THE QUARTERLY

Focused on the industries financed by CoBank

July 2025

Where Have the Workers Gone?

AI and robotics will help ease the labor squeeze as more workers "opt out," immigration plummets and demographics thin the workforce.

Executive Summary

Lower fertility rates, declining labor force participation, and lower net immigration are combining to squeeze labor supply. With the labor supply in rural America set to get tighter, technology – most obviously AI and robotics – will likely be at the core of any strategy to address the oncoming labor squeeze.

Although the economy appears to be running well as evidenced by low unemployment and easing inflation concerns, consumer sentiment remains historically low. A major reason is the escalating cost of housing. The monthly cost of homeownership rose 60% between 2021 and 2024 and there is little hope of improvement anytime soon.

Crop prices remain in the doldrums with both the U.S. and South America enjoying favorable crop-growing conditions. The U.S. winter wheat harvest has been hampered by heavy rains, but crop yields are set to be the best in years. Export sales of the upcoming grain and soybean harvest remain sluggish amid ongoing trade uncertainty. Crop profitability is also being pinched by stubbornly high input costs and now fertilizer costs have started to creep up again. On the positive side, recent federal biofuel policy will likely give domestic soyoil demand a boost.

Significant revisions to the $42.5 billion Broadband Equity, Access, and Deployment program will require a strategic reassessment by rural broadband operators. Given ongoing geopolitical unrest, the fact that the U.S. Strategic Petroleum Reserve is perilously low has received surprisingly little attention.

This quarterly update is prepared by the Knowledge Exchange division and covers the key industries served by CoBank, including the agricultural markets and the rural infrastructure industries.

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SPOTLIGHT

Declining labor participation, collapse in net migration foretell labor shortage

By Rob Fox

In recent years we have discussed the slowing growth rate of the U.S. labor force and the logical conclusion that it would be a drag on overall economic growth. For a while, the problem felt less urgent, with a brief uptick in the labor force participation rate amid rapidly rising wages during the pandemic and the years immediately following. Then, various global humanitarian catastrophes combined with less restrictive federal immigration policies and a strong economy resulted in a massive influx of nearly 9 million immigrants into the U.S. between 2022 and 2024.

However, these unpredicted factors largely obscured the underlying fundamental forces: a collapse in fertility rates since the Great Financial Crisis, declining labor participation rates, and a precipitous decline in immigration since late 2024. Ultimately, these forces will lead to labor supply shortages, possibly as soon as late this year.

1 Lower fertility rates, declining labor force participation rates, and lower net immigration are combining to squeeze labor supply, possibly as soon as late 2025.

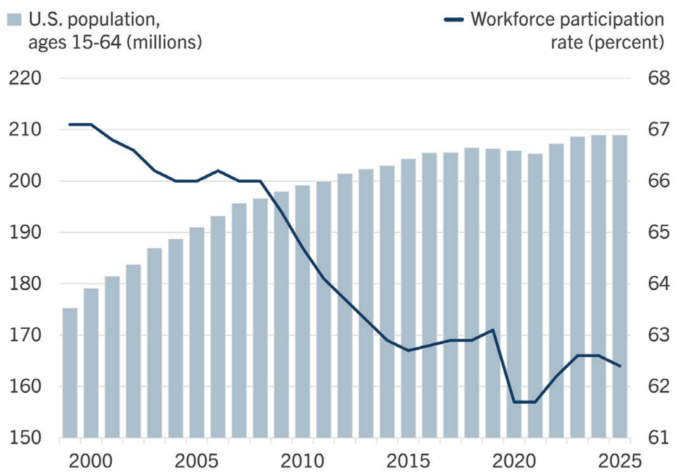
Underlying demographics

Eighteen years ago, the U.S. fertility rate was 2.12 children per woman, above the level needed to support a stable population. But the economic and social chaos brought on by the GFC triggered a freefall in births that has yet to stabilize: The fertility rate as of 2023 is down to 1.62. We are now just starting see the result of those "missing births" in the native-born working age population as that age cohort begins to enter adulthood. This reduction in new labor force entrants will overlap the retirements of the last of the baby boom generation (currently in their 60s) – a double whammy to the labor supply.

Labor force participation rates

The labor force participation rate has trended downward since 2000, when it peaked at 67%; today it stands at 62% *(Exhibit 1).* Given today's working age population of 211.8 million, the decline in participation rate is equivalent to about 9.7 million workers lost since that time. Worryingly, this trend may be accelerating: 2.4 million working-aged people have dropped out of the labor force in the past eight months alone.

EXHIBIT 1: U.S. Working Age Population & Participation Rate



Source: Federal Reserve Economic Data, Federal Reserve Bank of St. Louis

There is no single explanation as to why people are leaving the labor force, but multiple overlapping factors include the increasing need and higher cost of providing care for family members both young and old, job skill obsolescence, mental health issues, and rising disability rates. Unfortunately, we are unlikely to see a rapid reversal in these trends anytime soon.

Immigration

For a short while, the long-term decline in immigration reversed. A confluence of three factors – humanitarian crises in Venezuela, Ukraine, Cuba, and other countries; less restrictive federal immigration policies, particularly the expansion of humanitarian parole/asylum programs; and strong demand for labor in the U.S. during the post-Covid period – all led to a flood of immigrants into the U.S., estimated by the Congressional Budget Office at 8.8 million people in 2022-24 *(Exhibit 2).*

But things have changed, and abruptly: Border encounters, a proxy for immigration, have plummeted since August 2024 and have remained at low levels since. Additionally, the Trump administration has pledged to deport 1 million undocumented immigrants this year.

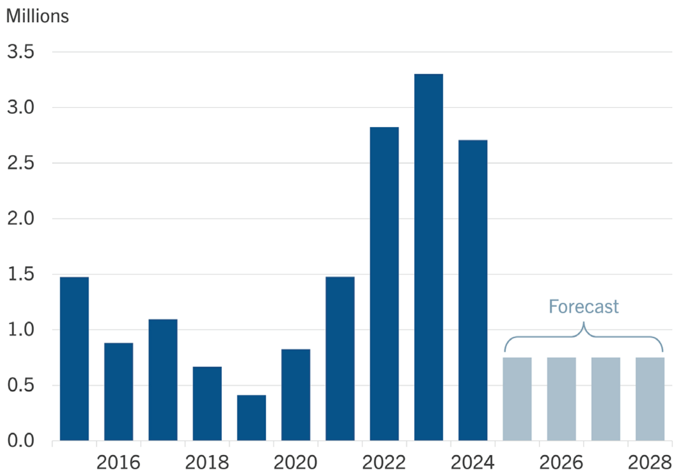
Most hiring managers would agree that the labor market has been relatively tight over the past five years (albeit it is cooling now). But barring an unforeseen change in labor force participation rates and/or immigration policies, the pool of available workers is set to shrink precipitously in the next few years. And the problem will be even more acute in states with lower population growth in the Upper Midwest, Corn Belt, and the Central Plains.

For our customers, now is the time to plan accordingly for a shrinking labor supply: The key to addressing labor scarcity always lies in technological advances – rapidly improving AI and/or ever more affordable robotics will have to be at the core of a solution. A recent Gallup poll found that 19% of all workers, and 27% of white-collar workers, are already using AI in their job roles on a weekly basis. And while robots have been common in manufacturing-related facilities for at least 20 years, the cost continues to drop, declining by about half in the past decade thus making robotic technology more affordable for many other industries.

A recent CoBank report highlighted how our farm supply customers are turning to AI to help boost profitability and free up time for human workers to focus on the most important priorities – problem solving, customer relationships, and evaluating business opportunities. This strategy is broadly applicable to almost all rural industries.

2 Adopting technology – most obviously AI and robotics – will likely be at the core of any strategy to address oncoming labor shortages.

EXHIBIT 2: U.S. Net Immigration



Source: Congressional Budget Office, www.cbo.gov/publication/60875

MACROECONOMIC OUTLOOK

Increasing cost of home ownership has no simple solution

By Rob Fox

The rising cost of homeownership *(Exhibit 1)* has left the dream of buying a home as only a fantasy for most renters and younger people. A just-released report from the Joint Center for Housing Studies of Harvard University estimated that a first-time homebuyer now needs an annual income of at least $126,700 to afford payments on the nation's median-priced home ($412,500). These numbers are 60% higher than just three years ago. The rising unaffordability of homes has driven the homeownership rate lower for the first time since the aftermath of the 2008 subprime mortgage crisis *(Exhibit 2).*

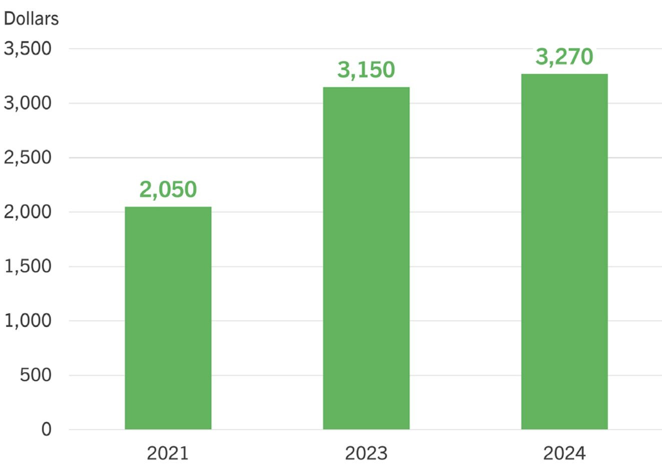
For homebuilders, the economic situation and outlook are equally painful.

- Given the ongoing weak sales figures, the inventory of new single-family homes continues to rise and, at 507,000, is at its highest level since 2007 *(Exhibit 3).*
- Homebuilders are reporting the flagging consumer sentiment continues to weigh on potential buyers.
- Due to investor unease over the rapidly expanding federal debt and uncertain economic policies, long-term interest rates, ultimately including 30-year mortgages, will remain "higher for longer" even when the Fed ultimately cuts its overnight rate *(Exhibit 4).*
- The cost of construction materials and major appliances continues to rise: both are up 6% from January through May.

1 **The monthly cost of homeownership rose 60% between 2021 and 2024. Interest rates and construction costs are expected to remain higher for longer.**

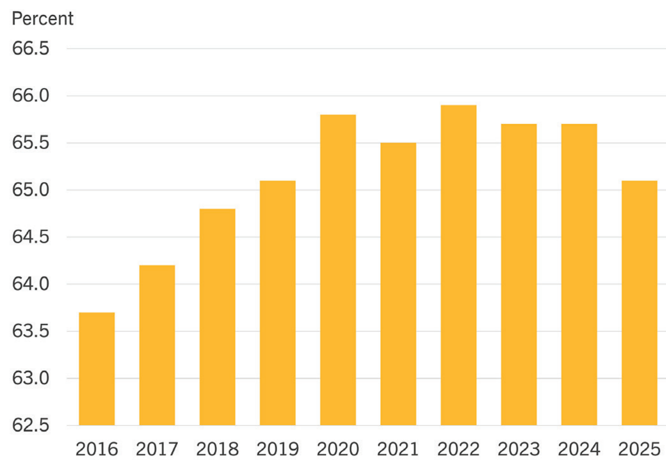
2 **To meet standard price-to-income metrics, homebuilders are shrinking home size and increasing unit densities.**

EXHIBIT 1: Median Monthly Home Costs



Source: The State of the Nation's Housing 2025, Joint Center for Housing Studies of Harvard University

EXHIBIT 2: Homeownership Rate



Source: St. Louis Fed FRED Database

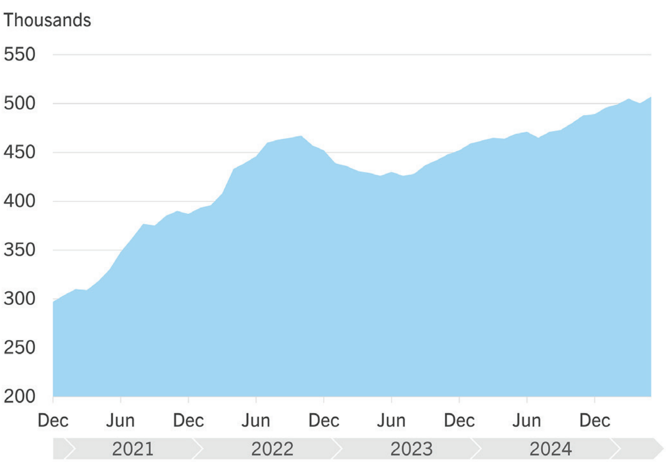
- Given the negative outlook, new single-family housing starts have dropped by 16% over the three months and the index of publicly traded homebuilders is down about 30% since late 2024.
- Not surprisingly, homebuilder confidence surveys are flirting with their lowest levels since 2012.

To address the primary problem of affordability, builders are moving quickly to offer cheaper options. The average square footage of new homes has decreased by about 8% over the past two years. Builders are fitting more homes on less acreage where local zoning laws permit it, allowing up to 20 units per acre. But these efforts are not lowering home prices but rather keeping new home inflation somewhat in check. PulteGroup, a major homebuilder, reported that its average home price in the first quarter of 2025 was up to $570,000, up about 3% from 2024.

Although housing affordability is right at the top of voter concerns, effective policy options are fairly limited. The market largely determines mortgage rates and regulations are mostly determined at the local level. A 2021 study by the National Association of Homebuilders found that regulations – primarily zoning requirements, various fees, and building codes – account for $93,870, or about 24% of the average cost of a new single-family home. So, that is where policy makers could focus: cutting the red tape involved in actually getting a new house built.

3 Helpful local government policies would include easing zoning restrictions and building codes.

EXHIBIT 3: Single Family Homes for Sale



Source: St. Louis Fed FRED Database

EXHIBIT 4: 30-Year Fixed Mortage Rates

Source: Freddie Mac https://www.freddiemac.com/pmms

GOVERNMENT AFFAIRS

Will anyone in Congress protect farm bill program funding?

By Lauren Sturgeon Bailey

Once again President Trump delivered on his promise to the American people, getting his One Big Beautiful Bill Act done by July 4th. In a sprint to the finish line, the House of Representatives ultimately bent the knee to the Senate, accepting many of its revised provisions to H.R. 1. Many see this as a major legislative win for Congress, but the clearest victor is the president, who secured passage of his signature legislative item delivering on many campaign promises in the first six months of his second term in office.

As with all budget reconciliation efforts, politics took center stage – and this one may have caused the deepest political rift in a decade. The journey to passage was marked by intense committee markups, bruising budget battles between the nonpartisan Congressional Budget Office and House and Senate Budget Committee staff, dynamic scoring wars, and bitter fights among friends who typically work very closely together on agriculture policy.

Feuds over the farm program policy and funding addressed in the OBBBA left the traditional farm bill coalition in Congress fractured, and longstanding industry alliances in doubt. Rural economic development programs were cut or left out entirely, and domestic food assistance, the Supplemental Nutrition Assistance Program, received its largest funding cut in history. In all, farm bill program funding took a nearly $200 billion hit. However, while it has been seven years since a full farm bill has passed Congress, farmers and ranchers still walked away with significant wins. Commodity programs and crop insurance provisions were enhanced and extended. Favorable tax provisions for cooperatives and production agriculture were made permanent, and key exemptions were bolstered.

The last time farm bill programs were successfully included in a budget reconciliation fight like this was in 2006. That was a time when being asked to find $3 billion in savings seemed like a steep mountain to climb, but being asked to change farm policy outside of a farm bill reauthorization year was unthinkable. The situation nearly 20 years later begs the question – who is left in Congress to protect farm bill program funding?

Congress continues to show that passing annual funding bills such as the farm bill is either impossible or simply not a priority. The House and Senate Appropriators continue to go through the motions, but with no real urgency from the White House after their major campaign win. What is the incentive to move on funding the government? Where is the accountability in ensuring we have government programs fully functioning? It appears many elected, appointed or everyday public servants working for the government feel comfortable with status quo. The status quo with permanent tax policy in the rearview mirror seems to trump all other controversial issues we have sent our own Mr. Smiths to Washington to address. ■

1 **As with all budget reconciliation efforts, politics took center stage – and this one may have caused the deepest political rift in a decade.**

2 **Farmers and ranchers walked away with significant wins in the One Big Beautiful Bill Act.**

3 **Congress continues to show that passing annual funding bills is either impossible or simply not a priority.**

GRAINS AND OILSEEDS

Optimal growing conditions in U.S. and Brazil pressure commodity prices

By Tanner Ehmke

Corn

A record Brazilian corn harvest combined with favorable growing conditions in the U.S. Corn Belt pushed corn prices to new lows last quarter. USDA also trimmed its estimate of planted acreage in the U.S. to 95.2 million acres, down slightly from its March estimate of 95.3 million but still well above last year's total of 90.6 million *(Exhibit 1).*

USDA's trendline yield estimate of 181 bushels/acre would result in a burdensome supply on the balance sheet for 2025/26. Corn prices fell 7.0% through the quarter on prospects for a record harvest this fall. Weather during corn's key reproductive phase of silking and pollination in July will be key in yield determination. Although soil moisture is ample across the Midwest, extreme heat could trim yield potential.

Corn demand remains robust with exports up 28.5% YoY thanks largely to impressive Mexican demand, while ethanol producers are also grinding corn at a quick pace. Strong demand for old-crop corn and prospects for a record new-crop have erased carries in the futures market, penalizing grain elevators *(Exhibit 2).*

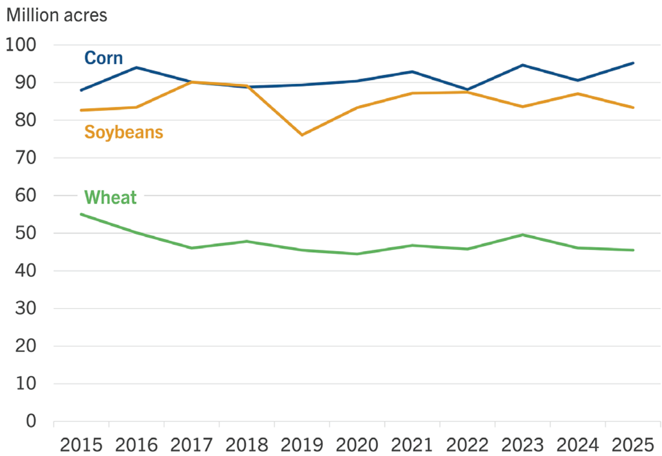
Soybeans

Trade uncertainty with soybeans' top export destination – China – and lagging guidance on the 45Z carbon tax credit hobbled soybean demand this quarter. While exports of old-crop soybeans are up 10.6% YoY, sales of new-crop soybeans are historically low as Chinese demand remains absent as the U.S. and China disentangle trade policy *(Exhibit 3).*

1 Both the U.S. and South America have enjoyed mostly favorable crop-growing conditions with Brazil now harvesting a record corn crop.

2 The U.S. winter wheat harvest on the Plains has been hampered by heavy rains, but crop yields are set to be the best in years.

EXHIBIT 1: U.S. Planted Acreage



Source: USDA-NASS Acreage

EXHIBIT 2: Corn, Soybean and HRW Wheat Carries

Source: Barchart.com; CME Group. Calculations by CoBank.

U.S. soybean crushers are optimistic of renewed domestic demand from EPA's larger-than-expected renewable volume obligation (RVO) recommendation and Congress's new 45Z carbon tax credit extension. Meal exports are also up from last year but are not strong enough to sufficiently clear accumulating inventories and lift prices. Soybean acreage was estimated at 83.4 million, down 4.2% YoY. Soybean prices eased lower by 0.8% through the second quarter.

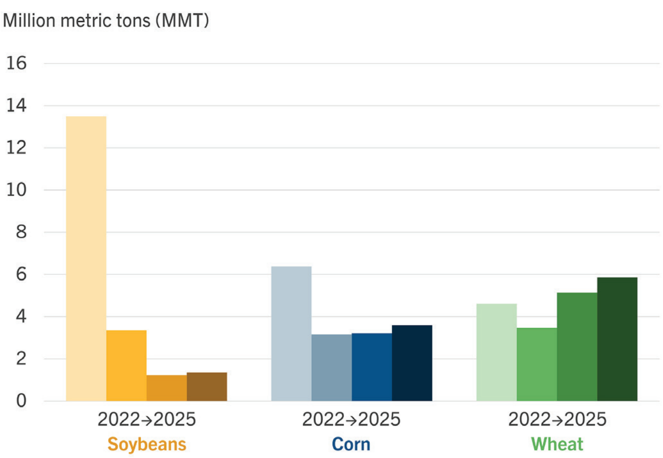
Wheat

Wheat prices were pulled to multi-year lows last quarter by winter wheat harvest in the U.S. and prospects for bigger crops in Europe and Russia competing with the U.S. for exports. The alternating weather between cool and wet conditions and hot, dry and windy conditions on the Plains has negatively impacted crop quality in local areas with test weights dropping. Grain elevators plan to blend low-quality wheat with higher-quality old-crop stocks. U.S. wheat stocks on June 1 available for blending are up 22.1% YoY *(Exhibit 4).*

Ample supplies of low-protein hard red winter are expected to increase demand for high-protein wheat for blending and put upward pressure on protein premiums. USDA estimated spring wheat planted acreage at 10.0 million acres, down 5.7% YoY, further tightening availability of high-protein wheat. All-wheat acreage was estimated at 45.5 million acres, down 1.3% YoY. U.S. export sales for wheat started the new crop on June 1 on strong footing, thanks mostly to Mexican demand for hard red winter wheat. U.S. exporters also benefit from the tailwind of a weaker U.S. dollar. Wheat's first test of the durability of its export program will be against the arrival of the European and Black Sea harvests. Should wheat exports stall, falling wheat prices may spur wheat feeding on the Plains this summer.

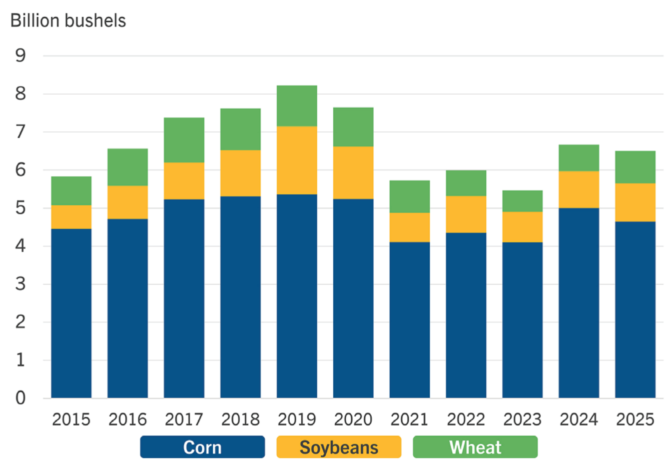
3 While export demand for old-crop corn and soybeans is strong, new-crop export sales are sluggish amid ongoing trade uncertainty.

EXHIBIT 3: U.S. Outstanding New-Crop Export Sales in June



Source: USDA-FAS Export Sales

EXHIBIT 4: U.S. Grain Stocks on June 1



Source: USDA-NASS Grain Stocks

FARM SUPPLY

Wait-and-see approach likely in agronomy purchases

By Jacqui Fatka

Supportive spring weather has allowed grain cooperatives to see strong agronomy sales boosted by increased corn acres. The pre-sales for the 2026 growing season that typically occurs during this quarter are projected to soften due to uncertainty from tariff impacts geopolitical tensions, higher interest rates and farmer profitability constraints.

Agricultural retailers are delaying buying decisions and inventory build due to higher year-over-year input prices. Coming off the high input costs of 2022 that paired with higher crop prices, USDA's latest cost of production estimates show no relief in sight and forecast a slight increase from 2025 into 2026 for major crops *(Exhibit 1).* Ag retailers are seeing tepid demand for product in the current low crop price environment. In addition, manufacturer cash discounts for early orders are less attractive than in previous years and no longer offset elevated interest costs. As farmers look to minimize losses, they may choose to limit chemical applications. Chemicals imports, particularly from India and China, may be more exposed to tariff impacts. Machinery purchases have already seen a pullback with inventory piling up on equipment lots.

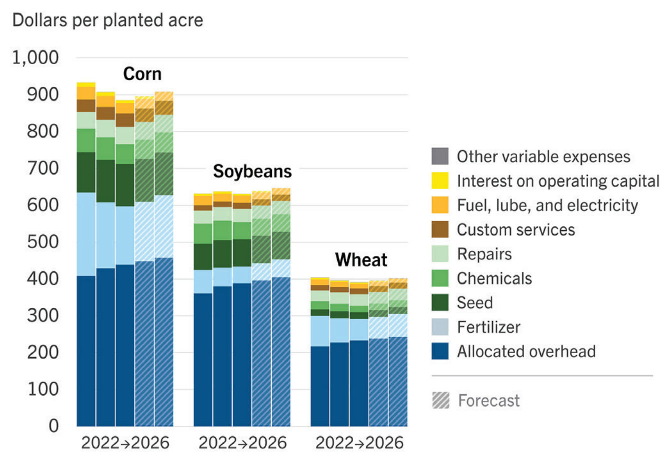
In the U.S., phosphate production was record low for the last two quarters and indications are that the second quarter will be just as poor. The current situation has created the highest corn/phosphate ratio in history for this time of year. If diammonium phosphate (DAP) remains high, retailers will be watching to see if farmers are reluctant to apply in the fall in hopes of spring price relief. North America wholesale potash prices for summer fill remain steady. Urea will be the innocent bystander caught up in the Middle East conflict as over half of the world's urea is exported from the region.

1 Expect farmers to delay agronomy purchases from the typical August/September timeframe until October or later.

2 Higher projected farmer input costs in this constrained price environment will limit agronomy sales.

3 Fertilizer market dynamics are creating tight supply and demand for nutrients.

EXHIBIT 1: Crop Production Breakdown by Expense Category



Source: USDA Economic Research Service

BIOFUELS

Biofuel policy stands on three legs

By Jacqui Fatka

Renewable volume obligations, small refinery exemptions and the 45Z Clean Fuel Production Tax Credit are the three legs that will be balancing the biofuels industry as the year progresses. The combination of uncertainty around implementation of each will greatly impact overall supply and demand.

The Environmental Protection Agency proposed a total RVO of 24.02 billion gallons for 2026, including 15 billion gallons for conventional renewable fuels made from corn ethanol and 9.02 billion gallons for advanced biofuels. The biofuels industry asked for a minimum biomass-based diesel level of 5.25 billion gallons and received a proposed 5.61 billion gallons after the last RVO rule for 2023-2025 set levels well below capacity and feedstock availability. A major change in the proposed rule gives a 50% value for renewable identification numbers if the fuel or feedstock is imported. Soybean oil may be the winner in the proposed 2026-2027 RVO change as it is now more likely to make up a larger share of the feedstock pie than previously.

EPA said it would make its determination of small refinery exemptions by release of the final RVO rule at the end of October. If RIN generation does not pick up in the back half of this year, the market will be short nearly 2 billion RINs in 2025 without SREs being granted. RINs can also be carried forward to the next compliance year to meet mandates, but carryover balances are unlikely heading into 2026 *(Exhibit 1)*.

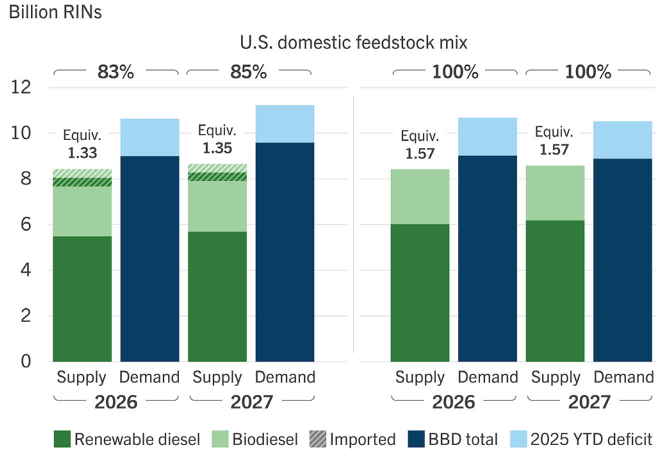
In the One Big Beautiful Bill, both the House and Senate salvaged the Inflation Reduction Act's 45Z program but made significant changes. The final bill lowered the value of the credit from $1.75 to $1.00 for sustainable aviation fuel and extends the credit only until 2029, actions that could limit the new market's growth potential. Only feedstocks from the U.S., Mexico and Canada will be eligible for the tax credit starting in 2026 through 2029. The penalty for indirect land use change is reduced, which improves the carbon intensity score for domestic crop-based feedstocks. The initial guidance provided in January has allowed some biofuel producers to start monetizing the credit but has not created the margin improvement to offset the elimination of the $1 blender's tax credit.

1 Proposed RVO levels should boost domestic soyoil demand for biomass-based diesel.

2 EPA's decision on SREs will impact the amount of RINs carried into 2026.

3 The One Big Beautiful Bill extends 45Z for two years and lowers SAF tax credit value.

EXHIBIT 1: Detailed Biomass Based Diesel RIN Supply and Demand



Source: Bloomberg Intelligence. Used with permission

ANIMAL PROTEIN

Consumers are on the hunt for more animal protein

By Brian Earnest

Softened and less volatile feed costs are boosting optimism after several years of elevated feed prices. Plentiful corn and soybeans have allayed concerns related to the largest cost for animal protein producers. While low feed costs typically usher in expansion, animal numbers have stalled in part due to processing capacity constraints, tight labor conditions and elevated capital costs.

Animal protein is not immune to global market disruptions with import restrictions including disease, tariffs and non-tariff barriers. Restrictions on imported cattle from Mexico to address New World Screwworm have disrupted cattle availability while HPAI continues to impact both egg production and U.S. poultry exports. HPAI was found in Brazilian commercial flocks for the first time in May, which threatened global opportunity for the poultry trade giant. The long-term effects are yet to be seen, but we expect continued talks on regionalization and vaccination.

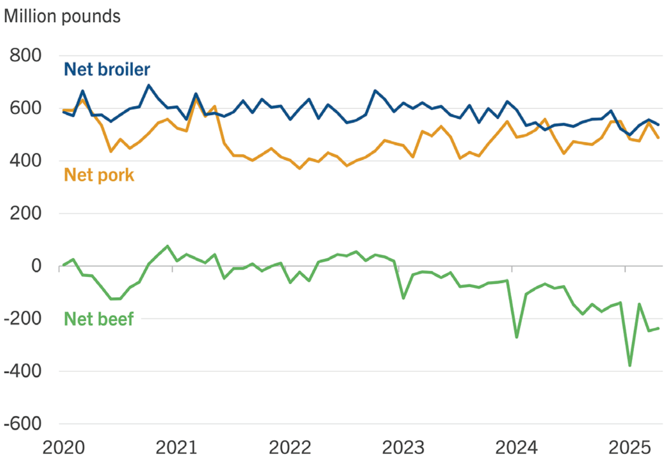
Demand has remained favorable through mid-year despite headwinds from tariffs and inflationary pressures *(Exhibit 1).* While negligible, there is potential for softening on both the domestic and international fronts. U.S. red meat and chicken export volumes decreased by 7% YoY through the first four months of the year *(Exhibit 2),* but on a per-pound shipped basis, sales were up 6% YoY. The U.S. remains a net exporter of pork and broiler meat and has been a net beef importer since early 2023. Imports of lean beef continue to surge as U.S. consumers seek value while also appeasing their growing appetite for beef.

Overall, the animal protein segment appears to be healthy. USDA is currently penciling in roughly 2% growth in production, with consumption favoring more poultry this year.

1 **Disease and trade barriers have caused some friction for global animal protein markets through the first half of the year.**

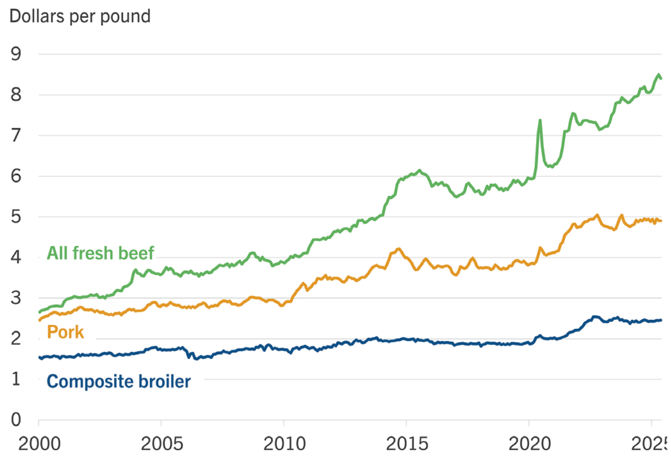
2 **Consumer demand for protein has bumped up USDA forecasts for beef, pork, and chicken for 2025 and 2026.**

EXHIBIT 1: Monthly Animal Protein Trade



Source: USDA

EXHIBIT 2: Retail Animal Protein Prices are Widening



Source: Bureau of Labor Statistics & USDA

Chicken

The U.S. broiler sector ended 2024 well positioned to serve the restaurant industry's desire to show consumers an inflation-busting animal protein offering. Promotional activity, new chicken menu items, and fresh flavors throughout the quick service (QSR) space have effectively met consumer demand for a value-added meal. Broiler prices have seen an extraordinary boost from value-added product interest.

- Boneless breast meat prices are softening, after averaging $2.70/lb. through the second quarter, a 53% increase YoY, and up 41% vs. the five-year average *(Exhibit 3)*. While prices are easing seasonally, there is little doubt that growing chicken demand will maintain a favorable balance for white meat values as the year goes on.
- While leg quarter prices continue to rely heavily on support from the export market, new-found domestic demand is boosting dark meat disappearance, further bolstering support to wholesale cutout values. Leg quarter values are up 6% YoY, gains that we expect will remain largely unchallenged.
- Wings have become sluggish, as prices have dropped 47% YoY with menu offerings and promotions shifting from bone-in to boneless. However, wholesale values are a bargain at $1.25/lb. and interest is expected to return ahead of football season.

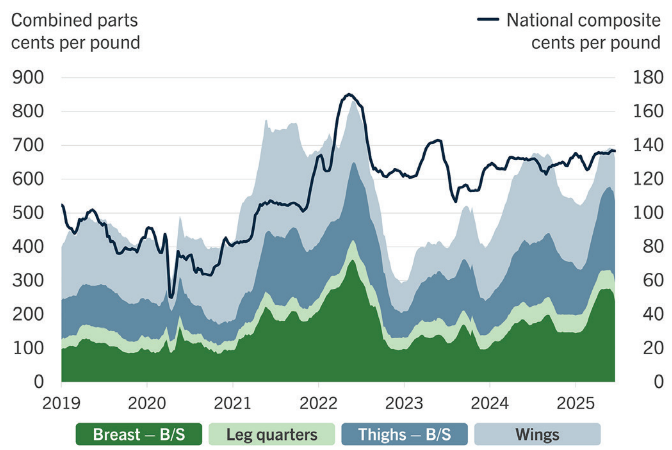
From a production standpoint, rising capital costs have been a major constraint. Still, the industry has attempted to expand the broiler-type hatching egg layer flock to offset hatchability issues. The layer flock for broiler-type chicks to be hatched was down 2% YoY on June 1 at 60.3 million head. However, eggs set in incubators are about 3% higher YoY and chick placements up about 2% on a weekly basis. Weekly harvest rates are up about 3% and liveweights continue to hit new records, all owed to improvements in efficiency.

Feed costs are low and demand both domestically and abroad are good, but production is moderately outpacing expectations. Seasonal market pressure is likely as the year progresses, especially as demand cools during the third quarter. Still we don't expect drama here.

1 Domestic dark meat demand continues to strengthen, pushing leg quarter prices up 6% YoY in the second quarter.

2 Chick placements are rising and broiler output is setting new records to help meet the growing consumer demand for chicken.

EXHIBIT 3: Wholesale Broiler Parts Values



Source: USDA, LMIC

Beef

Pasture conditions have been relatively stable to start the summer but are underperforming compared to prior year levels. Poor and very poor pasture conditions have averaged 32% compared to only 23% during the same period in 2024 *(Exhibit 4)*. Rebuilding the nation's beef cow supply is likely to be delayed under current conditions.

Although the less-than-ideal forage situation remains a deterrent to rebuilding, cow-calf margins should perform well again in 2025 as calf prices hit a record $405/cwt in May, up 25% YoY. Tight calf supplies have pushed feeder and fed cattle futures up at a similar pace, lengthening liquidity needs. Feeder cattle futures for the nearby August contract were trading at $302/cwt, up 18% from a year ago. Live cattle futures have surged to $227/cwt for the nearby August contract, up 25% from last year.

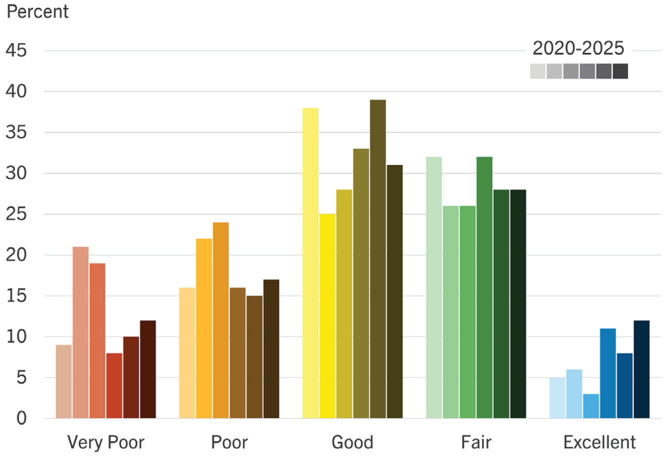
For the first time in 37 years, production of Prime grade beef this spring outpaced Select, an event last seen in April 1988. Beef producers have focused on improving meat quality over the last decade, boosting demand. According to data from the Bureau of Labor Statistics and USDA, the retail all fresh beef demand index hit a record 128 in 2024, coinciding with access to high-quality beef *(Exhibit 5)*.

Cattle weights are gaining momentum and following seasonal patterns while they remain on feed for longer, averaging 872 pounds per head in the second quarter, 3% heavier than a year ago. These heavy U.S. cattle have required more lean beef imports from Brazil, Australia, and Canada to mix with grinds.

1 Record high cattle prices boost margins for the cow-calf and feedlot sectors, while squeezing packers.

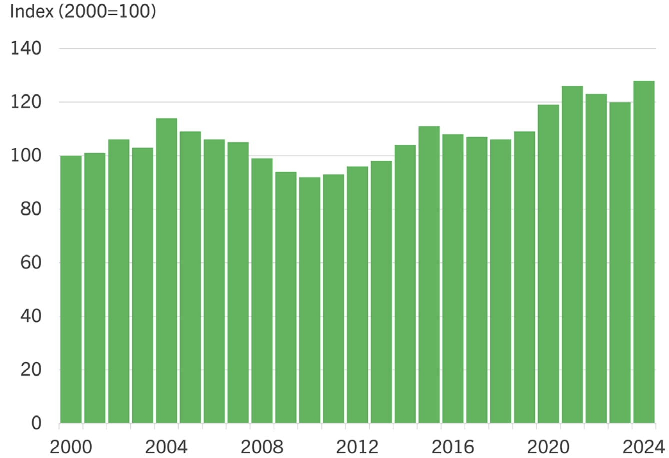
2 Prime and Choice graded beef supply is at its highest since 1989, averaging 87% market share through April 2025.

EXHIBIT 4: Pasture conditions are stable but not ideal through June



Source: USDA-NASS

EXHIBIT 5: Retail All Fresh Beef Demand Index



Source: Bureau of Labor Statistics, USDA, LMIC

Pork

Swine inventory and production have been stable for the first half of 2025. Total hogs available for market only shifted downward 56,000 head or 0.1% year-over-year as of June 1, according to the latest Hogs and Pigs report from USDA. The breeding herd has also been stable, sitting at 5.98 million head, down 0.6% YoY. Dressed hog weights have followed a similar pattern, averaging 216 pounds per head in the second quarter, helping secure pork supplies over the summer.

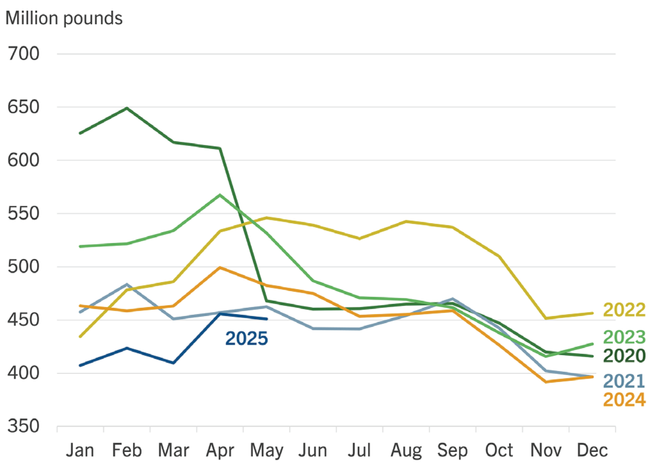
However, the same cannot be said for hog prices, which have jumped significantly through June. Lean hog futures on the CME surpassed $112/cwt. in June, the highest since July 2022. The pork carcass cutout value has been boosted to average $103/cwt. in the second quarter through gains from the ham and belly primals *(Exhibit 6).* Bellies skyrocketed 18.7% higher YoY to $155/cwt. and hams were up 6.4% at $94/cwt. Historically, the rib primal has held the most weight towards the overall carcass cutout. However, this shifted in the second quarter to the second largest primal contributor, yielding an average of $154/cwt.

This trajectory in hog and cutout prices has also been reflected in slimmer cold storage inventories. According to the June Cold Storage report from USDA, inventories of pork in cold storage were down 7% YoY, signaling strong international demand for U.S. pork *(Exhibit 7).* On the domestic front, USDA increased its forecast of pork disappearance from 49.9 pounds per capita last year to 50.3 in 2025. New campaigns are promoting pork's taste and flavor to boost consumption during the summer grilling season, encouraging an upward move in prices for producers.

1 Dressed hog weights have been stable at 216 pounds per head, averaging 0.3% higher year-over-year from April to June.

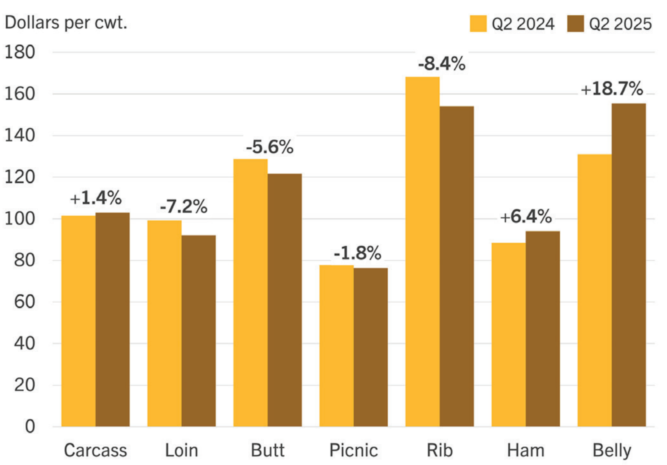
2 Domestic and international demand for pork is gaining momentum with the start of grilling season and lower cold storage inventories.

EXHIBIT 6: Lower inventories of pork in cold storage



Source: USDA-NASS

EXHIBIT 7: Pork carcass cutout boosted by bellies and hams



Source: USDA

DAIRY

Margins generally favorable for making more milk

By Corey Geiger

Even though the overall beef-cow inventory stands at the lowest numbers since 1961, dairy cow numbers have bucked this trend by growing 114,000 head over the past 12 months. Most of that growth has taken place since January 2025 as 90,000 additional cows brought the herd total to 9.445 million head. That's the highest U.S. dairy cow population dating back to July 2021.

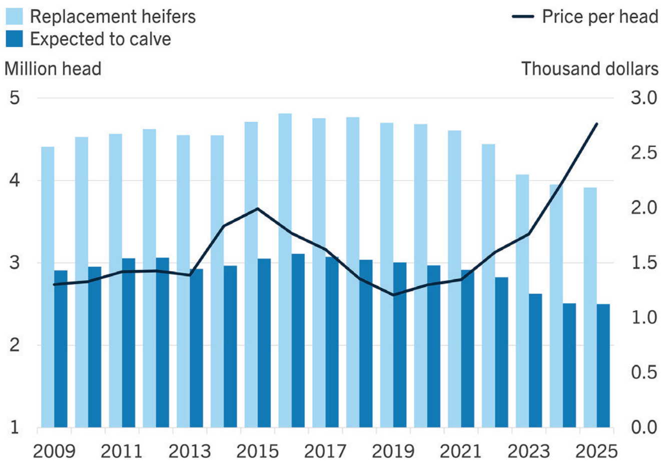
Four states have been responsible for nearly all the growth – Texas up 45,000 head; Idaho, 31,000; Kansas, 26,000; and South Dakota, 18,000. It's no coincidence that these locations have the newest dairy processing assets coming online. On the flip side, the Pacific Northwest has faced some headwinds and cow numbers were off 12,000 head during the past year. Retention rates, not heifer inventories, have been the bedrock for herd growth. Dairy heifer numbers have dropped to a 20-year low, driving heifer replacement values to an all-time high at $2,870 per head *(Exhibit 1).*

To shore up inventories, dairy farmers culled 99,400 fewer dairy cows through late June when compared to the same time last year building on a trend over the past 95 weeks as dairy farmers sent 607,300 fewer head to slaughter *(Exhibit 2).* This pullback on culling indicates margins to produce milk have been favorable enough for dairy farmers to retain cows for milk production versus sending them to slaughter to capture record beef prices. As a result, U.S. milk production increased by 1.6% year-over-year in May – the highest monthly growth in well over two years. But the bigger story

1 **Dairy cow numbers bucked national cattle trends growing by 114,000 head** **over the past 12 months.**

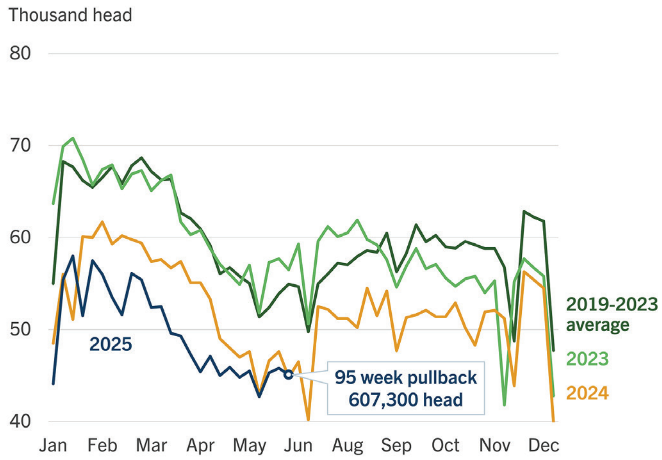
2 **With heifers in short supply, dairy farmers have sent 99,400 fewer cows to slaughter** **through late June to help bolster the dairy herd.**

EXHIBIT 1: Shrinking dairy heifer inventory has caused replacement prices to skyrocket



Source: USDA - National Agricultural Statistics Service

EXHIBIT 2: Weekly dairy cow slaughter from 2019 to 2025



Source: USDA NASS, AMS, and Food Safety Inspection Service continues to be growth in milk components, largely butterfat and protein. That growth has doubled and even tripled gains in milk output over the past 12 months *(Exhibit 3).*

Dairy markets remain in a delicate balance as domestic demand has been slightly sluggish and is being felt in food service. In the U.S., over half of all dairy moves through food service, which is especially important for Mozzarella cheese. To that end, major pizza chains have posted slower same-store sales during the first quarter with Pizza Hut's sales shrinking 5%, Papa John's off 3%, and Domino's, the largest pizzeria in the category, down 0.5%. On the flip side, Taco Bell, Pizza Hut's Yum brand sister store, posted 9% growth with the help of price promotions.

Protein continues to be regarded as a hero ingredient and dairy is a proven winner in this category. To that end, a record $8 billion in U.S. dairy plant investment was on the books in January 2025. That number leapt to over $10 billion by April as Chobani announced $1.7 billion in new facilities to enhance yogurt production. Overall, yogurt set a new production record of 4.76 billion pounds in 2024. This year's sales were off to a great start with May up nearly 11%, according to data from Dairy Management, Inc.

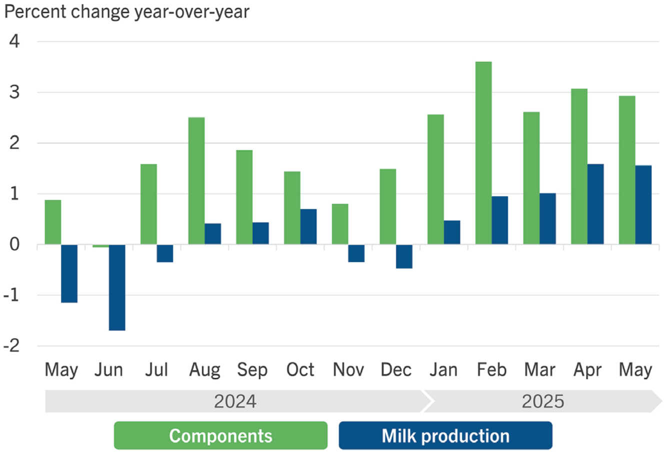
While agricultural exports have faced headwinds with a never-before-seen $20 billion deficit through April 2025, dairy has been a bright spot with $3.8 billion in exports and $2.2 billion in imports for a net trade surplus of $1.6 billion through May 2025. Cheese and butter exports have been buoyed by lower U.S. prices when compared to the largest two dairy exporters – the EU and New Zealand.

Through May 2025, the U.S. has already exported 88 million pounds of butter and anhydrous milk fat. By comparison, the U.S. exported 101.1 million pounds of those two products all last year. This means that U.S. butter makers have sold 87% of last year's sales volume in the first five months of the year *(Exhibit 4).*

3 A larger dairy herd has helped to produce more milk and more than doubled per-month milk component output in 2025.

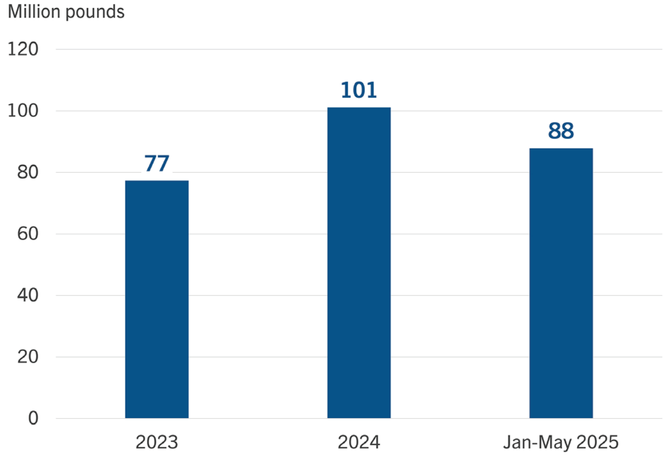
4 Strong production and demand has pushed butter exports through May to 87% of last year's total in just five months.

EXHIBIT 3: Component and milk production changes in past 12 months



Source: USDA-AMS, USDA-NASS

EXHIBIT 4: In just five months, U.S. butter exports totaled 87% of 2024



Source: Trade Monitor Data, and U.S. Dairy Export Council

COTTON, RICE AND SUGAR

Cotton and rough rice prices climb on outlook for smaller U.S. harvests

By Tanner Ehmke

Cotton

With reduced production, cotton prices inched higher last quarter on the prospects of a much tighter outlook for the U.S. cotton balance sheet in the 2025/26 marketing year. Following two years of drought and disappointing yields, U.S. cotton farmers on the Plains are expected to enjoy bigger yields this year but on a much smaller acreage as farmers switched to more profitable crops. Meanwhile, some farmers in the Delta struggled with wet weather that delayed planting. USDA figures planted acreage for the 2025/26 crop to fall 9.5% YoY to 10.1 million acres *(Exhibit 1).*

Persistent pressure from a record Brazilian cotton harvest and uncertainty over trade policy with China continue to limit prices from climbing to profitable levels for U.S. farmers. Cotton prices on the Intercontinental Exchange rose 2.0% through the quarter to 67.76 cents/lb. but farmers' cost of production is also higher.

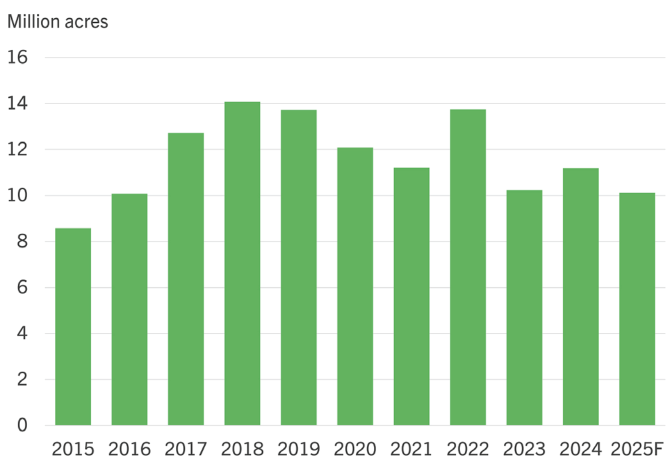
Rice

U.S. long-grain rice acreage atrophied this spring as farmers in the South switched to more profitable crops while also struggling with wet planting conditions, likely resulting in higher prevented planting acreage. Rejuvenated reservoirs in California allowed farmers to expand irrigated acreage of medium-grain rice. USDA revised planted acreage figures for both long-grain and medium-grain rice, cutting total U.S. long-grain rice acres to 2.03 million, down from 2.240 million estimated in the March Prospective Plantings report. In the meantime, USDA raised the combined tally of medium- and short-grain planted acreage to 654,000, up from 655,000 in March *(Exhibit 2).* The shortfall in long-grain rice will impair the U.S.'s export programs while domestic millers

1 **While expectations for the second-smallest U.S. cotton crop in 10 years have lifted cotton prices,** they are still below farmers' cost of production.

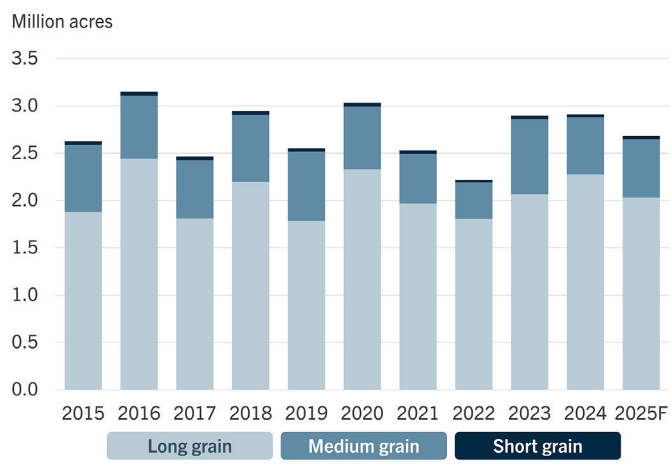
2 **Inclement weather during planting season in the U.S. South curbed long-grain rice acres** while medium-grain acreage rebounded in California.

EXHIBIT 1: U.S. Cotton Acres Planted



Source: USDA-NASS Acreage

EXHIBIT 2: U.S. Rice Acres Planted



Source: USDA-NASS Acreage

compete for scarcer bushels. Rough rice futures rose 0.2% last quarter to $13.33/cwt. Global rice prices continue to struggle under the weight of a flood of rice released from record Indian stockpiles while cheap Brazilian rice competes with U.S. exports into the key Western Hemisphere market. Strong U.S. exports of medium-grain rice, particularly to Japan, are a bright spot for U.S. rice farmers.

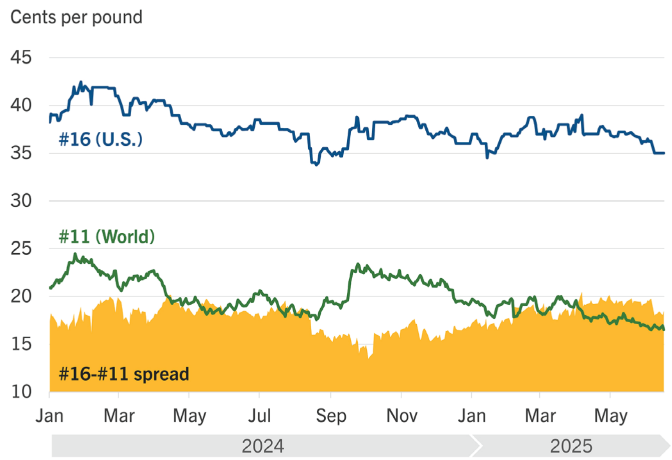
Sugar

World and U.S. sugar prices fell through last quarter on the growing headwinds of GLP-1 medication users' reduced snacking, emerging state and federal government restrictions on SNAP benefits, and price-sensitive consumers' reduced spending. The Make America Healthy Again movement and the migration of consumers from the center aisle of grocery stores to the exterior aisles where fresh product is typically located, shows that purchasers are increasingly conscious of less-processed food. This is adding to the drag on consumer demand. Sugar manufacturers note consumer packaged goods companies have reduced forward bookings of sugar, resulting in higher than normal inventories. U.S. sugar production, though, is set to shrink. USDA anticipates total sugar production in the 2025/26 marketing year to slip 0.4% YoY to 9.254 million short tons raw value on a smaller sugarbeet crop while cane sugar production makes a modest rebound.

Globally, lower fuel and ethanol prices have caused raw sugar mills to send sugar to the export market rather than to ethanol producers, increasing global sugar supplies. India is also expected to harvest a bumper sugar crop. World #11 raw sugar prices dropped 14.4% through the second quarter while U.S. #16 raw sugar prices were down 2.8% *(Exhibit 3)*.

3 **Sugar demand faces a multitude of intensifying headwinds,** **including widespread usage of GLP dietary drugs reducing consumer demand for snack foods.**

EXHIBIT 3: World and U.S. Raw Sugar Prices



Source: Barchart.com; ICE

SPECIALTY CROPS

Cocoa prices fluctuate, artificial color bans could pose real problems

By Billy Roberts

Cocoa prices navigate weather and tariffs

Cocoa prices have been in an almost constant state of flux for all of 2025, remaining significantly ahead of their roughly $2,000/ton levels several years ago. However, prices last month dropped off considerably. After settling at just over $10,000/ton in mid-May, cocoa futures in New York dropped nearly 25% in less than a month *(Exhibit 1)*. The $7,672/ton on June 20 is effectively the lowest price of the year and off 16.5% since Tariff Liberation Day on April 2. Reports of improved weather conditions in cocoa-growing areas and reduced concerns surrounding cocoa inventory are contributing to the price drop.

Above-average rainfall in growing regions since mid-May has improved crop development, easing concerns about supply and pushing prices generally downward. However, prices are likely to tick higher in coming weeks and months, as exporters appear to have boosted shipments into the U.S. while tariffs remained at a temporary 10% level. Tariff uncertainty remains, and it is anyone's guess as to how this plays out. Ghana, for example, faces a 10% reciprocal tariff, Ivory Coast a 21% level.

Orange industry flight increases property values

When citrus greening was discovered in Florida in 2005, it led to an immediate drop in production, which has only persisted. Florida's orange production levels today are projected to be less than 10% of what they were 25 years ago. While U.S. citrus production last year did increase 6% from 2022-23, the vast majority of that crop was from California *(Exhibit 2)*, accounting for 79%; Florida's share was 17%, with Texas/

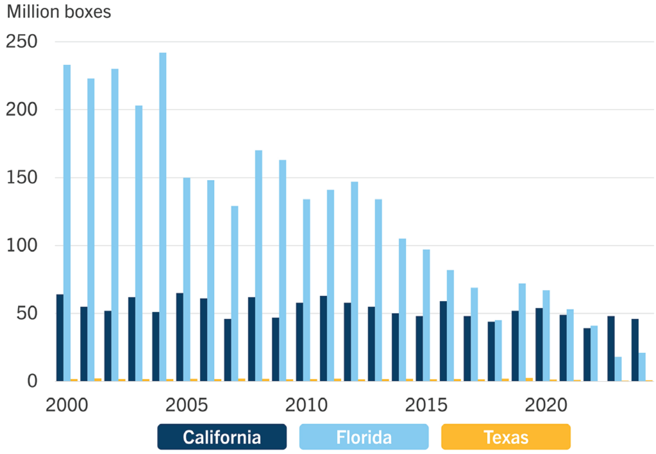
1 **Higher cocoa prices in the near-term are more likely to stem from higher tariffs** than from climatological consequences.

2 **The exit of some orange growers from the industry** is driving up citrus grove property prices.

EXHIBIT 1: Cocoa, futures in New York

Source: International Cocoa Organization, www.icco.org

EXHIBIT 2: Domestic production of oranges, 2000-24



Source: USDA NASS; https://www.fb.org/market-intel/u-s-citrus-production-an-uphill-battle-to-survive

Arizona at 4%. USDA forecasts Florida all-orange crop in 2024-25 to drop 35% YoY to 522,000 tons, the state's smallest in 95 years. The overwhelming challenges have led to a significant flight of Florida orange growers from the industry. Alico, a major producer that was once a key supplier, will wind down its citrus operations after the 2025 crop.

Unsurprisingly, Florida citrus acreage has fallen, from 832,000 acres in 2000 to 275,000 acres in 2024, with a 17% decline in 2024 alone. While Florida's citrus acreage has steadily declined, the average price per acre of citrus land was up 47% from 2023. While only about 15% of the citrus land transactions (19 of the 128 total) were designated for transitional or residential development, the average price per acre for those 19 transactions was $60,500, compared to $2,537 for the other 109 transactions. With the overall average at $11,141 per acre, these residential/transitional transactions are clearly skewing the overall price higher, and significantly so.

3 **A push to ban artificial colors could have considerable impact on consumer acceptance of certain fruit-based products.**

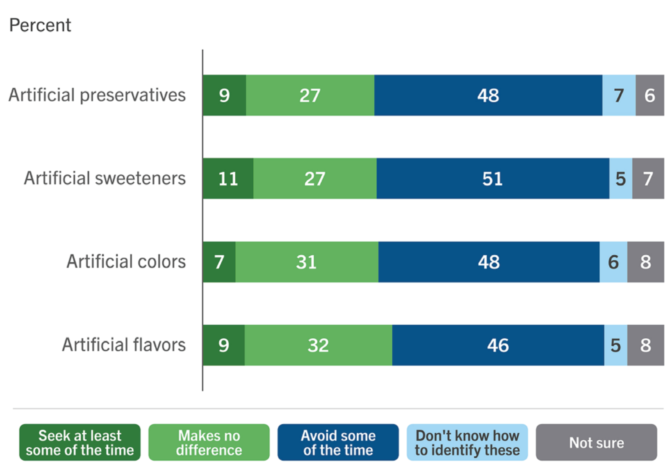
Bans on artificial colors could spell new troubles

U.S. Health and Human Services Secretary Robert F. Kennedy Jr. has set his sights on eliminating synthetic dyes from what amounts to 19% of the nation's food supply, largely by relying on voluntary efforts from the food industry. Major companies are complying, with J.M. Smucker one of the latest vowing to remove artificial colors from its jams and other products by the end of 2027. A new Texas law will force processors to put warning labels on any food or drink containing 44 different food additives or dyes. The law goes into effect Jan. 1, 2027.

Certain specialty crop growers will likely deal with the fallout of these formal and informal bans. Maraschino cherries, for example, are dyed to achieve their intense red color. Baking mixes and kits that include dyes to achieve intense color will need reformulating to remove the artificial ingredients, something consumers have not necessarily sought *(Exhibit 3).*

Manufacturers face the distinct possibility that natural colorant solutions may produce less-intense (and less consumer-desired) color that is less reliable, less predictable and has less shelf life than artificial colorings. In short, many of America's favorite foods and desserts are closely tied to color, and manufacturers will likely turn to formulators (and potentially growers) to deliver a non-artificial product with comparatively vibrant hues.

EXHIBIT 3: Consumer opinions on artificial food ingredients, U.S.



Source: Food Insight; IFIC; May 6-10, 2021

FOOD AND BEVERAGE

Restaurants' "value for the experience" strategy outshines price

By Billy Roberts

Food and beverage brands are reporting less-than-stellar earnings in the most recent quarter, with companies from PepsiCo to Kraft Heinz lowering their fiscal year guidance. Others are taking a wait-and-see approach to the impact of tariffs and higher prices on their overall performance. Few delved into overall consumer behaviors to the degree that The Campbell's Company did, however. In its third quarter earnings call, the company reported that consumers are preparing meals at home "at the highest level since early 2020," near the height of the pandemic. KPMG's April 2025 consumer survey found 69% of consumers are eating more at home, with 85% of those citing budget constraints as the key reason behind the shift in behavior. The survey also found that consumers anticipate spending 7% less each month at restaurants this summer and expect to spend more on groceries.

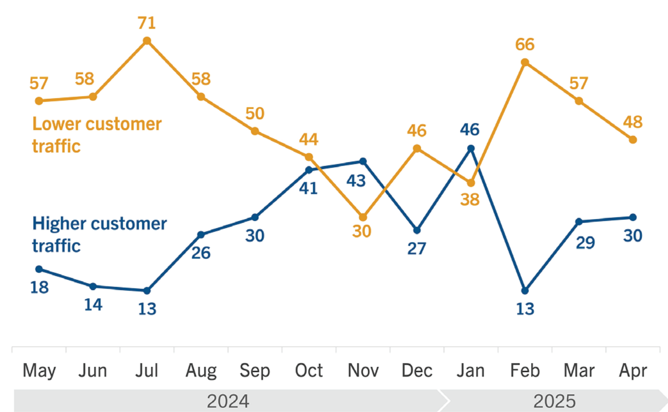
Restaurants, for their part, are feeling the shift in consumer spending. Virtually all major chains in the country have experienced notable declines in recent quarters. Admittedly, a number of unusual events occurred in the early months of 2025, from massive fires in California to measurable snow along the Gulf Coast, all contributing to one of the worst quarters for chains since the onset of the pandemic. However, restaurants have yet to see consumer traffic resume *(Exhibit 1)*. McDonald's most-recent quarter saw its steepest decline in same-store sales since the second quarter of 2020, which the company attributed to spending pullback by low- and middle-income consumers. KFC likewise lost sales in the quarter, though fellow Yum brand Taco Bell rode the momentum of an aggressive value strategy and a host of new menu items to continue its streak of positive quarterly sales growth. A similar focus on value provided a boost to quarterly results for Burger King in late 2024, though its shift in marketing toward more premium items in the most-recent quarter had deleterious effects on same-store sales. Chipotle and salad chain Sweetgreen both noted their first same-store sales drops in over a year, with the latter predicting roughly flat growth for same-store sales for the remainder of the year.

1 Flat sales appears to be the best-case scenario for many CPG food and beverage companies.

2 The shift to cooking at home is taking a considerable toll on restaurant chains.

EXHIBIT 1: Change in restaurant customer traffic

Percent change versus one year ago, May 2025



Source: National Restaurant Association Restaurant Industry Tracking Survey, May 2025

The declines are not limited to quick-service restaurants *(Exhibit 2).* Even beverage chains have borne the brunt of a consumer shift. Starbucks has seen five consecutive quarters of declining same-store sales as its traffic continues to erode. Its new CEO reportedly plans to "return the chain to its coffeehouse roots," but any notable success in away-from-home food and beverage has not been found in costlier options that are at the heart of the menus of Starbucks and so many brands in the restaurant space.

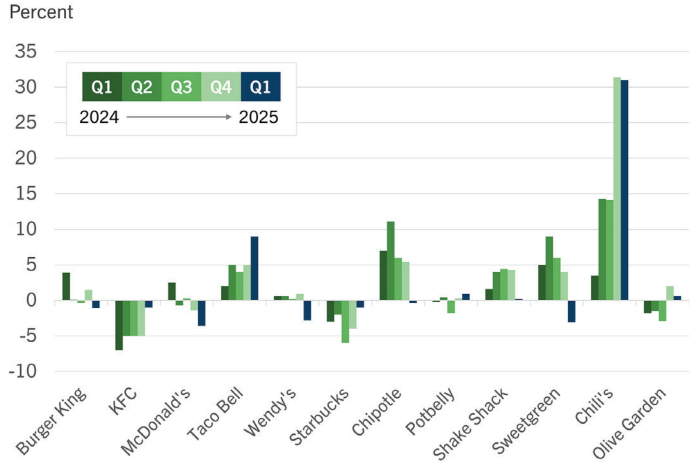
Yet the biggest restaurant success in recent quarters is in chains distinctly focusing their marketing campaigns and offerings on value for the experience. Olive Garden's first consecutive same-store quarterly growth in over a year is riding on the back of promotions that offer a second meal for the price of one. Chili's, likewise, has utilized a value-oriented promotion (a three-item meal for $10.99) to propel it not only to massive quarterly growth in terms of sales but also a 21% increase in traffic, making the chain a definite outlier in the restaurant space.

Key to the growth has been chains' recognition that price is distinct from value. Without question, price reduction likely has its place, but a lower price is not necessarily a driver and risks disrupting consumer loyalty once consumers feel economically comfortable returning to restaurants. In fast-casual segment restaurants such as Olive Garden and Chili's, customer traffic has been up, as consumers are willing to pay something of a premium for a better perceived experience and quality, not a sacrifice in either simply for a reduced bill.

3 Same-store sales across foodservice establishments **demonstrate that price is not solely the driver for consumers.**

4 The fast-casual restaurant segment, **particularly Chili's and Olive Garden, shows that value can resonate even with a higher price tag.**

EXHIBIT 2: Restaurant same-store sales, by quarter, 2024-25



Source: Company earning reports

POWER, ENERGY AND WATER

Is the U.S. shale revolution enough of a strategic reserve?

By Teri Viswanath

Following the recent U.S. attack on Iranian nuclear facilities, President Donald Trump sent a clear message to the oil market, urging "everyone" to keep oil prices down in an all-caps post on his Truth Social platform. He also called on the U.S. Department of Energy to increase drilling rates, pointedly commanding, "To The Department of Energy: DRILL, BABY, DRILL!!! And I mean NOW!!!"

Since the early 20th century, the executive office has recognized the importance of stable, affordable gasoline prices for the economy and public sentiment. When prices rise, it can lead to public dissatisfaction and frustration, which can impact approval ratings and chances of re-election. The oil crises of 1973 and 1979 elevated the importance of gasoline prices in political discussions where it remains a relatively predictable gauge of voter sentiment. Yet, outside cajoling independent oil producers to accelerate drilling plans and ordering the Department of Energy to streamline permitting (the Bureau of Land Management administers oil leases on public lands), the sole presidential lever to temper high prices remains the country's Strategic Petroleum Reserve (SPR). So, given the geopolitical unrest, why is this arsenal largely being ignored? And worse yet, why is did Congress make the effort to reduce SPR funding from $1.3 billion to $171 million?

President Harry S. Truman first articulated the need for a national reserve during the post-war era in 1952. Following the significant disruption in oil supplies with the Suez Crisis, President Dwight D. Eisenhower reiterated the call in 1956 for back-up emergency supplies. But it was finally President Gerald R. Ford who put this market mechanism into service in 1975 amid the OPEC (Organization of the Petroleum Exporting Countries) crisis, declaring it to be imperative to U.S. geopolitics to establish a 1-billion-barrel reserve.

Now in the wake of the recent strikes on Iran's nuclear facilities, there appears to be little interest in this resource. After the significant drawdown of oil from the SPR by the Biden administration (in response to rising gasoline prices and the geopolitical impact of Russia's invasion of Ukraine), the reserve currently holds about 402 million barrels, the lowest inventory levels since the mid-1980s. Moreover, there are no imminent plans to refill the reserve, with Trump vowing to fill up the SPR when the market conditions are right, but it is unclear when or how. Currently, the administration has been focused on increasing oil production through persuasion, which has produced mixed results.

1 **Given geopolitical unrest following the U.S. strikes on Iranian nuclear facilities,** U.S. energy security and the Strategic Petroleum Reserve have received surprisingly little attention.

2 **The U.S. is now a net oil exporter,** raising the question whether the U.S. should have a strategic reserve at all.

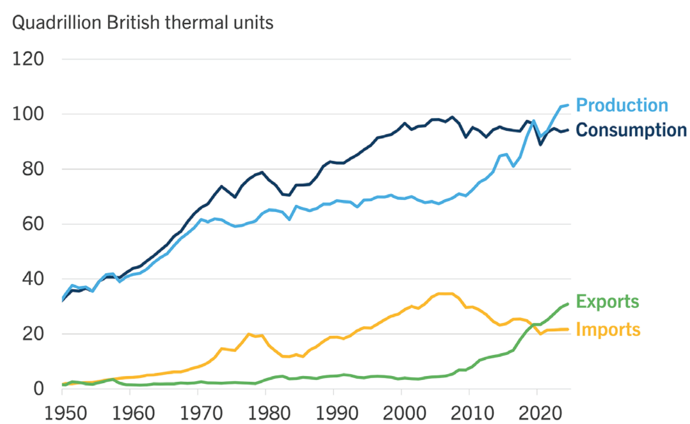
Many U.S. oil producers have been cautious about increasing output, given recent evidence of loosening balances. In fact, the decline in U.S. benchmark oil prices since the highs of the summer of 2022 has reduced domestic drilling, prompting the U.S. Energy Information Administration to predict that U.S. crude oil production would stall global production growth in the second half of this year. In fact, U.S. crude oil production is expected to decline in 2026 for the first time in several years, after reaching a record high in the second quarter of 2025. Surprisingly, Saudi Arabia and the United Arab Emirates (key global oil producers) may be more empathetic to President Trump's stated oil supply objectives, as the continued OPEC Plus unwind of the cartel's earlier agreement to restrain production damps down oil prices.

Yet, even if global supply is single-handedly being held up by foreign production in the near-term, there is simply less domestic price exposure to geopolitical supply disruption given the size of U.S. supply and its increasingly important role as a global supplier. Thanks to the rise in shale production and the 2015 lifting of the crude export ban, the nation is largely responsible for all the growth in global oil supply over the past decade. The U.S. is now a net oil exporter, not the major importer it was during the 1970s when the SPR was established. From a national security perspective, the surge in shale oil production has led to a substantial decrease in the volume of crude oil imported by the U.S. with the nation now producing far more energy than it consumes *(Exhibit 1).*

There is little doubt that the evolution of global oil markets since the 1970s requires deeper reflection on the tools required to effectuate energy security. Yet, calls for the dismantling of the SPR are likely misplaced. In recent Congressional testimony by Jason Bordoff, Columbia University's Center on Global Energy Policy founding director, he argued, "despite the shale boom and declining import dependence, the Strategic Petroleum Reserve (SPR) remains a critical national security asset. (Nevertheless), while the shale revolution does not insulate U.S. drivers from global supply shocks, it does offer an important buffer." This buffer mentioned by Bordoff refers to the agility or speed in responding to a supply crisis that secure oil storage provides – notably, the only tangible resource under the direct control of the president. Consequently, keeping the SPR at historic low levels limit political and policy response options to similar future events and risks greater consumer price exposure. ■

3 While the shale revolution offers an important buffer, the nation's SPR remains a critical national security asset, providing additional speed and agility when oil supply is scarce.

EXHIBIT 1: U.S. primary energy production, consumption, imports, and exports (1950-2024)



Note: Primary exports and imports include petroleum products, crude oil, natural gas and coal. U.S. production and consumption also include renewables and nuclear.

Source: U.S. Energy information Administration, Monthly Energy Review

DIGITAL INFRASTRUCTURE

Changes to BEAD program create strategic reset for rural broadband operators

By Jeff Johnston

On June 6, the National Telecommunications and Information Administration announced significant revisions to the $42.5 billion Broadband Equity, Access, and Deployment program. The updates mark a shift toward a technology-neutral framework, signaling a departure from the Biden administration's "fiber-first" strategy. Under the new rules, fixed wireless and satellite technologies will now have greater access to BEAD funding so long as they meet minimum performance benchmarks.

Under the Trump administration the NTIA has also eliminated several labor, reporting, and affordability requirements, signaling a streamlined focus on accelerating broadband deployment in unserved areas.

This new direction introduces both strategic opportunities and competitive threats for rural broadband providers. Operators that choose not to participate in BEAD may find themselves vulnerable to government-funded fixed wireless competitors entering nearby markets. These new entrants could encroach on their service areas, increasing churn and eroding market share.

Alternatively, rural ISPs can go on the offense and pursue BEAD funding to expand their own footprints, especially in areas where fixed wireless is eligible. Another strategic option is to leverage existing fiber infrastructure for wireless backhaul, enabling participation in new deployments while gaining additional revenue streams, though this still introduces competitive risks.

The NTIA will require evidence that non-fiber networks can scale to meet long-term performance standards. This may present a challenge for satellite providers. According to the speed test site Ookla, only 17% of U.S. Starlink users currently achieve the BEAD-required speeds of 100 Mbps download and 20 Mbps upload, raising questions about their ability to meet today's – and tomorrow's – demands. Fixed wireless applicants, however, are better positioned to satisfy NTIA's scalability criteria, given the wireless industry's track record of evolving to support more demanding applications over time.

In short, the NTIA's BEAD overhaul opens the door to new funding models and deployment strategies – but also raises the stakes for rural ISPs that opt to stay on the sidelines.

1 **The BEAD program's shift to tech-neutral funding expands the market for fixed wireless and satellite networks in rural America.**

2 **Non-participating ISPs risk new, government-funded competitors entering adjacent markets with lower-cost wireless solutions.**

3 **Fixed wireless has a scalability advantage, while satellite faces scrutiny over current performance and long-term speed requirements.**

This quarterly update is prepared by the Knowledge Exchange Division and covers the key industries served by CoBank, including the agricultural markets and the rural infrastructure industries, as well as relevant legislative and regulatory developments.

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