tons; carcass weight equivalent)

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 733 | 739 | 781 | 823 | 866 | 910 |
| Australia | 493 | 516 | 534 | 549 | 564 | 579 |
| Brazil | 4,590 | 4,800 | 4,927 | 5,068 | 5,207 | 5,345 |
| Canada | 2,118 | 2,141 | 2,191 | 2,233 | 2,271 | 2,307 |
| China | 55,706 | 57,742 | 58,646 | 59,732 | 60,676 | 61,545 |
| European Union | 21,556 | 21,739 | 21,790 | 21,823 | 21,849 | 21,876 |
| Mexico | 1,785 | 1,891 | 1,940 | 1,989 | 2,035 | 2,077 |
| Russia | 4,230 | 4,212 | 4,250 | 4,272 | 4,283 | 4,288 |
| Ukraine | 728 | 719 | 690 | 661 | 630 | 600 |
| United States | 12,900 | 13,450 | 13,846 | 14,218 | 14,588 | 14,958 |
| Rest of the World | 10,452 | 10,993 | 11,382 | 11,744 | 12,086 | 12,412 |

Table 8b. Pork Consumption (1,000 metric tons; carcass weight equivalent)

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 777 | 812 | 844 | 880 | 915 | 952 |
| Australia | 656 | 699 | 738 | 779 | 820 | 862 |
| Brazil | 3,092 | 3,275 | 3,445 | 3,605 | 3,756 | 3,900 |
| Canada | 901 | 920 | 930 | 944 | 958 | 974 |
| China | 58,234 | 60,243 | 61,454 | 62,577 | 63,525 | 64,362 |
| European Union | 18,361 | 18,283 | 18,072 | 17,932 | 17,804 | 17,688 |
| Mexico | 2,603 | 2,728 | 2,853 | 2,979 | 3,100 | 3,220 |
| Russia | 3,951 | 3,936 | 3,908 | 3,883 | 3,852 | 3,818 |
| Ukraine | 766 | 826 | 844 | 840 | 828 | 811 |
| United States | 10,262 | 10,626 | 10,903 | 11,219 | 11,534 | 11,851 |
| Rest of the World | 13,850 | 14,706 | 15,099 | 15,582 | 16,069 | 16,567 |

**Table 8c. Pork Net Exports (1,000 metric tons; carcass weight equivalent)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | -44 | -73 | -63 | -57 | -49 | -42 |
| Australia | -163 | -183 | -204 | -230 | -256 | -282 |
| Brazil | 1,498 | 1,525 | 1,482 | 1,462 | 1,452 | 1,445 |
| Canada | 1,213 | 1,221 | 1,262 | 1,289 | 1,312 | 1,333 |
| China | -2,529 | -2,501 | -2,808 | -2,845 | -2,849 | -2,817 |
| European Union | 3,195 | 3,456 | 3,719 | 3,891 | 4,045 | 4,188 |
| Mexico | -818 | -836 | -913 | -990 | -1,065 | -1,143 |
| Russia | 279 | 276 | 342 | 389 | 431 | 471 |
| Ukraine | -39 | -107 | -154 | -179 | -198 | -210 |
| United States | 2,631 | 2,823 | 2,943 | 2,999 | 3,054 | 3,106 |
| Rest of the World | -3,335 | -3,710 | -3,716 | -3,838 | -3,986 | -4,159 |

## Biofuels

Ethanol and biomass-based diesel remain the two most prominent biofuels, particularly in the transport sector. Production and consumption remain concentrated in a small number of regions, with Brazil, the European Union, and the United States continuing to play central roles. Ethanol production shows stronger regional divergence, with Brazil expanding more rapidly than the United States, while biomass-based diesel growth remains more evenly distributed in the three major producing regions. However, there remain large technological and policy uncertainties in the use of biofuels. The trajectory of electric vehicle deployment and the uptake of sustainable aviation fuels can lead to substantial differences by 2050.

### *Ethanol*

Tables 9a–9c show ethanol projections. The United States remains the largest ethanol producer, with output increasing from 61.7 billion liters in 2025 to 67.1 billion liters by 2050, representing growth of 8.8% over the projection period. Brazil exhibits substantially stronger expansion, with production rising from 34.9 to 58.1 billion liters, an increase of 66.7%.

The United States remains the largest consumer, with demand increasing from 53.9 billion liters in 2025 to 60.3 billion liters by 2050, reflecting an increase of 11.9%. Brazilian consumption rises from 34.5 billion liters to 57.4 billion liters, indicating strong domestic demand expansion alongside production growth. The European Union remains a smaller market, with consumption remaining relatively stable around 6.6 billion liters, suggesting limited structural change over the projection horizon. Overall, projections show continued dominance by the United States and Brazil in global ethanol markets, with Brazil's faster growth narrowing the production gap between the two countries.

**Table 9a. Ethanol Production (million L)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 1,118 | 1,144 | 1,168 | 1,192 | 1,215 | 1,238 |
| Australia | 173 | 182 | 190 | 199 | 208 | 218 |
| Brazil | 34,877 | 39,510 | 43,861 | 48,557 | 53,326 | 58,142 |
| Canada | 1,742 | 1,777 | 1,831 | 1,881 | 1,930 | 1,979 |
| China | 4,844 | 4,872 | 4,930 | 4,998 | 5,065 | 5,134 |
| European Union | 5,505 | 5,386 | 5,380 | 5,360 | 5,342 | 5,326 |
| India | 5,097 | 5,234 | 5,394 | 5,563 | 5,734 | 5,903 |
| United States | 61,665 | 62,867 | 63,825 | 64,918 | 65,986 | 67,064 |
| Rest of the World | 2,663 | 2,820 | 3,005 | 3,169 | 3,322 | 3,467 |

**Table 9b. Ethanol Consumption (million L)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 1,125 | 1,162 | 1,192 | 1,225 | 1,258 | 1,289 |
| Australia | 174 | 184 | 192 | 202 | 211 | 220 |
| Brazil | 34,523 | 38,921 | 43,225 | 47,793 | 52,501 | 57,353 |
| Canada | 4,015 | 4,123 | 4,200 | 4,289 | 4,375 | 4,458 |
| China | 4,625 | 4,759 | 4,849 | 4,956 | 5,060 | 5,163 |
| European Union | 6,644 | 6,657 | 6,651 | 6,663 | 6,671 | 6,678 |
| India | 5,281 | 5,482 | 5,671 | 5,867 | 6,061 | 6,255 |
| United States | 53,859 | 55,352 | 56,496 | 57,795 | 59,056 | 60,279 |
| Rest of the World | 5,348 | 5,380 | 5,343 | 5,283 | 5,176 | 5,023 |

**Table 9c. Ethanol Net Exports (million L)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | -22 | -19 | -24 | -34 | -43 | -52 |
| Australia | -2 | -3 | -2 | -2 | -2 | -2 |
| Brazil | 437 | 596 | 657 | 781 | 850 | 818 |
| Canada | -2,287 | -2,346 | -2,369 | -2,409 | -2,446 | -2,480 |
| China | 220 | 113 | 81 | 42 | 5 | -29 |
| European Union | -1,285 | -1,271 | -1,273 | -1,302 | -1,330 | -1,352 |
| India | -119 | -248 | -277 | -303 | -327 | -352 |
| United States | 7,498 | 7,517 | 7,327 | 7,122 | 6,929 | 6,785 |
| Rest of the World | -2,655 | -2,553 | -2,333 | -2,108 | -1,850 | -1,552 |

*Biomass-Based Diesel*

Tables 10a–10c show biodiesel projections. Biomass-based diesel production remains concentrated in a few major regions but expands steadily over the projection period. The United States continues to lead global production, increasing from 18.8 billion liters in 2025 to 22.4 billion liters by 2050, representing growth of 19.3%. The European Union remains another major producer, with output increasing more modestly from 17.0 to 18.1 billion liters.

The United States remains the largest biomass-based diesel consumer, with demand rising from 21.6 billion liters in 2025 to 24.9 billion liters by 2050, representing growth of 15.5% The European Union continues as a major consumer as well, with biomass-based diesel use increasing from 18.3 to 20.0 billion liters over the projection period, indicating steady but slower expansion compared with emerging markets.

**Table 10a. Biomass-based Diesel Production (million L)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 1,238 | 1,326 | 1,364 | 1,403 | 1,438 | 1,466 |
| Australia | 22 | 23 | 23 | 23 | 23 | 24 |
| Brazil | 8,405 | 8,716 | 8,936 | 9,244 | 9,572 | 9,923 |
| Canada | 722 | 678 | 681 | 683 | 686 | 689 |
| China | 2,573 | 2,591 | 2,611 | 2,640 | 2,670 | 2,704 |
| European Union | 16,951 | 17,286 | 17,481 | 17,684 | 17,885 | 18,109 |
| India | 302 | 285 | 285 | 288 | 291 | 293 |
| United States | 18,787 | 19,667 | 20,341 | 21,030 | 21,720 | 22,422 |
| Rest of the World | 17,244 | 17,506 | 17,956 | 18,439 | 18,954 | 19,505 |

**Table 10b. Biomass-based Diesel Consumption (million L)**

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 769 | 779 | 812 | 884 | 963 | 1,058 |
| Australia | 18 | 19 | 21 | 24 | 26 | 29 |
| Brazil | 8,530 | 8,698 | 9,202 | 9,494 | 9,708 | 9,867 |
| Canada | 1,361 | 1,414 | 1,447 | 1,494 | 1,544 | 1,592 |
| China | 699 | 746 | 735 | 720 | 702 | 681 |
| European Union | 18,175 | 18,973 | 19,136 | 19,461 | 19,776 | 20,043 |
| India | 263 | 321 | 368 | 397 | 424 | 454 |
| United States | 21,558 | 22,040 | 22,684 | 23,438 | 24,179 | 24,898 |
| Rest of the World | 16,239 | 16,419 | 16,604 | 16,853 | 17,249 | 17,845 |

Table 10c. Biomass-based Diesel Net Exports (million L)

| Region | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|
| Argentina | 418 | 546 | 552 | 518 | 474 | 408 |
| Australia | 4 | 4 | 2 | -1 | -3 | -5 |
| Brazil | -164 | 18 | -266 | -249 | -135 | 57 |
| Canada | -641 | -736 | -766 | -811 | -858 | -903 |
| China | 1,874 | 1,845 | 1,876 | 1,920 | 1,968 | 2,023 |
| European Union | -1,305 | -1,687 | -1,658 | -1,778 | -1,891 | -1,934 |
| India | 42 | -36 | -83 | -109 | -134 | -161 |
| United States | -2,441 | -2,373 | -2,343 | -2,409 | -2,460 | -2,476 |
| Rest of the World | 875 | 1,081 | 1,347 | 1,581 | 1,700 | 1,653 |

## References

Carriquiry, M., J. Dumortier, and A. Elobeid. 2022. "Trade Scenarios Compensating for Halted Wheat and Maize Exports from Russia and Ukraine Increase Carbon Emissions Without Easing Food Insecurity." Nature Food 3:847–50. https://doi.org/10.1038/s43016-022-00600-0

Dumortier, J., M. Carriquiry, and A. Elobeid. 2021. "Impact of Climate Change on Global Agricultural Markets under Different Shared Socioeconomic Pathways." Agricultural Economics 52(6):963984. https://doi.org/10.1111/agec.12660

Dumortier, J., M. Carriquiry, and A. Elobeid. 2022. "Interactions between U.S. Vehicle Electrification, Climate Change, and Global Agricultural Markets." Environmental and Resource Economics 84:99–123. https://doi.org/10.1007/s10640-022-00716-8

Dumortier, J., A. Elobeid, and M. Carriquiry. 2022. "Light-duty Vehicle Fleet Electrification in the United States and its Effects on Global Agricultural Markets." Ecological Economics 200:107536. https://doi.org/10.1016/j.ecolecon.2022.107536

Dumortier, J., M. Carriquiry, and A. Elobeid. 2024. "Impacts of Geopolitics and Policy on Latin American Biodiversity and Water Resources." Agribusiness: An International Journal. https://doi.org/10.1002/agr.21965

Elobeid, A., M. Carriquiry, and J. Dumortier. 2026. "Long-Term Agricultural Outlook." Technical report 26-TR 52. Center for Agricultural and Rural Development, Iowa State University. https://www.card.iastate.edu/publications/26-tr-52

Elobeid, A., M. Carriquiry, L.C. Bachion, S.M. Arantes, and J. Dumortier. 2026. "Global Agricultural Market and Land-use Implications of Producing Sustainable Aviation Fuel from Second Crop Corn Ethanol in Brazil." Agricultural Economics 57(2):e70108. https://doi.org/10.1111/agec.70108

## Suggested Citation

Elobeid, A., M. Carriquiry, and J. Dumortier. 2026. "Long-Term Projections for Corn, Soy, Beef, Pork, and Biofuels." In J.M. Crespi and C.C. Pudenz (Eds.) "2026 Iowa Agricultural Outlook: The Pressure is Rising." Center for Agricultural Development at Iowa State University, Iowa Farm Bureau Federation, and Iowa Bankers Association.