

Clouds are Forming

Fears of higher rates and weakening economic conditions linger over the year's second half.

EXECUTIVE SUMMARY

Effects from the pandemic and Ukraine war continue to reverberate through the global economy. Food and energy prices remain high, though prices for underlying commodities have lost upward momentum as economic fears rise. The Federal Reserve is poised to raise rates until it believes inflation has been tamed. Unfortunately, the risk of over- or under-doing it is high given that the lag time between action and reaction in monetary policy can be long.

Supply chains are still a mess. Warehouse capacity is still hard to come by and inventory is expensive. But transportation costs have slipped since Q1, offering a glimmer of hope of more efficient days to come. Container shipping has become cheaper but conditions for agricultural transport are mixed. Rail, truck, barge, and vessel costs remain stubbornly high and capacity limited.

While agricultural and energy commodity supplies remain tight, shifts in speculative sentiment have brought prices down from their peaks. For agriculture, replenishing grain and oilseed supplies globally will require two growing seasons. And there is no relief in sight for natural gas supplies, ensuring power prices will remain high as well.

The remainder of 2022 will be far from ordinary, and particularly hard to forecast. The Fed's job will become harder and its influence greater. But the U.S. economy and rural sectors in particular are best positioned to navigate what comes next. ■



Topics In this Issue:

- Architecting an Economic Slowdown
- Market Volatility Whips Grain Prices
- Electricity Consumers Should Brace for Big Summer Bills



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



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Spotlight

SUPPLY CHAINS ARE STILL BROKEN, AND WILL BE FOR A WHILE



By Dan
Kowalski

Supply chain improvements have been much more modest than the headlines suggest. And there is no fast lane ahead.

Over the past quarter, we have been reading headlines about the easing of supply chain bottlenecks and overall improvements in U.S. logistics. However, we are less impressed with the progress made to date. While commodity prices have declined meaningfully and lineups at California ports have shortened, supply chains are broadly still mired in dysfunction.

The Logistics Managers' Index, as well as supply chain indices managed by the New York Federal Reserve and Oxford Economics, indicate supply chain performance has improved, both domestically and globally. But a closer look reveals that the improvement is the result of two developments: 1) fewer and faster export shipments from China due to COVID lockdowns there, and relatedly 2) slightly lower transportation price inflation. The latest data show that warehouse and inventory costs are still rising at near-peak levels, and transportation costs are still rising at a much higher rate than before the pandemic.

Agricultural supply chains reflect this marginal and inconsistent improvement as well. Grain rail car availability and prices were at multi-year lows and

highs, respectively, in Q2 and improved only recently (in July). But those recent savings in rail rates have been partially offset by a dramatic increase in fuel surcharges. Grain export vessel rates are also flirting with multi-year highs. And despite efforts to improve agriculture's access to vessels returning to Asia from California, the share of vessels leaving port empty was still 70% in Q1 (the latest available data). Truck rates have shown the most consistent decline, but are still far above pre-pandemic levels. Truck availability, however, is markedly improved.

We do expect that as consumer purchases of goods continues to soften, supply chains will slowly recover. If the oncoming recession in Europe is a harbinger of things to come in the U.S., the decline in demand for goods will accelerate, further enabling supply chains to heal. But labor constraints will continue to hamper the recovery either way, making the return to an efficient supply chain agonizingly slow. ■

Macro Economic Outlook

ARCHITECTING AN ECONOMIC SLOWDOWN



By Dan Kowalski

Despite financial markets' all-consuming focus on inflation, the U.S. economy continues to advance.

Labor markets are strong and consumers are still spending (although getting less for their money). Price inflation is still raging but a sag in commodity prices is raising hopes that when transmitted through wholesalers and retailers, those lower costs will be

passed on to consumers in the form of smaller price increases. For now, though, the Federal Reserve has the data it needs to move forward with a 75 basis point rate increase in July, and will be poised for another 50 or 75 point hike in September. The Fed is now singularly focused on price stability, and that is elevating the risk to economic growth.

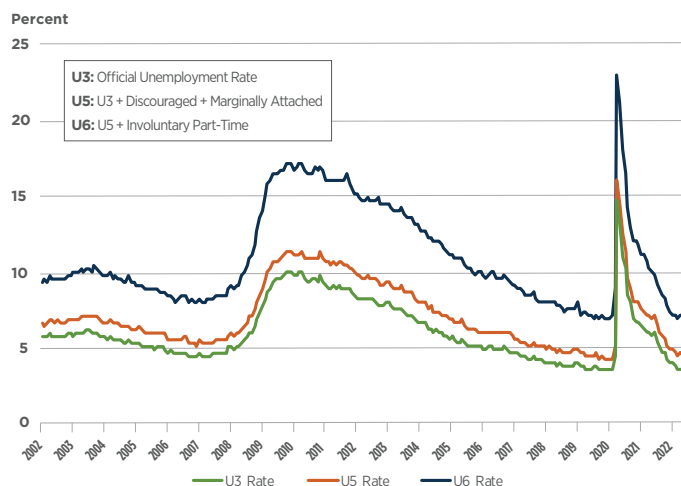
The drop in commodity prices and recent bond yield inversions are sending up red flags about slowing economic activity and a potential oncoming recession. And these concerns are validated by GDP estimates. Current data show that GDP growth was -1.5% in Q1, and the Atlanta Fed's Q2 estimate is currently at about -1%. If Q2 registers a negative number, claims that we are already in a recession will become louder. But many parts of the economy are still recovering well, and unemployment and underemployment statistics are back to pre-pandemic lows.

The relative outperformance of the U.S. economy and tightening monetary conditions have driven the value of the U.S. dollar to a

1 The U.S. economy continues to advance, but **commodity prices and bond yields are signaling recession warnings.**

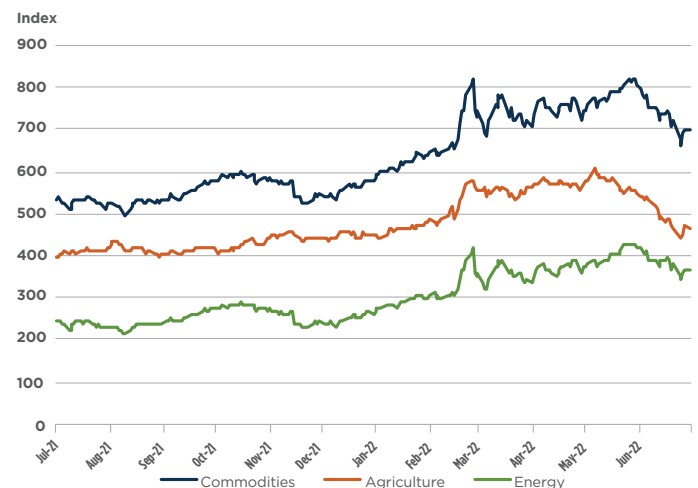
2 The risks of a policy mistake are becoming larger and the "softish" landing that the Fed desires will be a very difficult needle to thread.

EXHIBIT 1: Measures of U.S. Labor Utilization



Source: Federal Reserve Bank of St. Louis

EXHIBIT 2: S&P GSCI Commodity Price Indices



Source: S&P

20-year high. This makes imports cheaper, which should aid in the inflation fight, but hurts exports and U.S. businesses operating abroad. Benefits will flow to consumers but crimp several industries – and cause additional pain to developing economies.

As we predicted coming into 2022, this is shaping up to be the year of the Fed. And the risks of a policy mistake are becoming larger with each FOMC meeting. Chair Powell is hyper-focused on preventing a hyper-inflation cycle similar to the one experienced in the 1970s to 1980s. High inflation became embedded during that period as a result of inconsistent monetary policy and unwillingness to cause deep economic harm, that is until interest rates were finally raised to 20%. The Fed has extensively studied the mistakes made in the 1970s and Powell has vowed to prevent such a long-term inflation problem. What he cannot so easily determine is just how much economic braking to apply without causing the economy to come to a screeching halt. Monetary policy is not a perfect science and the “softish” landing that the Fed desires will be a very difficult needle to thread.

Most economists are now projecting a better than even chance that the U.S. will be in recession by mid-2023. We echo those projections, and while agriculture and energy are likely to continue performing well due to the Ukraine conflict, several other sectors will slow in coming months, just as the Fed intends. ■

3 The Fed has set the stage for a recession by mid-2023, though the agriculture and energy segments should fare well.

EXHIBIT 3: Quarterly Real GDP Growth, Annualized Rate



Source: Federal Reserve Bank of St. Louis

EXHIBIT 4: U.S. Dollar Index



Source: WSJ

Grains

MARKET VOLATILITY WHIPS GRAIN PRICES



By Kenneth
Scott Zuckerberg

As sentiment toward world growth prospects has abruptly turned bearish, investors reduced their long position exposure to commodities as an asset class – which in turn has sent wheat and corn futures sharply downward over the past month. Looking forward, however, we see a floor on grain and oilseed prices. We expect prices will rise in the second half of the year given the especially tight global supplies of wheat and soybeans in particular amid steady demand for food, feed, and fuel.

Commodity price volatility

Grain prices were again volatile in Q2 as markets continually assessed, reassessed, and reacted to the war in Ukraine, a smaller Brazilian soybean crop and ongoing dry conditions in the U.S. Wheat prices – using the July '22 futures contract as a benchmark – dropped a staggering 32% from their May peak level near \$13.00/bushel. One could argue that the initial rise in wheat prices overshot the reduction in global supply availability, however the opposite now appears to be the case on the selloff. In our view, global wheat markets will be supply constrained for at least two crop seasons due to the war, and given consistent demand (mainly from food-insecure countries in the Middle East and North Africa), prices should experience upside pressure.

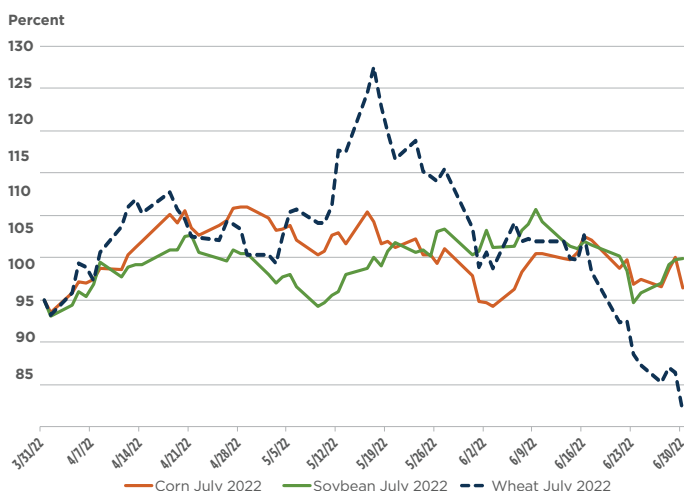
Planted acreage

Soybean planted acres fell 2.9%, according to the USDA's June 30 Acreage Report, with the largest declines occurring in North Dakota and Minnesota.

1 Grain prices remain volatile as markets reassess factors ranging from the war in Ukraine to drought in key growing regions.

2 Wheat has fallen below \$9.00/bu as investors have reduced commodity exposure amid a rapidly cooling global economy.

EXHIBIT 1: **Comparison of Corn, Soybean and Wheat Prices**



Source: Barchart.com as of 06-26-2022

EXHIBIT 2: **U.S. Planted Acreage**
Crop Years 2022-23 versus 2021-22

Millions of Acres	Corn	Soybeans	Wheat
Planted Acres 2021-22 Last Season	93.36	87.20	46.70
Planted Acres 2022-23 Estimated (USDA - 3/31/2022)	89.49	91.00	47.35
Planted Acres 2022-23 Estimated (USDA - 6/30/2022)	89.92	88.33	47.09
Percent Change from March Report	0.5%	-2.9%	-0.5%

Source: USDA

However, since excessive rainfall in the Northern Great Plains delayed planting at the time of the survey, USDA will re-survey both states as well as South Dakota in the coming weeks. Other notable domestic changes were a 0.5% increase in national corn acres and a 0.5% decrease in wheat acres.

Grain stocks

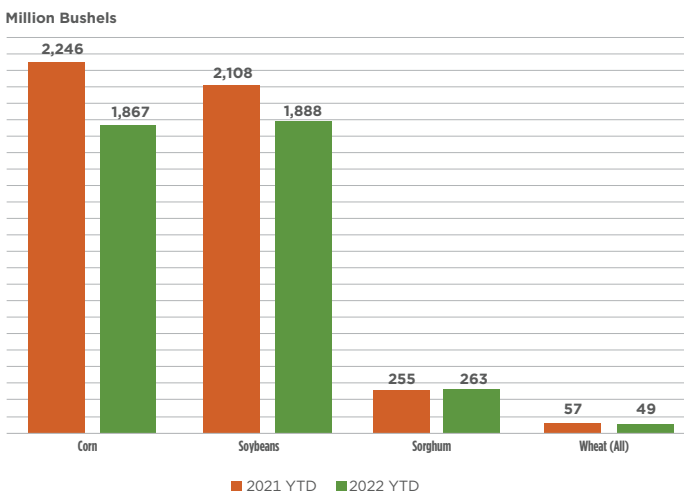
USDA's *Quarterly Ending Stocks* report showed modest changes to ending corn, soybean, and wheat stocks, however, that broad observation ignores a larger underlying story. Specifically, on-farm corn and soybean stocks increased by 22% and 17% YoY, respectively. That means farmers are holding onto old crop bushels in anticipation of higher prices in the future. This provides a key explanation as to why cash prices have spiked in certain locales where supplies appear available, but little grain is actually flowing. Corn basis levels in the Western Corn Belt are currently \$0.50-\$1.00/bu above five-year averages. That seems like a relative bargain compared to chronically grain-deficit California, where corn basis is well over \$2.00/bu.

La Niña and drought

The quarter saw alternative periods of modest rain, excessive rain, and volatile temperatures, but the bottom line is that dry conditions are ongoing across many of the key grain producing regions. Drought conditions have expanded in Illinois, Indiana, Kentucky, Tennessee, Missouri, and Iowa. During the month of June, corn acres in drought increased nationally from 19% to 23%, and soybean acres in drought increased 10% to 15%. An expected heat wave in early July could negatively impact crop yields, especially for corn during the critical July pollination period. ■

3 The strengthening dollar is providing stiff headwinds to export sales of corn and soybeans.

EXHIBIT 3: **Cumulative Grain Export Inspections YTD**
Current Marketing Year



Source: USDA

Farm Supply

CROP CONDITIONS OFF TO CHALLENGING START, BUT AHEAD OF 2021



By Kenneth
Scott Zuckerberg

Ag retailers powered through a somewhat challenging spring agronomy season, plagued by input cost inflation, mixed weather and planting delays, and producer cost-cutting efforts. Crop progress recovered from delayed plantings with beneficial rains and warm temperatures. Corn, soybean and spring wheat crops are outperforming progress compared to this time last year.

Fertilizer prices, which had gained 10%-15% YTD through May driven largely by fears of Russian/Black Sea supply and distribution disruptions, have pulled back recently in parallel with the normal lull in seasonal demand. However, prices will likely remain well above long-term averages for a few reasons:

- Underlying tight domestic fertilizer inventories;
- Strong demand from the U.S., Europe, Brazil, China, India, and Canada – all major grain-producing countries looking to boost yields to satisfy local and export demand; and
- Continued uncertainty related to the Russia/Ukraine conflict. Belarus is still under sanctions and Western buyers are hesitant about or have difficulty in navigating various financial sanctions with Russia.

Farm supply cooperatives and their grower members will face additional risks going into the fall agronomy season. First, Asian-made crop protection chemicals continue to be in short supply due to supply chain disruptions. Second, the Federal Reserve interest rate hikes mean that borrowing will be more costly. ■

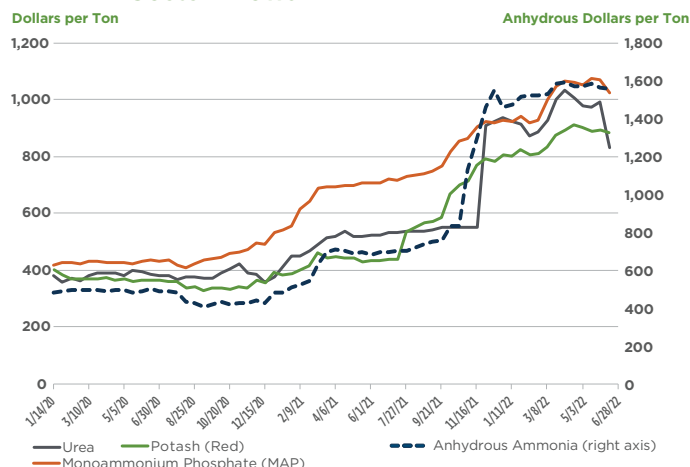
- 1** Mid-year crop ratings are better than a year ago but warm and dry conditions across most of the Corn Belt may limit yields.
- 2** Fertilizer prices began to ease in June after spiking to record levels on Black Sea supply fears. Iowa urea is now about 20% cheaper than in May.
- 3** Escalating input costs, labor shortages, and ongoing supply chain woes continue to weaken producer sentiment.

EXHIBIT 1: Crop Conditions -
Percent Rated Good to Excellent

Commodity	Year Ago	6/26/22	Variance
Corn	64%	67%	Better
Soybean	60%	65%	Better
Spring Wheat	20%	59%	Better
Winter Wheat	48%	30%	Worse

Source: USDA-NASS Weekly Crop Progress Report

EXHIBIT 2: Comparison of Major Granular Fertilizer
Costs in Iowa



Source: USDA-AMS

Biofuels

ETHANOL PROFITS, PRODUCTION REMAIN ROBUST AMID RECORD GAS PRICES



By Kenneth
Scott Zuckerberg

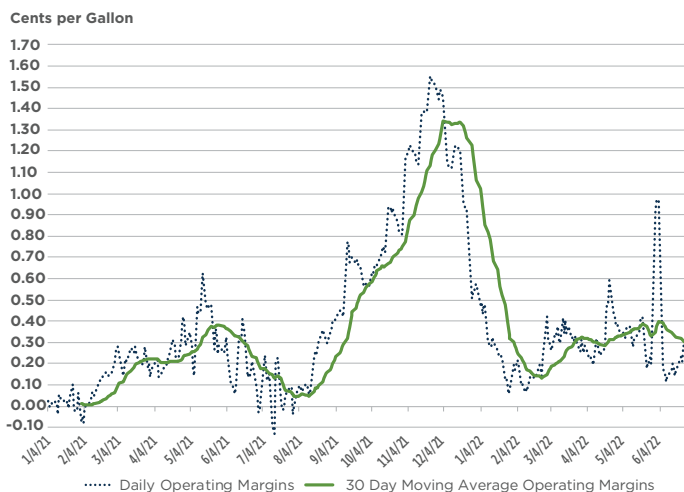
The ethanol complex delivered a very strong Q2 with few visible signs of demand destruction despite a spike in retail gasoline prices, rising inflation, aggressive Federal Reserve interest rate actions, a significant slowdown in the U.S. economy, and deteriorating consumer sentiment.

Production averaged 15.5 billion gallons annualized, slightly below the first quarter which saw the industry build record stocks ahead of the summer driving season. Interestingly, consumer gasoline demand remains stable versus last summer and in line with the five-year average, despite national gasoline prices rising to \$4.88/gallon compared to \$3.10/gallon a year ago. Average quarterly operating margins remained quite favorable at \$0.33/gallon, well above the five-year average of \$0.22/gallon.

Ethanol exports hit a four-year high of 185 million gallons in April, pushing the four month YTD growth 67% higher. Increased sales were diversified among several key trading partners, namely Canada, Brazil, Singapore, Netherlands, United Kingdom, and Peru. Export sales were lower to South Korea and India, while China has thus far been absent. U.S. exports of dried distillers grains (DDGS), an animal feed co-product of ethanol production, dropped by 12% during the month of April. YTD through April, DDGS exports have increased by 8%. ■

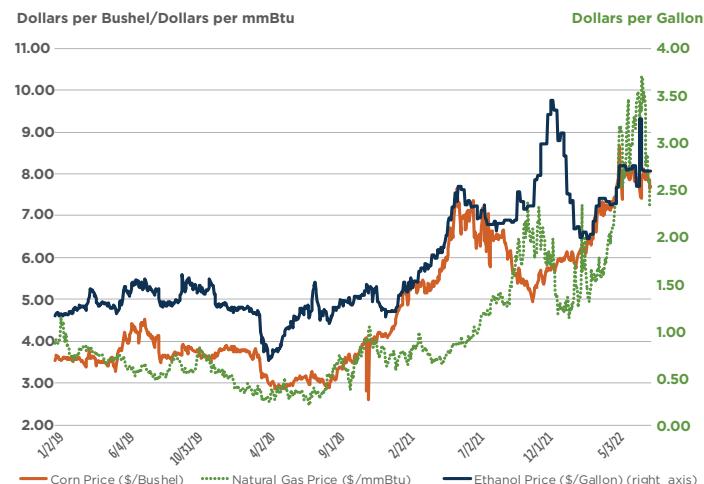
- 1 Q2 ethanol production averaged 15.5 billion gallons annualized, in line with five-year average levels. Record stocks continued to shrink as summer demand consumes excess supplies.
- 2 Margins remained very profitable at \$0.33/gallon driven by a 16% increase in ethanol fuel prices, which exceed input costs of corn and natural gas.
- 3 U.S. ethanol exports are surging, up 67% YTD through April while DDGS exports are positive but showing lower growth at +8%.

EXHIBIT 1: Representative Dry-Mill Fuel Ethanol Plant Operating Margins



Source: Iowa State University - Center for Agricultural and Rural Development (CARD)

EXHIBIT 2: Ethanol Fuel Prices vs. Corn and Natural Gas Costs



Source: Iowa State University - Center for Agricultural and Rural Development (CARD)

Animal Protein

LIMITED SUPPLY GROWTH AND STEADY DEMAND BOLSTER MEAT PRICES



By Brian Earnest

Though the animal protein sector faces a number of ongoing challenges, producers transitioned to the first “post-COVID” summer grilling season with blazing success.

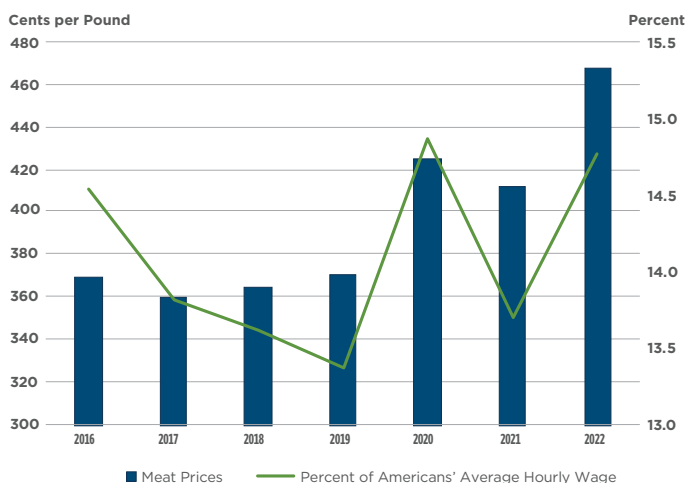
Inflation will continue to be the top challenge to ongoing strong sales at the retail meat case. Retail meat and poultry prices were 18% higher in May YoY and both spot market supplies and freezer inventories are below pre-pandemic levels. The combination of tight supplies and solid demand kept meat prices 20% higher than the five-year average for the March-May period.

Over the past two years, investors have been drawn to both primary and further processing facilities based on a combination of maxed out processing capacity, strong consumer demand, and healthy profit margins. Yet, challenges abound. Participants continue to cite limited labor availability, higher construction costs, new regulatory impediments, animal diseases, and elevated borrowing costs as some of the new hurdles to expanding production. Now a rapidly slowing economy presents another unknown for producers.

1 As COVID’s impact on food spending wanes, inflation is now the key risk to meat and poultry consumption.

2 When producers have stronger balance sheets, they usually expand capacity. Recession fears and higher input costs and interest rates are limiting that.

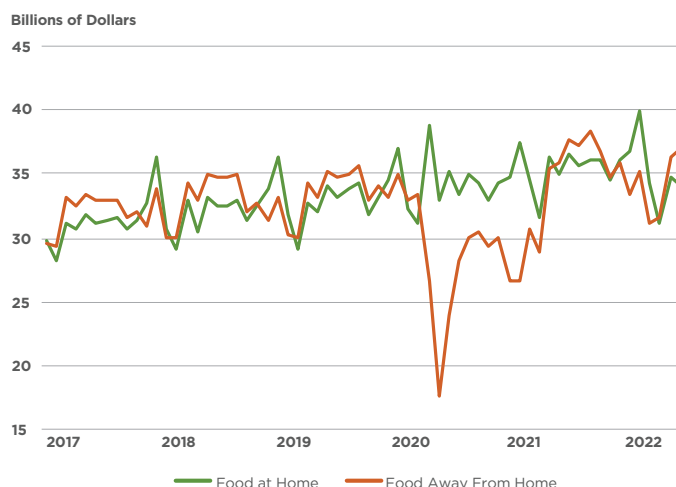
EXHIBIT 1: Combined Retail Meat Price March-May



Source: USDA, Federal Reserve Economic Data

EXHIBIT 2: Constant Dollar Food Sales

Monthly Sales of Food, With Taxes and Tips, For All Purchasers



Source: USDA-ERS

Note: Based on 1988 CPI=100, normalized at 1988 currency levels

Poultry

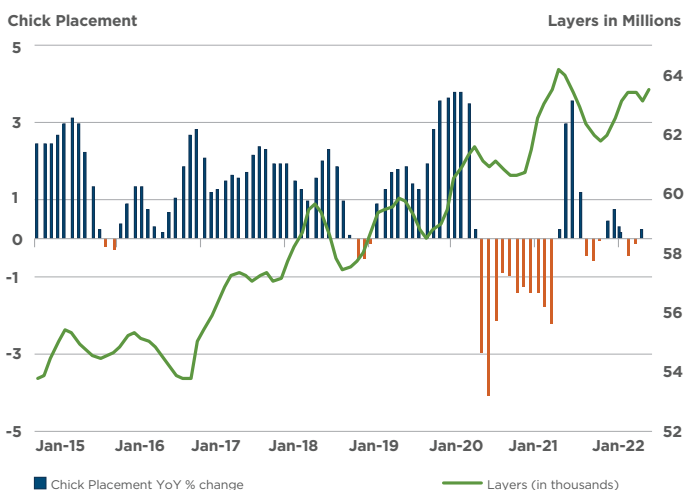
Broiler meat production is expected to be flat to lower for 2022 compared to a year ago. Despite restrained supply growth, domestic chicken consumption is expected to remain near all-time highs. Broiler egg layer productivity appears to be improving, yet the total layer flock is showing moderate contraction, and was down 2% YoY in USDA's most recent *Chickens and Eggs* report, suggesting the industry is having difficulty maintaining an adequate flock of layers.

Market conditions are conducive to at least moderate broiler production growth, but expansion has been hindered by access to adequate inputs. That said, the further processed segment remains an attractive space for incremental expansion, which should keep wholesale breast meat prices at the top end of the historical range. Broiler operators, especially in the large or jumbo segment, will eventually put their stronger balance sheets toward strategic investments when the time is right.

Both turkey and egg markets have been roiled by supply limitations related to Highly Pathogenic Avian Influenza (HPAI) in the most recent quarter. Egg prices skyrocketed, as henhouses were depopulated ahead of Easter and fresh tom breast meat eclipsed the \$6.00/lb. threshold, previously considered unattainable. Spot market prices are expected to remain elevated through the remainder of 2022. While higher prices would normally incentivize a rapid recovery, producers are juggling other considerations such as corporate commitments to cage-free use by 2025 and a longer-term contraction in turkey production.

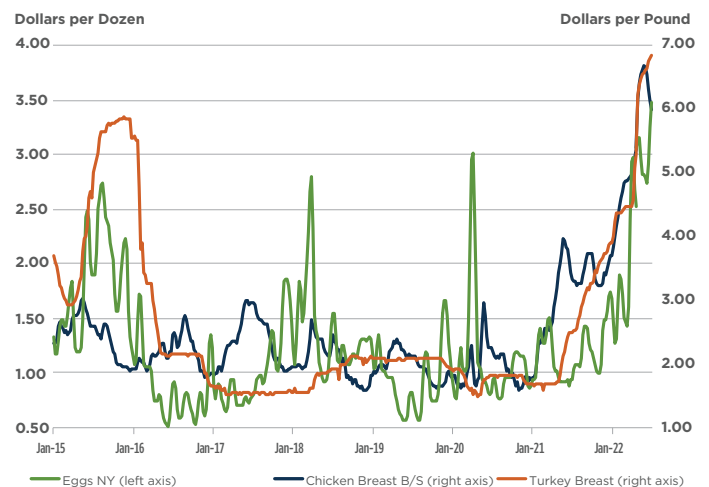
- 1 The loss of roughly 40 million commercial birds to HPAI is roiling turkey, egg and (to a lesser degree) broiler markets.
- 2 Hot weather, tight supplies, and a potential consumer shift away from higher-priced beef cuts all suggest chicken prices will remain strong throughout 2022.

EXHIBIT 3: Broiler-Type Hatchery Layer and Chick Supply



Source: USDA-NASS

EXHIBIT 4: Poultry Prices



Source: USDA

Beef

Despite some timely rain in portions of the High Plains, much of the densest cattle-producing regions continue to suffer into a second year of brutal drought. Poor grazing and forage conditions and high hay prices have been especially taxing on cow-calf operators, as have higher input costs across the board. This has resulted in persistently elevated cow slaughter rates. So, despite historically strong cattle prices, beef cow slaughter was 16% higher YoY during May and up 18% from the five-year average.

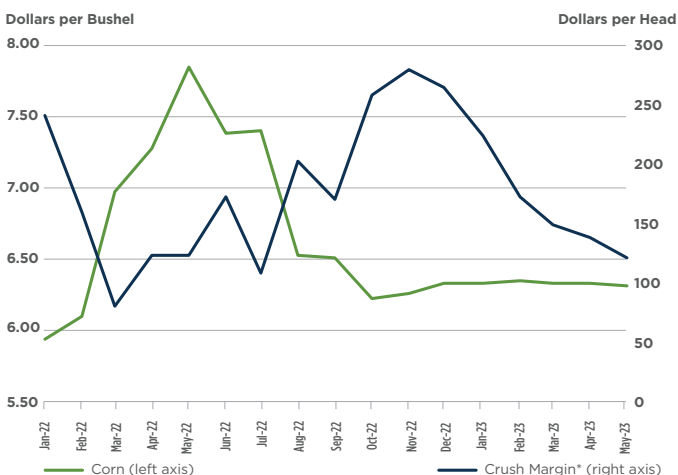
Beef prices continue to benefit from strong demand both from domestic and foreign markets, even though prices followed the typical seasonal trend lower in recent weeks. Total beef slaughter was up 2% YoY for the first five months of 2022, and exports to key destinations such as Korea (up 4.6% YoY through May), Japan (up 8% YoY in May) and China (up 42% YTD), have contributed to market optimism. A surge of lean trim beef imports has assisted in keeping ground beef prices in check.

After making a strong run to end 2021, fed cattle prices have largely flattened in recent months. However, cost of gain for feedlot operators have risen considerably, further complicating operational efficiencies. We expect this will continue through the fall period. Although packer margins have compressed considerably over the last 12 months, they remain elevated from a historical perspective.

As a result of elevated packer margins and depressed cattle prices, interest in expanding capacity is swelling at a time when upstream cattle economics are under severe pressure. Over the next 12-18 months, declining cattle supplies are expected to converge with excess capacity, which should contribute to more favorable conditions for producers.

- 1 Beef cow culling remains elevated as cattle ranchers and feeders grapple with poor pasture conditions and higher corn and hay prices.
- 2 Higher cattle prices and the limited beef cutout rally in May meant packer margins have narrowed YoY, but remain strong at \$300/head.

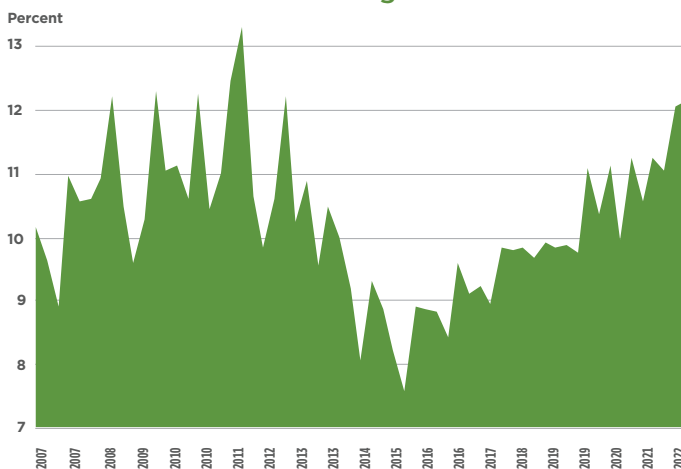
EXHIBIT 5: Cattle Crush Margins



Source: Iowa State University

*Crush Margin is the return remaining after accounting for the feeder steer and corn that is used to cover the other more constant expenses. These are forecasted figures based on June 28, 2022 CME quotes.

EXHIBIT 6: Beef Cows Slaughtered as a Percent of Total Cattle Slaughter



Source: USDA-NASS

Pork

Compared to other animal protein segments, pork industry dynamics have been fairly uneventful in recent months. While prices for many of the main pork categories, such as hams, butts, and loins have appreciated in line with expectations, the strong upward rallies witnessed in 2021 have yet to emerge. That said, the wholesale pork cutout price remains well supported, and is averaging 30% above January through June of last year.

In the most recent quarterly *Hogs and Pigs* report, USDA estimated June 1 total hog supplies at 72.5 million head, a 1% decline from a year ago. These estimates were largely in line with analyst expectations and the lowest June total since 2018. Of note, the breeding portion of inventory total contracted 0.8% versus last year. Since June 2019, the breeding herd has dropped 2.8%.

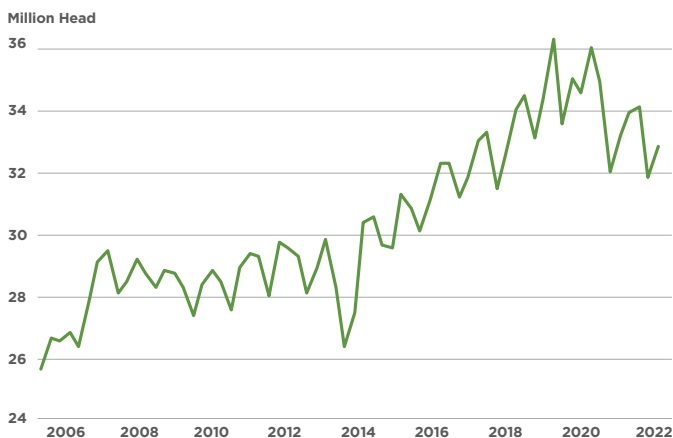
Mortality rates have moved higher this year, which producers are attributing to Porcine Reproductive and Respiratory Syndrome (PRRS), an endemic viral pig disease affecting fertility and rate of gain. PRRS is becoming more difficult to eradicate from sow barns through traditional methods (depopulating, sanitizing, and repopulating). Between PRRS, a declining breeding inventory, and high feed costs, market hog supplies should be tight well into 2023.

After several years of successful growth, U.S. pork exports contracted in 2022. U.S. pork exports to all destinations totaled just under 530 million pounds during April, which was down 19% YoY (but roughly in line with the five-year average for the period). China's share has decreased significantly this year, with U.S. exports to the destination falling from over 160 million pounds per month last year to only about 40 million pounds per month in 2022. ■

1 Pork producers remain challenged on several fronts, from animal disease to higher input costs, domestic regulations, and shifting export markets.

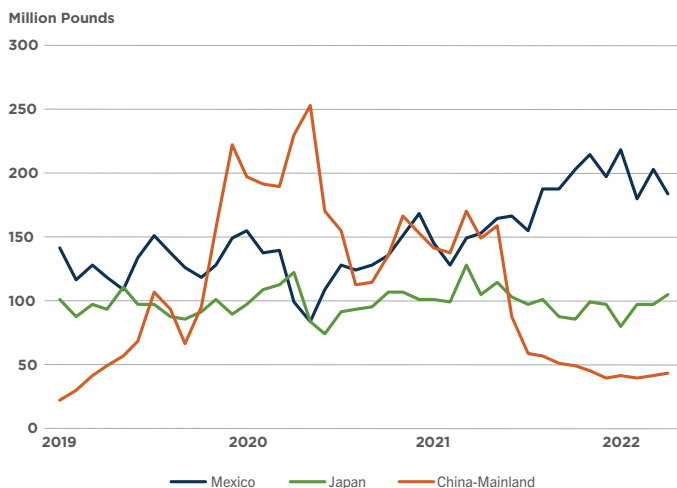
2 However, pork prices remain well supported, and the wholesale cutout enjoyed a 30% premium to the five-year January-June average.

EXHIBIT 7: U.S. Pig Crop



Source: USDA

EXHIBIT 8: U.S. Pork Export Volume



Source: USDA-ERS

Dairy

CHEESE INVENTORIES REACH RECORD HIGH DESPITE STRONG EXPORTS, TIGHT MILK SUPPLIES



By Tanner Ehmke

Production

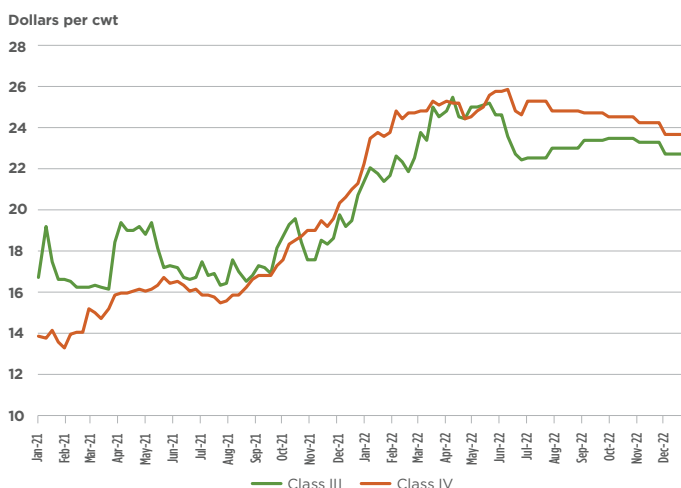
Milk collections in the U.S. remained tight last quarter with record high milk prices prompting only a minimal expansion in the U.S. dairy herd. U.S. milk production in May was 0.7% lower YoY despite the cow herd increasing by 2,000 head from April. Totaling 9.4 million head, the U.S. milk cow herd is still short 102,000 head versus a year ago. Record high feed costs, extremely tight heifer inventories, and high construction costs continue to limit expansion potential.

Although feed costs eased at the end of the quarter, only incremental increases in cow numbers and milk collections are expected for the remainder of 2022. Expansions have thus far been limited to states like Texas and South Dakota in the central U.S. where dairies typically grow their own crops and have more control over feed costs. Profitability has been strong for dairy operations that secured feed early or hedged feed prices early on. New dairy barn construction is underway in some regions, notably in areas where plant expansions have been announced.

Globally, milk supplies remain constrained with Europe and Oceania struggling with inclement weather, high feed prices, and regulatory pressures to reduce greenhouse gas emissions. Combined milk production in the EU and UK in April was down 0.9% YoY, while New Zealand production was down a whopping 5.6% YoY. Ongoing cost and regulatory pressures are expected to limit milk production growth for the remainder of 2022, tightening the world dairy product balance sheet and sending more export business to the U.S. for cheese, whey, yogurt, non-fat dry milk/skim milk powder (NFDM/SMP), and other dairy products.

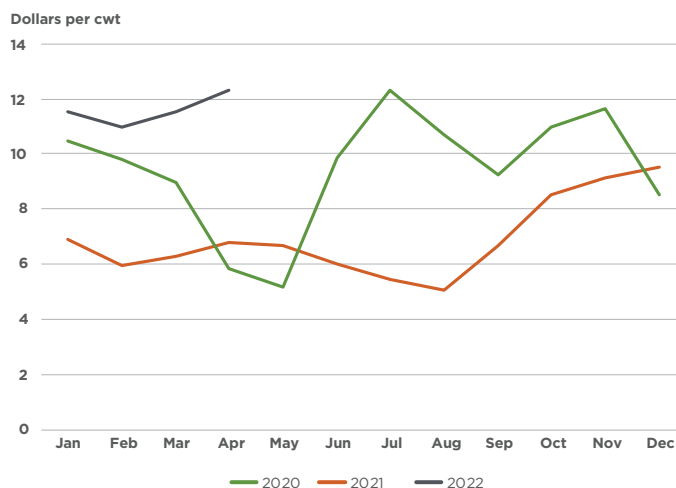
- 1 Record high feed costs are limiting dairy herd expansion in the U.S., Europe, and Oceania.
- 2 U.S. dairy producers who have managed to control feed costs are incrementally expanding their herds.

EXHIBIT 1: Class III and IV Milk Futures Curve



Source: CME Group; Barchart.com

EXHIBIT 2: Milk Margin Above Feed Costs



Source: USDA-FSA Dairy Margin Coverage Program

Processing

Milk continued to flow to cheese vats despite tight milk supplies last quarter with cheese manufacturers building inventories to record levels. Cheese production at the start of the quarter also continued its push to new record highs. But in a concerning sign of consumers responding to high food prices, American cheese disappearance fell 10% YoY in April, while demand for other cheeses inched up only 0.6% YoY. Retailers note consumers are also switching to lower priced and private label cheeses to save on cost.

The sharp slowdown in domestic cheese demand coupled with rising production pushed U.S. cheese inventories to new record highs, especially with American style cheeses. Total cheese stocks were 1.5 billion, surging 31 million lbs from the previous month. U.S. butter inventories, though, continue to remain tight. High prices and strong demand for U.S. milkfat from both domestic and international sources pulled butter out of storage.

Although U.S. cheese and butter exports have posted an impressive pace, inflation-wary consumers are trimming food budgets. This has raised concerns that ample cheese inventories could last through the remainder of 2022 and depress prices. Hopefully, the strong export pace in recent weeks will continue, offsetting slower domestic offtake and providing a relief valve for bulging inventories, counterbalancing losses in domestic demand.

With strict COVID lockdowns in China relaxing, expect a bounce back in demand there. Central to the cheese export story is Mexico, with the U.S. supplying 79% of Mexico's total imports as of 2021. While Mexican imports of U.S. cheese continually mark record highs, concern is growing of lower-to-middle income consumers in Mexico paring back consumption in the face of rising food costs. ■

3 U.S. cheese stocks continued ascending to new record highs, but remain in proportion to growing domestic consumption and exports.

4 U.S. cheese and butter is still priced below global competitors, hinting at continuing strong exports in the months ahead.

EXHIBIT 3: U.S. Cheese Stocks

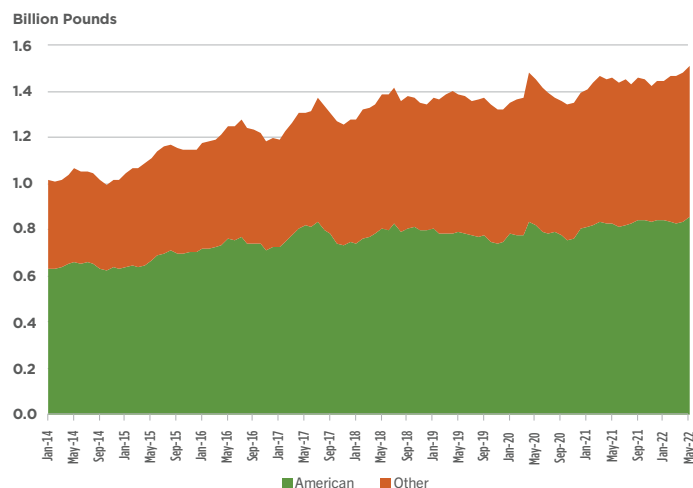
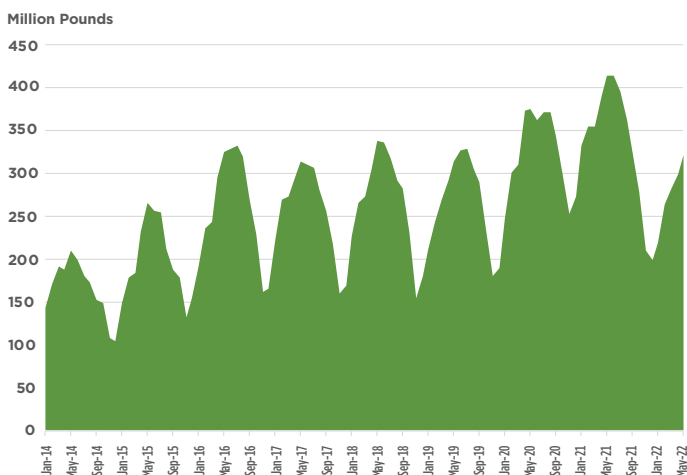


EXHIBIT 4: U.S. Butter Stocks



Cotton, Rice and Sugar

COTTON DEMAND WORRIES MAY BE PREMATURE; RICE IMPORTS ON RECORD PACE



By Rob Fox



By Tanner Ehmke

Cotton

Fears that the rapidly decelerating global economy and declining real income levels will crush global cotton demand has led December 2022 cotton futures to plummet 35% from their mid-May highs. New crop prices are now in the \$0.90/lb range, which is good by historic standards but today that doesn't even cover the cost of production for many farmers.

However, we believe fears of plunging cotton demand may be overblown. First, most economists are forecasting 2022 global GDP to be lower than in 2021, but still grow by 2%-3%. Over the past 50 years when global GDP was 2.9% or better, YoY global cotton consumption has declined only once (in 2004).

Second, consumer behavior is shifting. While it is tough to gauge global demand for clothing, U.S. consumer fashion preferences typically mirror global trends. With COVID

lockdowns lifted, Americans are finally leaving their homes, taking vacations, going to restaurants and entertainment venues, and slowly returning to offices – all of which require new clothes.

Through April, 2022 retail clothing store sales jumped 15% from a year ago, far outpacing the 5.8% increase in clothing prices over the same period. Retailers are still rebuilding inventories: Clothing imports, which account for most clothing sold in the U.S., are also up 34% from a year ago through April. And perhaps the best news of all for cotton growers is that the share of cotton fiber used in apparel has rebounded after more than a decade of decline as trends may finally be moving away from “athleisure” wear and back to natural fibers. Levi's recently reported that along with strong overall sales growth and profitability, its first quarter denim sales were 11% above 2019 levels. Given these factors, we believe global cotton demand in the coming year will be stronger than many people expect.

Rice

As the global economic outlook has deteriorated, commodity prices have declined across the board in the past month. However, rice prices have held up better than most, losing only about 5% since early June. U.S. rice prices marked a new record high in Q1, up 43% YoY,

- 1 Despite a slowing economy, **global cotton demand is expected to remain firm.**
- 2 **U.S. rice imports are hitting record highs** on tight supplies, strong dollar, and global surpluses.

EXHIBIT 1: Cotton Share of U.S. Apparel Sales



Source: Compiled from reports by the U.S. Department of Commerce, Bureau of the Census.

with the momentum carrying over into Q2. April rice imports were the second highest on record for the month, with combined imports YTD more than double the average pace over the past decade. Jasmine and basmati combined account for 58% of the imports with medium grain rice accounting for 20%. The strong U.S. dollar and weak currencies among major exporters Thailand, Vietnam, and Pakistan have stimulated the record import pace. This comes as U.S. rice inventories are tight following last year's smaller harvest. With 2022 U.S. all-rice acreage falling once again per the *June Acreage Report* and USDA projecting higher rice production globally in 2022, another year of strong rice imports is ahead. However, rising Asian prices and the risk of export bans across Asia may put the brakes on imports and lift U.S. prices further.

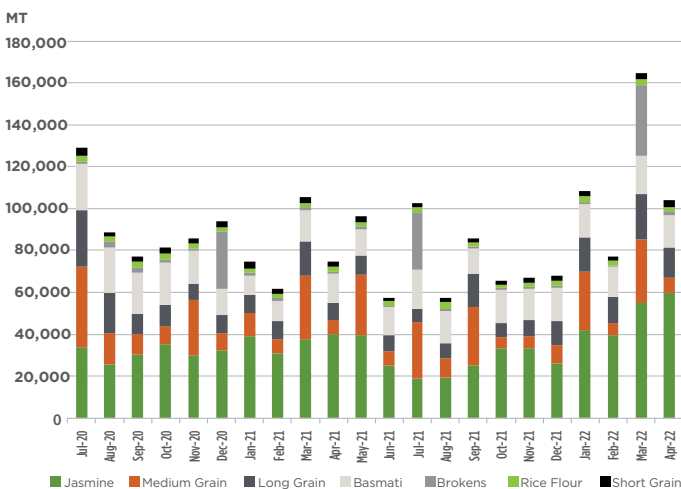
Sugar

The national sugarbeet crop was planted about three weeks behind schedule, according to USDA's *Crop Progress Report*. As a result, the department lowered its monthly 2022-23 fiscal year beet sugar production estimate 4% to 4.8MM STRV. If that proves accurate, it would be roughly 7% below FY 2021-22 level. Harvested sugarcane acreage is forecast to be flat in FY 2022-23. Given the recent history of stable-to-slightly increasing sugar consumption, we expect increased imports may need to fill the supply gap. However, the market will have to wait for USDA to announce the in-quota tariff for the coming year.

Per USDA ERS's *Weekly Retail Food Sales*, categories important to the sweetener segment are showing some weakness YoY: January through April unit soft drink sales were down 4.3%, cookies and candy down 2.1%, and refined sugar down 4.6%. This year's lower numbers are largely attributable to last year's unusually high grocery sales during the omicron peak. ■

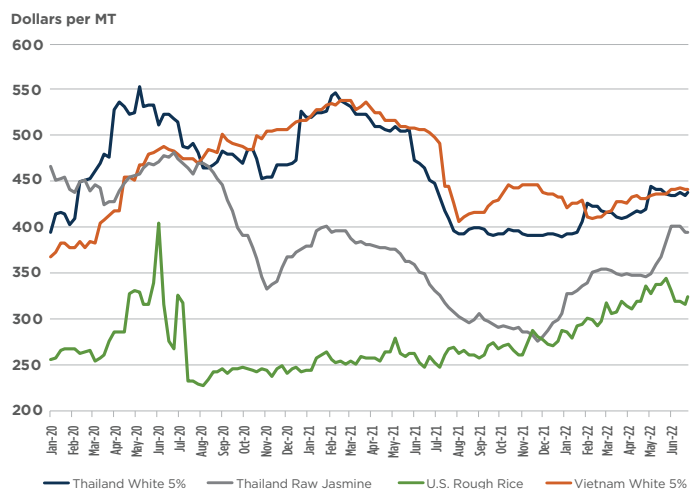
3 Sugar exports will likely need to increase in 2022-23 after a late sugarbeet crop planting.

EXHIBIT 2: U.S. Rice Imports



Source: USDA-FAS

EXHIBIT 3: World Rice Prices



Source: Bloomberg; CoBank ACB

Specialty Crops

ALMOND EXPORTS REBOUND AS CONTAINER PRICES FALL AND PORT LOGISTICS EASE



By Tanner Ehmke

Tree nuts

After struggling with sluggish shipping in Q1, tree nut exports spiked higher last quarter once port congestion eased and shipping container rates fell. Almond, walnut, and pistachio exports in April charted a record high for the month and the momentum carried into May, according to position reports.

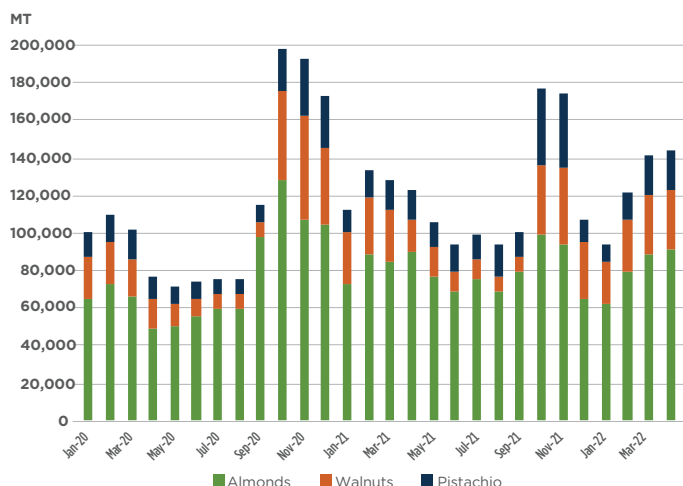
Exports to the Middle East and Western Europe were especially strong. Growers are hoping that China contributes to the renewed shipping pace with relaxed Covid-19 restrictions, as consumers stuck at home resulted in a sharp contraction in consumption.

Eased logistical constraints at ports and softened prices of shipping containers helped invigorate the pace of shipping. The cost of a shipping container from the U.S. West Coast to East Asia fell nearly 20% from April through June, according to Freightos data. The number of container ships waiting to unload at the Port of Los Angeles also fell 45%, according to the Marine Exchange of Southern California. The anticipated faster shipping pace through Q3 is expected to draw down ample tree nut inventories ahead of the new crop harvest. Without a faster shipping pace, significant volumes of tree nuts will likely be carried over into the new crop year with warehouse space already tight.

1 After being held back by supply chain issues and a severe shortage of shipping containers, **tree nut exports have rebounded to record highs.**

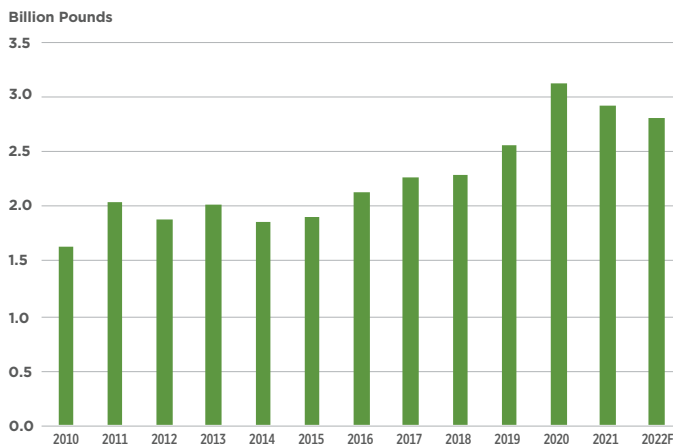
2 U.S. almond production is expected to fall 4% YoY due to poor weather during the growing season, even though bearing acreage increased.

EXHIBIT 1: U.S. Tree Nut Exports



Source: USDA-FAS

EXHIBIT 2: California Almond Production



Source: USDA-NASS

California's 2022 almond harvest is expected to drop by 4% compared to 2021 despite record large bearing acreage, according to USDA's subjective report in May. Total production is forecast at 2.8 billion pounds, with yields falling 8% YoY to 2,040 lbs/acre due largely to frost damage to blooms during pollination. The almond industry is concerned about the quality of this year's harvest due to water shortages and cutbacks to weed and insect control by growers as they are squeezed by rising production costs and low nut prices.

Fruits and Vegetables

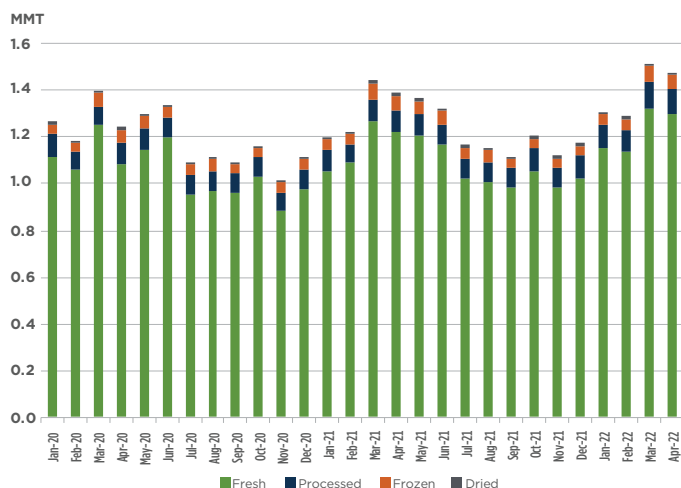
Fruit and vegetable imports also notched a new record high last quarter when imports seasonally peak, benefiting from loosening of logistical bottlenecks and falling freight prices. Refrigerated truck rates fell from \$3.41/mile in March to \$3.03/mile in June, which was slightly below year-ago levels according to DAT Freight & Analytics.

The hastened import pace comes amid record high produce prices following three years of ongoing drought in the Western U.S. Numerous crops ranging from canning tomatoes to onions, garlic, alfalfa, and pima cotton are capturing record high prices in the battle for scarce water. As groundwater sustainability plans for critically over-drafted basins come into effect and as state and federal water restrictions limit allocations amid record drought, increased fallowed acreage is likely to result. With retail prices of fruit and vegetables rising while growers struggle to maintain production, imports are likely to fill the gap in the months ahead. ■

3 Prices for specialty crops from onions to tomatoes have been driven to record highs by persistent drought conditions across the Western U.S.

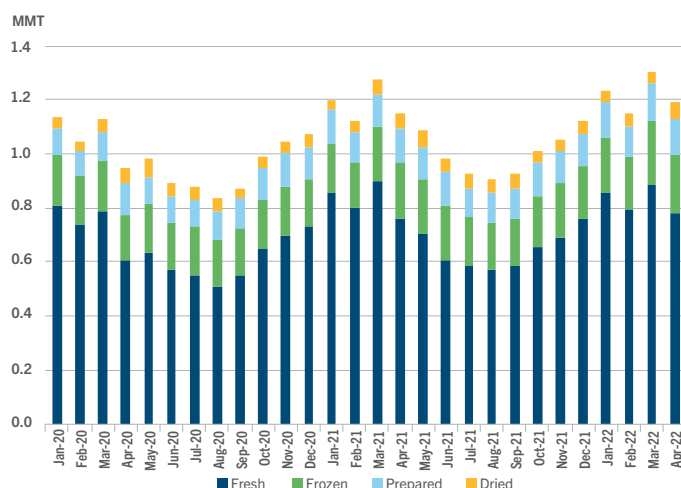
4 Fruit and vegetable imports reached record highs last quarter, boosted by a stronger U.S. dollar, high food prices, and U.S. drought issues.

EXHIBIT 3: U.S. Fruit Imports



Source: USDA-FAS

EXHIBIT 4: U.S. Vegetable Imports



Source: USDA-FAS

Power, Energy and Water

ELECTRICITY CONSUMERS SHOULD BRACE FOR BIG SUMMER BILLS



By Teri Viswanath

Rising fuel prices historically don't end up being inflationary, but this time it's different. Rising electricity bills are also contributing to the squeeze on household budgets this year and may ultimately prove just as sticky as higher gasoline prices.¹

While most consumers have already seen an increase in their monthly utility statements, an additional bump appears to be coming, as sky-high wholesale prices ultimately filter down into retail rates. Retail electricity prices are generally less volatile than wholesale electricity prices (due to the effects of contracts, rate regulation, etc.) but they ultimately trend in the same direction based on the cost of fuels for generating electricity. Consequently, steeply rising natural gas and coal prices² have prompted EIA to call for sharply higher summer wholesale electricity prices across the board, with some areas of the country likely to witness a three-fold increase.

In New England (ISO-NE), for example, power prices are anticipated to rise the fastest, tripling to an average \$153 per megawatthour (MWh) compared to just \$50/MWh last summer. The rest of the Northeast region (NYISO and PJM) will fare only modestly better, remaining elevated above \$100/MWh from June to August.³ Even the Southeast and Midwest (SERC and MISO) regions of the country, with greater gas to coal fuel-switching capabilities, will not be insulated from higher prices this summer as both fuels remain in tight supply.

1 Rising electricity bills will be **one more factor squeezing household budgets this year.**

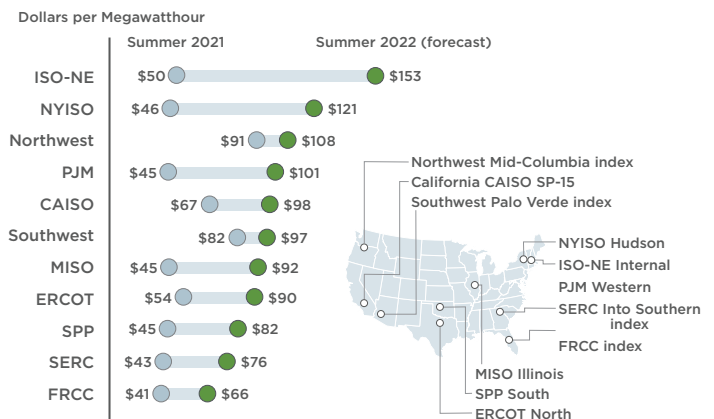
2 Steeply rising natural gas and coal prices could triple the price of wholesale electricity this summer, driving up electricity bills for consumers.

EXHIBIT 1: Electricity Supply Regions



Source: U.S. Energy Information Administration

EXHIBIT 2: Summer Average Wholesale Electricity Prices
Selected Price Hubs (Jun-Aug, 2021-2022)



Source: U.S. Energy Information Administration

Note: Wholesale electricity price data represent monthly average locational marginal prices during on-peak hours (Monday–Friday, 7:00 a.m.–10:00 p.m.).

Last summer, U.S. residential power prices rose at their fastest rate since 2008, increasing 4.3% or from \$0.132/kWh in 2020 to \$0.138/kWh in 2021. This summer, the average U.S. household will pay \$0.144/kWh, representing another 3.9% increase in billing rates. However, electricity prices charged by specific distribution companies will vary widely, ranging from an outlier decrease of about 5% in the West North Central region to a 16% increase in New England. Nevertheless, most consumers should brace for a sizeable increase this year, given the longer term national trend, reflecting a steady increase over the past five years.

What's more, don't expect the price of electricity to drop anytime soon. Even as fuel prices begin to moderate, the need to upgrade and repair the grid against natural disasters will likely keep residential costs higher for longer. Unfortunately, high energy costs have a cascading effect, feeding inflation and hampering economic growth. ■

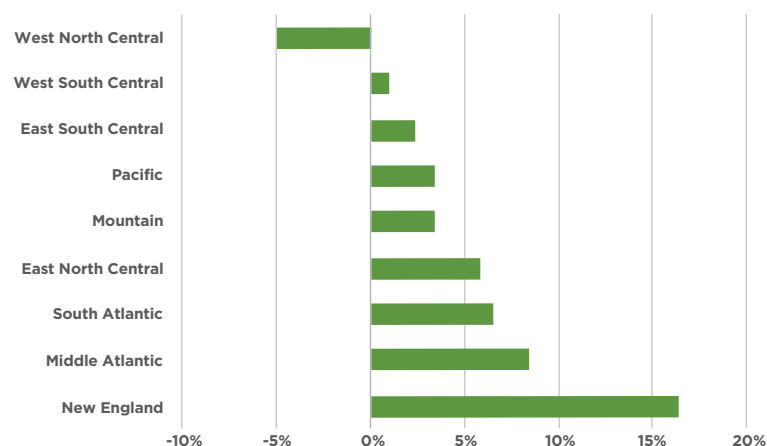
3 Even when fuel prices moderate, the need to upgrade and repair the grid will likely keep residential electricity costs higher for longer.

¹ Consumers face years of high energy prices, Big Oil CEOs warn. Reuters. Feb. 9, 2022. <https://www.reuters.com/business/energy/consumers-face-years-high-energy-prices-big-oil-ceos-warn-2022-02-09/>

² Various factors determine wholesale electricity prices, but the cost of fuel for fossil-fuel generators is an important driver. These spikes are mostly driven by natural gas prices, which averaged \$8.14/MMBtu in May 2022 compared with \$2.91/MMBtu a year earlier.

³ By comparison, the situation in Europe is far graver as uncertainty over energy supply grips the market. Germany is facing risks to obtain enough natural gas to fuel power stations during the heating season, with France's nuclear reactors hobbled by delayed maintenance and outages. A Bloomberg reporter recently tweeted that France Dec22 baseload power is flirting with the €1,000 per MWh level.

EXHIBIT 3: Summer Residential Electricity Rates
YoY Change (2021 to 2022)



Source: U.S. Energy Information Administration

Communications

INVESTORS FLOUT SKEPTICS AND POUR MONEY INTO THE CLOUD



By Jeff
Johnston

Investor interest in the data center market is showing no signs of slowing down. DigitalBridge, a global-scale digital infrastructure investor, announced plans to acquire data center operator Switch for \$11 billion (\$34.25 per share). The acquisition price represented a 15% premium to the previous day's close and the deal is valued at roughly 25 times EBITDA. This announcement comes on the heels of several other colocation data center deals, namely:

- KKR and GIP's \$15 billion acquisition of CyrusOne
- American Tower's \$10 billion CoreSite acquisition
- Blackstone's \$10 billion QTS acquisition

Despite investors' insatiable demand for data center assets, noted short seller Jim Chanos is betting against them, raising hundreds of millions of dollars for a fund that will take short positions in U.S. listed brick-and-mortar legacy data center REITs. Central to his short thesis is a belief that hyperscale cloud providers (AWS, Google Cloud, Azure) are dominating the market driven by a (mass) migration from colocation data centers to the cloud. And secondly, hyperscalers are going to increasingly build their own data centers, thus becoming less reliant on third party providers.

We've seen this movie before and doubt it has much merit.

The reality is enterprises are adopting a hybrid cloud approach (combination of on premise, colocation, and cloud) for a variety of reasons including legal, regulatory, cost, latency requirements, etc. Additionally, inflation costs and capacity constraints are actually increasing the demand for third party data center capacity. Lastly, the interconnection capability of third-party data centers makes transporting data much more efficient than building to dozens of separate cloud players' remote locations.

We see this risk as being overblown and instead side with the approximately \$40 billion of private institutional money that has been invested in the colocation data center market over the last 12 months. ■

1 DigitalBridge plans to acquire Switch for \$11 billion, marking the fourth major data center acquisition in the last year.

2 Despite high investor interest, noted short seller Jim Chanos is raising hundreds of millions of dollars for a fund that will take short positions in data center operators

3 The reality is enterprises are adopting a hybrid cloud approach (combination of on premise, colocation, and cloud) for a variety of reasons.



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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