

CustomIQ Research

Inflation & Commodity Trends

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What's in this Report

This report contains information on twelve primary commodities. Information provided for these commodities include forecast growth rates, the impact of these primary commodities on secondary commodities, substitutes for primary commodities as well as both upstream and downstream supply chain analysis for each primary commodity.

Executive Summary

- Commodities are currently being impacted by several factors, including surging global inflation, rapidly changing demand trends and the ongoing conflict between Russia and Ukraine, which has resulted in comprehensive sanctions against many major Russian industries.
- Reactions to these events are not uniform across commodities, however. For example, aluminum, chlorine, corn and crude oil are all expected to continue increasing in price in the short term, while commodities such as lumber are expected to see drastic declines in price in the near future.
- As primary commodities are experiencing a highly volatile environment due to current global events, second commodities are subsequently being impacted. As the supply of primary commodities continues to be disrupted, extended lead times and limited availability for many secondary commodities are expected to negatively impact buyers.



Commodity Analysis

1. Aluminum

Forecast CAGRs:

- 6 Month: 2.6%
- 1 Year: 2.2%
- 2 Year: 1.4%
- 3 Year: -0.8%

Analysis: The price of aluminum is expected to increase and continue to tread close to record highs as supply continues to be disrupted as a result of the ongoing Russia-Ukraine war. However, price growth is expected to slow and ultimately begin declining as global aluminum markets adjust to this supply shock.

Secondary Commodities:

- Cameras/Cell Phones/Computers/Copiers
 - Aluminum is used in printed circuit boards, computer chips and other structural or body components of technology such as cameras, cell phones and computers. As aluminum prices continue to near record highs and exhibit high levels of volatility, these products may face upward pressure on market prices. Lead times may also be extended for some of these products.
- Canned Goods
 - Canned goods and beverage manufacturers are experiencing significant increases in prices currently, with some suppliers reporting nearly 25.0% increases in the price of cans due to widespread aluminum supply shortages.
- Vehicle/Vehicle Parts
 - Vehicle and auto part manufacturers are expecting declines in manufacturing capabilities due to shortages of aluminum. Major automobile manufacturers are slashing estimates of productive capacities for 2022. Lead times for vehicles and related part manufacturing are also expected to increase, as suppliers are forced to wait longer for shipments to arrive.

Substitute Commodities:

- Magnesium Alloys

Upstream Supply Chain:

- Alumina Producers & Processors
 - Bauxite Miners
- Mining Equipment Manufacturers

Analysis: The upstream supply chain for aluminum consists of raw material suppliers that mine bauxite, process it into alumina and deliver it to aluminum manufacturers. Recently, there has been bauxite shortages due to conflict in Guinea, a major supplier of this component.

Downstream Supply Chain:

- Car & Automobile Manufacturers
- Metal Can & Container Manufacturers

Analysis: The downstream supply chain for aluminum consists of final products and solutions engineered and built from aluminum. Major downstream players include aircraft and automobile part and equipment manufacturers, as well as canned goods and beverage suppliers.





2. Crude Oil

Forecast CAGRS:

- 6 Month: 1.3%
- 1 Year: -8.8%
- 2 Year: -4.1%
- 3 Year: -2.3%

Analysis: The price of crude oil is currently experiencing extreme volatility. This primarily stems from significant supply disruptions occurring as a result of sanctions against Russia, a major global supplier of the product. Prices are expected to continue rising in the short term; however, oil prices are projected to stabilize and begin declining in the following periods as other countries increase production and supply constraints are resolved.

Secondary Commodities:

- Diesel/Gasoline
 - Prices for gasoline and diesel are expected to continue rising as disruptions in the global market for oil persist. National averages are currently at extreme highs, at nearly \$4.20 per gallon for gasoline, and \$5.10 for diesel, with little relief expected in the near future, according to global oil executives.
- Grounds Maintenance Equipment/Heavy Equipment
 - Many types of equipment rely on lubricating oils to ensure the longevity of machines. As these products are refined from crude oil, owners of these machines can expect significant volatility in future costs associated with maintaining their equipment.
- Tires/Auto Parts
 - Oil is a primary component in tires, as well as in the manufacturing of additional auto parts. Both manufacturers and buyers of tires can expect continued increased prices and extended lead times as global rubber shortages occur alongside the extreme volatility in the market for crude oil.
- Asphalt
 - As asphalt is produced from petroleum crude oil, prices and supply depend nearly entirely on the current conditions in the global oil market. Currently, asphalt prices are surging alongside other oil-dependent products such as gasoline and diesel.
- Industrial Consumables:
 - Industrial consumables including motor and lubricating oils, paint and plastic products depend heavily on the market for crude oil, as many of these products are derived directly from oil. As volatile conditions persist in the crude oil market, supply and prices of these products are expected to shift quickly, contributing to potentially extended lead times and higher overall costs for buyers.

Substitute Commodities: N/A

Upstream Supply Chain:

- Mining, Oil & Gas Machinery Manufacturing
 - Steel Manufacturers
- Industrial Supplies Wholesalers
 - Power Tools & Other General Purpose Machinery Manufacturers
 - Pump & Compressor Manufacturers
- Metal Pipe & Tube Manufacturers
 - Steel Manufacturers



2. Crude Oil

- Iron Manufacturers

Analysis: Significant supply chain risk exists in the market for crude oil, as the market depends heavily on other risky commodities. While international sanctions on Russia have been contributing to instability in the supply chain, tariffs on global steel producers also can cause disturbances, as steel and iron are critical components of the majority of machinery used in the oil extracting process.

Downstream Supply Chain:

- Petroleum Refineries
- Gasoline & Petroleum Stations
- Petrochemical Manufacturers
- Rubber Product Manufacturers
- Plastics & Related Products Manufacturers

Analysis: Downstream demand shocks in the market can contribute to further strain on already low supply levels, and work to push prices even higher in the short-term.

3. Chlorine

Forecast CAGRS:

- 6 Month: 6.4%
- 1 Year: 4.3%
- 2 Year: 1.3%
- 3 Year: 0.7%

Analysis: The price of chlorine is expected to remain elevated over the next three years as shortages persist throughout the market. Shortages are occurring as a result of high demand, as well as a fire at a large chlorine and chemical producing plant in Louisiana in mid-2021 that has dramatically reduced the national supply.

Secondary Commodities:

- Pharmaceutical Products
 - As chlorine shortages linger and prices continue to rise, pharmaceutical products and medicines that use chlorine as components are expected to increase in price as well. Prices are anticipated to face further upward pressure as demand from water treatment facilities prompt suppliers to raise chlorine prices further.

Substitute Commodities:

- Bromine

Upstream Supply Chain:

- Chemical Product Manufacturers
 - Inorganic Chemical Manufacturers
- Mineral & Phosphate Miners
 - Mining Equipment Manufacturers

Analysis: The primary upstream supply chain risk for chlorine stems mostly from the ability for chemicals to be processed and produced. A significant disruption in the supply chain has occurred as a result of the fire at a Louisiana chlorine plant in 2021.

Downstream Supply Chain:

- Pharmaceutical Manufacturers
- Chemical Product Wholesalers



3. Chlorine

- Facility Maintenance Providers

Analysis: Demand from downstream suppliers is steady on average as the major buyers in the market require the product at a regular, predictable pace in order for operations to continue.

4. Corn

Forecast CAGRS:

- 6 Month: 2.4%
- 1 Year: 4.0%
- 2 Year: -0.7%
- 3 Year: -0.5%

Analysis: Farmers are anticipated to cut back on the amount of corn planted as fertilizer prices surge. In light of expected low supply levels, corn prices are projected to increase over the next year. Supply shortages are also expected to occur as Russian and Ukrainian production falls, which currently accounts for around 20 - 30% of world supply. Prices further into the forecast period are expected to begin declining from these near-record highs as supply constraints resolve.

Secondary Commodities:

- Animal Feed/Products
 - As corn is a major component of the typical animal feed used by farmers, increases in corn prices are negatively impacting cattle and livestock owners. As animal feed prices continue to rise, farmers are expected to raise prices of these animal products in order to cover rising costs, thereby contributing to upward pressure on various food prices including beef and dairy.

Substitute Commodities:

- Barley & Other Grains
- Rice

Upstream Supply Chain:

- Fertilizer Manufacturers
 - Chemical Product Manufacturers
- Farm Product Storage & Warehousing Providers
- Tractors & Agricultural Machinery Manufacturers
 - Steel Manufacturers
- Water Supply & Irrigation Providers
 - Pipe & Tube Manufacturers

Analysis: Major supply chain disruptions can result from fluctuations in the price or availability of fertilizer. In cases where fertilizer becomes abnormally expensive or difficult for farmers to procure, farmers often switch to crops which depend less heavily on fertilizer, including soybeans, which can reduce the overall supply of corn.

Downstream Supply Chain:

- Animal Feed Producers
- Food & Grocery Stores
- Fruit & Vegetable Markets

Analysis: Downstream demand is steady, however there are many substitutes available to consumers and farmers alike, reducing the impact of any demand shocks in the market.





5. Lumber

Forecast CAGRS:

- 6 Month: -6.4%
- 1 Year: -19.1%
- 2 Year: -12.6%
- 3 Year: -9.8%

Analysis: The price of lumber is expected to decline consistently over the next three years, falling from extreme highs that occurred during both the peak of the pandemic as well as early 2022. Lumber prices are expected to decline steadily over the next three years as supply from lumber producers catches up to demand, following periods of extremely high demand due to increased home and residential construction projects.

Secondary Commodities:

- Toilet Paper
 - As lumber shortages begin to resolve and prices decline over the following three years, the price of toilet paper and other products that depend on wood pulp are expected to decline. Residual shortages of toilet paper from pandemic-related supply disruptions are expected to resolve over this period.

Substitute Commodities:

- Metals/Steel
- Concrete/Asphalt
- Plastics

Upstream Supply Chain:

- Tools & Hardware Wholesalers
 - Tools & Hardware Manufacturers

Analysis: Upstream supply chain risk primarily stems from the availability of wood and lumber to be cut and sold. Weather events or wildfires can reduce the overall stock of lumber and contribute to higher prices.

Downstream Supply Chain:

- Hardware Stores
- Commercial Building Construction
- Residential Building Construction
- Municipal Building Construction
- Lumber & Building Material Stores

Analysis: Downstream demand fluctuates widely in this market depending on outside economic factors, including the interest rate. Should the interest rate suddenly spike, builder sentiment is expected to decrease, contributing to sudden reductions in demand of lumber.





6. Natural Gas

Forecast CAGRS:

- 6 Month: 1.4%
- 1 Year: -10.2%
- 2 Year: -8.0%
- 3 Year: -6.3%

Analysis: Natural gas prices are expected to remain highly volatile in the near future, with uncertainty contributing to upward pressure on prices in the following six months. Prices are anticipated to begin declining in the following periods as domestic production increases in response to higher global demand and rising exports.

Secondary Commodities:

- Equipment
 - Equipment such as generators depend on natural gas in order to operate and generate electricity. Owners of these generators, including large facilities, universities and other buildings, can expect to face operating cost increases in the short term. However, as natural gas supply becomes more abundant as global production is increased, these costs are expected to begin to fall.

Substitute Commodities:

- Propane
- Biofuel
- Coal

Upstream Supply Chain:

- Mining, Oil & Gas Machinery Manufacturing
 - Steel Manufacturers
- Industrial Supplies Wholesalers
 - Power Tools & Other General Purpose Machinery Manufacturers
 - Pump & Compressor Manufacturers
- Metal Pipe & Tube Manufacturers
 - Steel Manufacturers
 - Iron Manufacturers

Analysis: Supply chain disruptions stem both from drilling sites yielding low amounts of gas and from fluctuations in markets for steel and iron, as these metals make up a significant portion of the machinery required to drill for natural gas.

Downstream Supply Chain:

- Coal & Natural Gas Power Providers
- Fuel Dealers
- Fertilizer Manufacturers

Analysis: Downstream demand for natural gas is steady; however, as shifts toward green energy occur in the future, demand shocks may become more likely.





7. Oats

Forecast CAGRS:

- 6 Month: -1.7%
- 1 Year: -2.5%
- 2 Year: -0.1%
- 3 Year: 0.3%

Analysis: The price of oats increased by over 80.0% over the course of 2021 due to droughts that reduced the overall supply of oats in the market amid increasing global demand. These events in turn have pressured prices upwards. However, over the next three-year period, increasing production will pressure prices downwards in line with historical price trends.

Secondary Commodities:

- Animal Feed & Products
 - Oats are used as a key ingredient in animal feed for horses, cattle, sheep, pigs and poultry. The rising price of oats has subsequently lifted prices for these products in 2021, and farmers have passed on these costs to consumers. Nonetheless, the decreasing price of oats should reduce purchases as a percentage of revenue for the farming industry.
- Granola & Baked Goods
 - Many baked goods and granola are typically derived from oats. The fluctuating price of oats directly contributes to rising prices of granola and granola-products. However, decreasing prices over the forecast period should pressure commodity prices downwards.

Substitute Commodities:

- Chia Seeds
- Quinoa
- Brown Rice
- Buckwheat

Upstream Supply Chain:

- Fertilizer Manufacturers
 - Chemical Product Manufacturers
- Farm Product Storage & Warehousing Providers
- Tractors & Agricultural Machinery Manufacturers
 - Steel Manufacturers
- Water Supply & Irrigation Providers
 - Pipe & Tube Manufacturers

Analysis: Drought conditions in 2021 have pushed oat harvests in North America close to record low levels. Canada a top supplier of oats in the United States and the world's largest producer of oats, harvested its smallest oat crop in over a decade. In addition, imports from Canada suffered from washed out rail lines in British Columbia and a subsequent cold snap inhibited oats shipments.

Downstream Supply Chain:

- Grocery Wholesalers
- Supermarkets & Grocery Stores
- Granola Producers
- Oatmeal Producers



7. Oats

- Oat Milk Producers
- Baked Goods

Analysis: Downstream buyers of oats products, such as the oat milk producer Oatly, have raised prices as a result of the oat shortage. The Financial Times breakfast indicator, which calculates futures prices for breakfast commodities such as coffee, milk sugar, orange juice and oats, has increased over 26.0% since mid-year of 2021 due to inflationary pressures.

8. Plastic

Forecast CAGRS:

- 6 Month: 5.2%
- 1 Year: 2.2%
- 2 Year: 2.2%
- 3 Year: 2.3%

Analysis: Propane, a derivative of crude oil, is used to make ethylene and propylene, which are the foundational building blocks of plastic manufacturing. The Russian invasion of Ukraine has caused the world price of oil to rise rapidly, placing upward pressure on plastic prices early in the forecast period. As oil prices decline over the next three years, these effects should dampen moving further into the outlook period.

Secondary Commodities:

- Medical Equipment
 - Plastic is a key input for medical equipment and it is used in vials, beakers, implants and medical instruments. Demand for plastic medical equipment is projected to increase, as plastic materials offer buyers a more cost-effective solution to alternatives such as metals, glass and ceramics.
- Disposables and Polystyrene Foam
 - Disposables bottles and bags are reliant on plastic, so increases in prices of plastic directly impact prices for these goods. Polystyrene foam is also a plastic-based product that is used in packaging as well as automobile parts.
- PVC Pipes
 - PVC pipes are plastic-based products that are often used for sewage pipes and in water mains for irrigation.
- Consumer Electronics
 - Smartphones and other consumer electronics use a wide variety of plastic products, including Polycarbonate (PC), Acrylonitrile Butadiene Styrene (ABS), and Polymethyl Methacrylate (PMMA). These plastics are used for display frames, haptic feedback cushioning and mounting frames, among other purposes.

Substitute Commodities:

- Paper & Paperboard
- Bioplastics
- Glass
- Platinum Silicone
- Ceramics

Upstream Supply Chain:

- Petrochemical Manufacturers





8. Plastic

- Petroleum Refiners
- Industrial Machinery & Equipment Wholesalers
 - Steel Manufacturers
 - Iron Manufacturers
- Inorganic & Organic Chemical Manufacturers
 - Steel Manufacturers
- Resin Producers
 - Coal Miners

Analysis: In late 2021, a southern ice storm in the United States lowered production levels of resins, a key input for plastic manufacturing, causing price increases of 30% to 50%. Petrochemicals such as ethylene and propylene are key inputs for plastic manufacturing and are produced from propane and butane, both of which derive from crude oil refining. Thus, increases in oil prices in 2022 have pressured prices upwards for plastics manufacturers, prompting some suppliers in this market to lower production due to increasing costs.

Downstream Supply Chain:

- Plastic Bottle Manufacturers
- Plastic Film, Sheet & Bag Manufacturers
- Plastic Pipe & Part Manufacturers
- Urethane Foam Manufacturers
- Plastic Product Wholesalers
- Plastic Toys
- Adhesive Manufacturers

Analysis: Rising costs in resin and oil, and thus plastic, have pushed prices higher for plastic-based products, including plastic containers, bags and bottles. The price of polyolefins, which are used in a wide variety of products, including clothing, carpet and roofing materials, is also rising.

9. Semiconductors

Forecast CAGRS:

- 6 Month: 9.8%
- 1 Year: 1.6%
- 2 Year: 1.5%
- 3 Year: 1.4%

Analysis: Rising logistics prices, pandemic-induced shortages and high demand have pressured prices of semiconductors upwards throughout the past three-year period. The rate of price increases is anticipated to decrease over the next three-year period as production increases, although prices will most likely not return to pre-pandemic levels as supply chain shortages are expected to persist.

Secondary Commodities:

- Cell Phones
 - Cell phones were largely shielded from semiconductor shortages throughout much of the past three-year period, as suppliers had reserved capacity for critical components and did not cancel orders of semiconductor chips at the start of the pandemic as other industries had done. While major players in this market have largely insulated themselves from semiconductor shortages, smaller vendors such as Lenovo and TCL





9. Semiconductors

have struggled to keep up with supply without such semiconductor chips in their reserves.

- Computers, Copiers, Web Cameras and Smartboards
 - The rise in demand for consumer electronics, including laptops and desktop computers, ultimately led to a major shortage of products that has caused backlogs. While semiconductor chip manufacturers predicted a 5.0% increase in sales in 2020, sales totaled 29.7% from August 2020 to August 2021.
- Vehicles
 - Car companies of all sizes have been impacted by the semiconductor chip shortage, forcing many to limit the number of features added to certain vehicles due to the lack of chips. However, the limiting effects of computer chips on the automobile industry are anticipated to wane throughout the forecast period, as automobile manufacturers anticipate a return to pre-pandemic levels of production.

Substitute Commodities: N/A

Upstream Supply Chain:

- Semiconductor Machinery manufacturers
 - Steel Manufacturers
 - Iron Manufacturers
 - Aluminum Manufacturers
- Copper Rolling, Drawing & Extruding Suppliers
 - Copper Miners
- Chemical Product Manufacturers
 - Silicon Suppliers

Analysis: Silicon production has slowed down in the three-year period to 2022, despite increasing demand for digital products during and post-pandemic from employers and consumers alike. In an effort to switch to cleaner energy, the world's leading supplier of silicon, China, has aimed to reduce its consumption of coal by rationing the electricity use of industrial suppliers, including silicon suppliers. This rationing, in combination with the pandemic which continues to impact Chinese manufacturers, has ultimately limited the supply of silicon and thus semiconductors available on the global market.

Downstream Supply Chain:

- Consumer Electronics Stores
- Computer Manufacturers
- Wireless Telecommunication Manufacturers
- Automobile Electronics Manufacturers

Analysis: The global chip shortage has limited the production of electronic consumer goods and vehicles, pressuring prices upwards for these goods. In addition, while the supply of semiconductor chips is anticipated to increase over the next three-year period, buying lead times and shortages will differ, as more complex and advanced semiconductors will not be as readily available or produced compared to those with simpler components.





10. Soybeans

Forecast CAGRS:

- 6 Month: 1.4%
- 1 Year: -6.0%
- 2 Year: -2.6%
- 3 Year: -1.4%

Analysis: The world price of soybeans soared in 2021 due to droughts, fertilizer shortages and supply chain disruptions in 2020 and 2021 that reduced the supply of soybeans amid heightened demand. As supply chain disruptions ease and production increases, soybean prices are forecast to fall in line with historical trends.

Secondary Commodities:

- Animal Feed
 - Soy meal, which is used in animal feed, increased by over 20.0% in 2021.
- Nutrition
 - The price of soy oil, which is used in many food products and as a cooking oil, increased by over 40.0%. Soy-based food products, such as soy milk, tempeh and meat substitutes, also increased in price.
- Biodiesel
 - About one-third of all soybean production in the United States is used to produce biofuel. The price of biodiesel thus skyrocketed in 2021 and are projected to continue increasing in 2022, which has been attributed to the rising costs of vegetables, like soybean, and other raw materials.
- Industrial Consumables
 - Industrial consumables such as concrete sealant, engine oil and asphalt rejuvenators all rely on the oil produced by soybeans.

Substitute Commodities:

- Canola Seeds
- Sunflower Seeds
- Corn

Upstream Supply Chain:

- Fertilizer Manufacturers
 - Chemical Product Manufacturers
- Farm Product Storage & Warehousing Providers
- Tractors & Agricultural Machinery Manufacturers
 - Steel Manufacturers
- Water Supply & Irrigation Providers
 - Pipe & Tube Manufacturers
- Shipping Containers
 - Steel Manufacturers

Analysis: As with many other industries, soybean farmers and producers are struggling to obtain containers to export their products to buyers. Unlike with other grains such as corn and sorghum which move in bulk vessels, the supply of distilled grains has been constrained by the shortage of containers.

Downstream Supply Chain:

- Animal Food Producers





10. Soybeans

- Margarine & Cooking Oil Processors
- Meat Producers
- Soy-Based Food & Beverage Producers

Analysis: Over three-quarters of all world soy bean production goes to meat and dairy producers in the form of animal feed for livestock. Price increases of soy and soymeal has most impacted the meat and dairy industry, which has passed on these price increases onto consumers.

11. Steel

Forecast CAGRS:

- 6 Month: -17.9%
- 1 Year: -1.7%
- 2 Year: -9.7%
- 3 Year: -3.8%

Analysis: The world price of steel is anticipated to fall significantly over the next three years, and U.S. manufacturers are set to increase steel production to satisfy downstream demand. This should alleviate upward pressure on prices caused by the shortage of steel over the last three-year period which caused the price of steel to rise 200% in 2021 alone. Nonetheless, China, the world's largest producer of steel, has recently implemented new lockdown measures related to the coronavirus pandemic, inhibiting the production of steel and adding greater uncertainty to price forecasts for this commodity.

Secondary Commodities:

- Grounds Maintenance Equipment
 - Grounds maintenance equipment, such as shears, are made of hardened carbon or chromium steel.
- Heavy Equipment
 - Steel is the backbone for scaffolding, cranes, bulldozers and other heavy equipment.
- Industrial MRO Supplies
 - Rising steel prices have placed upward pressure on prices for repair tools and safety equipment.
- Medical Equipment
 - Medical equipment includes a wide-range of steel products, such as medical carts, wheelchairs, hospital beds, IV stands, surgical tools, medical syringes and needles, surgical screws and plates among a host of other steel-based products.
- Vehicle & Vehicle Parts
 - The Russian invasion of Ukraine is further amplifying steel prices for vehicle and vehicle parts manufacturers, as the price of nickel has crossed the \$100,000 per ton level for the first time.

Substitute Commodities:

- Aluminum
- Wood
- Stone
- Concrete
- Plastic

Upstream Supply Chain:

- Iron Ore Miners



11. Steel

- Copper, Nickel, Lead & Zinc Miners
- Industrial Machinery & Equipment Manufacturers
 - Steel Manufacturers
- Utilities & Energy Providers
 - Coal Miners

Analysis: Upstream supply for steel consists of coal miners and utilities providers that provide fuel for steel production and metal casting. While main inputs such as iron ore are not expected to experience iron shortages, the main driver of price increases in this market stem from transportation costs, as well as increased demand of steel with less post-pandemic production.

Downstream Supply Chain:

- Constructors
- Metal Pipe & Tube Manufacturers
- Car & Automobile Manufacturers
- Steel Rolling & Drawers
- Ferrous Metal Foundry Products

Analysis: Downstream demand for steel includes products and services that rely on steel and steel-based products as a key input. This includes industrial and construction markets that use steel in heavy equipment and structures, such as for ship building, oil and gas refining and vehicle production.

12. Wheat

Forecast CAGRS:

- 6 Month: 4.5%
- 1 Year: -2.0%
- 2 Year: -0.6%
- 3 Year: -0.1%

Analysis: While the Russian invasion of Ukraine may raise wheat prices earlier in the forecast period, increased production over the long-term is expected to steadily decrease the price of wheat. Increased production from Argentina and the EU, combined with decreased demand for wheat as feed use due to its comparatively higher price when compared to other grains, will pressure prices downwards over the next three-year period.

Secondary Commodities:

- Animal Feed & Products
 - Wheat is often used in swine and poultry feed, with over 50.0% of all grain production in the United States going to animal feed (while globally 40.0% of grain goes to animal feed). Nonetheless, price increases for animal feed are generally more impacted by rising corn and soybean prices.
- Nutrition
 - The Russian invasion of Ukraine has impacted exporting of wheat, while increasingly high freight rates and weather events have all contributed to higher prices for wheat-based food products, such as bread. The shortage of wheat is expected to push prices higher in 2022, although prices are anticipated to decline over the forecast period to the benefit of buyers.





12. Wheat

Substitute Commodities:

- Millet
- Quinoa

Upstream Supply Chain:

- Fertilizer Manufacturers
 - Chemical Product Manufacturers
- Farm Product Storage & Warehousing Providers
- Tractors & Agricultural Machinery Manufacturers
 - Steel Manufacturers
- Water Supply & Irrigation Providers
 - Pipe & Tube Manufacturers

Analysis: Supply chain risk for wheat stems from increasing fertilizer prices, which are pushing prices for wheat higher, as well as droughts and dry weather conditions that have limited the production of wheat. Fertilizer price increases have also been linked with suppliers failing to adjust production levels to account for increased demand.

Downstream Supply Chain:

- Cereal Producers
- Bread Producers
- Animal Food Producers
- Cookie, Cracker & Pasta Producers
- Flour Millers

Analysis: Russia is the world's largest exporter of wheat and exports more than 20 million tons per year. With the Russian invasion of Ukraine, however, many countries are suspending imports of wheat. This will increase demand for U.S. wheat and limit the domestic supply of wheat, pressuring prices upwards for food products in the United States, including bread, pasta and other wheat-based products.

