

## **2021 Nevada Agricultural Outlook**





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Report Prepared by

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in cooperation with

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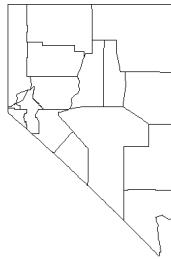
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## Introduction

Uncertainty. While any projection of future agricultural trends is not certain, this year's outlook is more unsure than most. The initial shocks battle against COVID-19 has strongly impacted agricultural supply chains, there are many other factors that contribute to a greater level of uneasiness than normal. These factors include emergence of the COVID Delta variant, changing global trade agreements such as Brexit, fuel policy and supply disruptions, and climate extremes such as drought and flooding. Each of these factors can disrupt agricultural production and consumer markets. The overall global agricultural outlook is not particularly robust, and those expectations largely hold for Nevada agriculture in the short to medium term as well. Expectations for agricultural markets are influenced by these factors, both short term and long term. Assumptions regarding these factors are keys to the shape of this outlook. Of course, we recognize that there will be developments that will move us from these assumptions at some time in the next few years, but we do not know when or where. This outlook therefore serves as a baseline against which we can compare unforeseen future developments.

In addition to widespread drought, availability and cost of the factors of production are contributing to enhanced risk. Fuel prices have skyrocketed this year because of policies and disruptions to fuel availability stemming from foreign sources. Although most of the supply chain disruptions that beset markets a year ago have been resolved, some hangover effects linger such as plants continuing to operate below capacity, limiting some inputs. Fuel prices directly impact fertilizer and agricultural chemicals, causing those costs to increase.

In the medium- to long-term, price stability is expected to return and moderate price levels will still be adequate to induce the necessary food and fiber production for an increasing global population. After this year, grain and oilseed prices are projected to exhibit little upward movement over the outlook period, giving a sense of returning stability to agricultural markets.

Currently, livestock prices (especially for cattle) continue to be impacted by excess supplies, but that market softness is expected to be alleviated beginning next year. Dairy prices have been volatile over the past year, and milk prices exhibited severe volatility over the past year, although some stability and price strength is currently emerging. Wool prices are improving, but still suffering from weak demand in export markets, as well as competition from other exporters, especially in the Pacific Basin.

If a return to normal temperature and precipitation patterns occurs after this year, healthy crop supplies will exist, supporting medium-term projections of moderate, stable prices, and a dampening of high feed costs that are occurring this year. While deviations from normal weather will continue to have short-term impacts on markets, in the long term, weather is expected to be approximately "normal<sup>1</sup>." This outlook, therefore, is shaped by supply-side issues in the short term, but primarily by demand-side developments in the long-term.

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<sup>1</sup> The model used to generate projections of future prices and quantities for the Nevada Outlook does not include any explicit climate variables. As such, projections of future production and prices are based on historic data which may or may not have been generated during a year under 'normal' or typical weather patterns for Nevada.

Severe global recession in 2020 resulting from the COVID-19 pandemic is loosening in 2021 and 2022, and growth rates are expected to exceed pre-pandemic rates. After the accelerated recovery period, developed nations will return to long-term GDP growth similar to pre-pandemic levels, average annual growth for developing nations is expected to exceed pre-pandemic levels, and emerging nations will resume growth rates experienced prior to 2020.

Both China and India are expected to experience slowing growth in the long-term as their economies mature. However, a few developing economies are exhibiting sub-par economic expansion. Argentina, Venezuela, and Turkey are among those nations that are experiencing economic woes. Most other developing nations are growing at expected long-term rates. Increasing global trade protectionism and geo-political disruption adds risk to the pace of economic growth.

A return to healthy stable growth will support demand. That will limit downward movement of prices, and allow agricultural producers to maintain returns necessary to keep pace with global consumption. Most of the increase in production will come from yield growth, as returns are not expected to be adequate to induce substantial expansion of crop area in most regions with the exception of major South American exporting countries. Consumption is expected to slightly outpace population growth for most commodities as income expansion, especially in emerging and some developing regions spurs improvements in standards of living and diets.

For Nevada producers, the short-term holds challenges. Major Nevada products, such as cattle, dairy, sheep and wool, and hay depend largely on markets beyond our borders, limiting the amount of control the state's producers can impose on costs and revenues for their output. Within our borders, climatic conditions directly threaten the ability of ranchers and farmers to produce. Widespread drought is limiting water availability for cow-calf operations, dairy, sheep and wool, and hay producers. Together these four industries comprise more than 90% of agriculture revenues in the state. Of course, other products are also at severe risk because of this year's weather and fire danger.

Agriculture in Nevada faces a mixed price outlook in the short term, but stability will emerge in the medium term. Feeder steer operations are the largest of the agricultural industries in Nevada and feeder steer prices are expected to remain low in 2021, near the prices at bottom of the cycle in 2016. Nevada ranchers will then enjoy upward movements in prices over the next five years. Milk prices remain volatile and low thus far in 2021, but have shown periods of strength. Overall, average prices have regained pre-pandemic levels but are expected to exhibit little significant upward movement in the next several years. As such, profitability will be constrained, making it difficult for dairy producers in the northern part of the state to expand their herds to meet the needs of the whole milk powder processing plant. Low water availability is limiting hay acreage and in turn driving prices higher, but are expected to stabilize after this year.

What was previously a bright spot in the livestock and dairy sector, sheep and wool, is being weakened by low wool prices. Global wool prices, although recovering from the low point reached in September 2020, remain nearly 10% below pre-pandemic levels, and nearly 30% off

the peak of 2018. In addition, weekly volatility persists in global wool markets. Nevada producers are tied closely to Australian wool prices.

In this outlook Nevada cattle producers will see improvements in profitability, but not reach record levels. On the other hand, dairy producers will face a generally constrained financial situation in the next five years. Sheep and wool production will bring typical returns and profits. Rising costs will keep pressure on profitability. For hay producers, the improved price environment has enabled producers to be profitable during the next five years, but rising costs will erode net returns, but not eliminate them. Overall, however, the outlook is for moderate net income in the Nevada agricultural sector.

The risks to this outlook come from several sources. Weather, domestic and global economic growth with accompanying changes in foreign exchange rates, domestic and global agricultural and trade policies, including tariffs, geo-political developments, and technology all have the potential to impact agriculture and positively or negatively alter the outlook. High fuel costs are likely to be a persistent drag on this outlook.

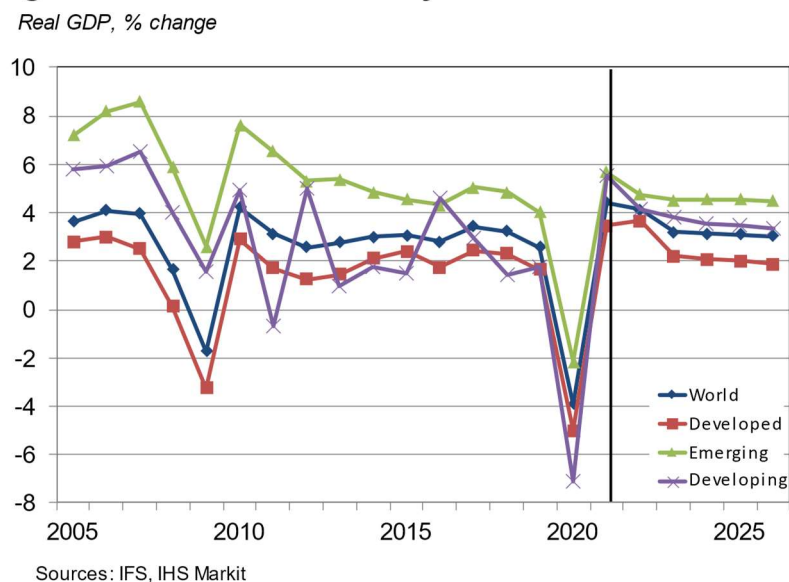
Weather can disrupt both crop and livestock production. Normal weather, following the recovery from the current severe drought, is assumed here because the frequency, location, and severity of weather events are unknown. Shocks to feed supplies in a number of locations around the world will also impact U.S. and Nevada crop and livestock prices and therefore those markets. The failure of the domestic and global economies to perform as assumed in this outlook could result in weaker demand. A stronger international economy would improve this tepid outlook.



## The Economy

The global economy overall is showing recovery in 2021, which will continue into next year, before resuming long-term growth rates at the end of the projection period (Figure 1). Developed nations will return to long-term GDP growth similar to pre-pandemic levels, average annual growth for developing nations is expected to exceed pre-pandemic levels, and emerging nations will resume growth rates experienced prior to 2020. The global COVID-19 pandemic and geo-political disruption lends uncertainty to continued economic growth. Appendix Table 1 presents an overview of economic assumptions utilized in the outlook. Even as growth is re-established, it will take two to three years to recover the level of economic activity seen before the pandemic.

**Figure 1. Economic Recovery Follows COVID Recovery**



The growth rate in emerging and developed economies is expected to remain relatively steady following the initial recovery period. However, growth is expected to gradually erode in in developing economies for several years due to trade wars and sanctions, geo-political disruption, and national debt and financial issues. Nevertheless, developing country economic growth is expected to outpace pre-pandemic rates throughout the outlook.

U.S. GDP growth rate fell to -3.6% in 2020, but is projected to recover to 4.0% in 2021, then average 2.5% annually thereafter. Canada and Mexico GDP 2020 growth rate fell to -5.7% and -9.0% respectively. Similar to the U.S., both are rebounding in 2021, with Canada averaging 2.1% annually 2023 through 2026 and Mexico will average 2.4% annual growth over the same period.

More than a third of countries in Western Europe, including the UK, experienced GDP growth contractions of 9% or greater. However, and despite Brexit ratification 12/30/2020, GDP

growth in most European countries will rebound to at or above pre-pandemic levels throughout the projection period. Japan's GDP growth saw a sharp drop, as well, in 2020, falling by 5.4%. As recovery continues, growth there is expected to remain near 1.0% through the outlook period.

China was one of the only countries that reported a positive annual GDP growth rate in 2020 at 2.1%. Though leading the group of emerging countries, both China and India will moderate growth throughout the projection period as their economies mature.

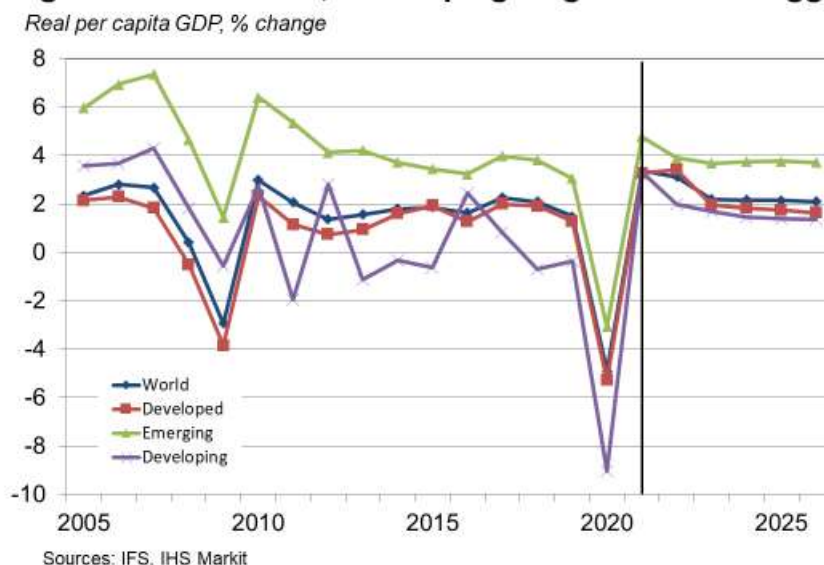
Oil prices are expected to exhibit a steady recovery as the global economy rebounds in the next two years, and then continue upward movement as excess productive capacity is absorbed. Middle Eastern and North African oil exporters will experience improved economic growth, but some countries in that region will still see economic contraction due to war in that politically unstable region. Russia and other former Soviet energy-dependent economies will see steady rates of growth over the next few years.

The slowing population growth rates will persist in all global regions in the long term. Annual global population expansion will fall below 1% within the next five years, although individual nations' growth rates will vary considerably.

Developing and emerging economies are projected to exhibit significant slowing in population growth. Even with economic and geo-political issues, developing nations overall will still have the highest growth rates. Developed nations will continue to experience population growth declines, although at a very gradual pace.

Emerging nations will experience slower than the global average population growth. With high income growth, this group will enjoy robust per capita income increases (Figure 2), increasing purchasing power, especially as the economies of energy-dependent nations re-accelerate.

**Figure 2. Per Person, Developing Regions Will Struggle**

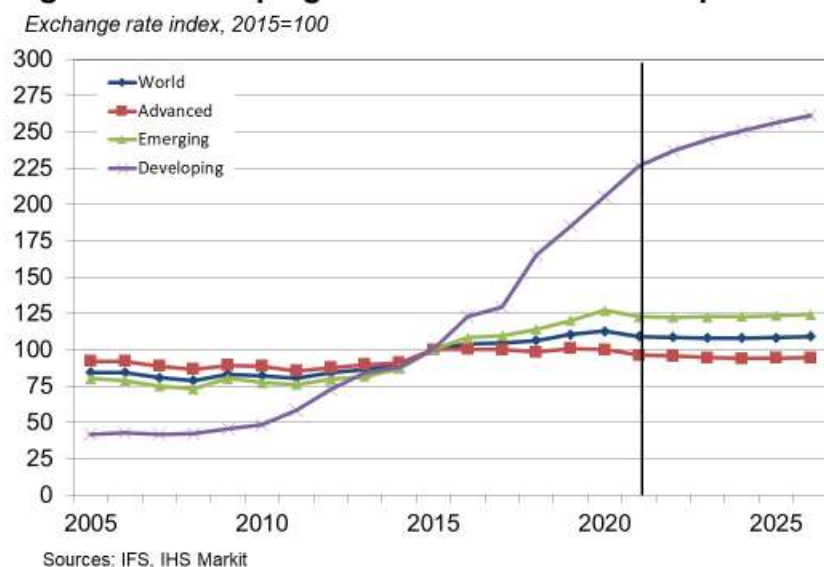


Despite high total GDP growth in developing countries, rapid increases in population dilute per capita income expansion to about the global average and constrain improvements in standards of living. Food and feed demand will increase primarily as a result of population growth in many of the poorest nations until income thresholds are reached that enable improved diets and increased demand for consumer goods.

Some of the poorest nations have incomes below the developing nation average of \$2,100, and those populations often live on subsistence agriculture, without much ability to purchase additional food.

Economic impacts related to the COVID-19 pandemic and the associated fiscal response resulted in the value of the U.S. dollar strengthening relative to a global basket of currencies in 2020 (Figure 3). In 2021, the dollar is expected to weaken slightly against advanced and emerging economies' currencies then stabilize thereafter. Against emerging markets, the dollar is projected to gain strength into the future, similar to its historical path. The strength of the dollar contributes to increased U.S. imports and reduces its exports as U.S. goods become more expensive abroad, thus contributing to imbalanced U.S. trade.

**Figure 3. Developing Currencies Continue Depreciation**



The Japanese yen gains strength against the dollar throughout the projection period, as does the Chinese yuan. The euro gained on the dollar in 2020, as did the pound. Both are projected to continue the trend. The Russian ruble weakened slightly against the dollar in 2020, and is projected to gain slightly in coming years. Overall, developing country currencies will weaken relative to the dollar. Depreciation of local currencies is expected to occur widely in Africa and Latin America.

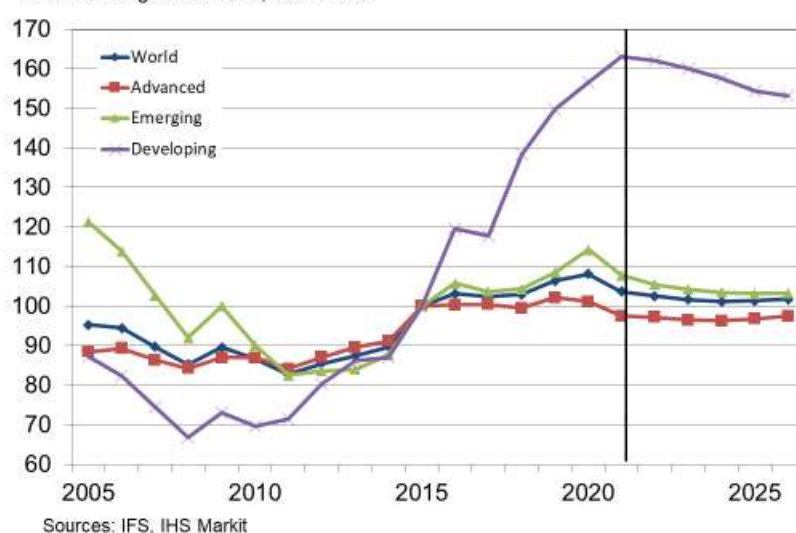
While depreciation of currencies, especially steep and rapid weakening, causes reduced ability to purchase goods in the short and medium term, often longer-term effects are mitigated

by adjustment in the relative price levels of the importing vis-à-vis the exporting country. As such, longer-term real purchasing power of many trading partners is expected to increase. As such, competitiveness of U.S. goods in world markets should slightly increase, especially trade with developing regions (Figure 4).

Emerging countries real exchange rates are expected to appreciate in the next few years, led by the stabilization and eventual strengthening of the Chinese yuan. Developed currencies are expected to weaken in the medium term before stabilizing toward the end of the projection period. Developing nations' currencies are expected to depreciate in the long term, albeit at a slower rate after 2020.

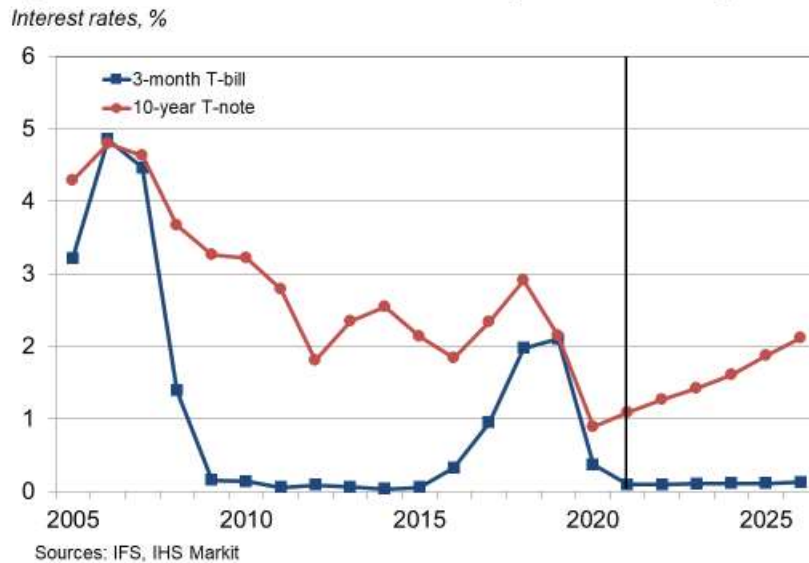
**Figure 4. Purchasing Power Will Not Deteriorate**

*Real exchange rate index, 2015=100*



From late 2015 through early 2019, the Fed reacted to a relatively robust U.S. economy with a number of interest rate hikes. This trend reversed late summer 2019 with rates falling steeply in March 2020 and remaining flat since. Short-term interest rates are expected to stay low for the entire projection period, whereas longer-term rates are expected to creep upward, but remain at or below rates as recently as 2019 (Figure 5). Nevertheless, the Fed will remain engaged in a balancing act between keeping inflation in check and maintaining favorable lending standards to support the mortgage market and other consumer and business borrowing.

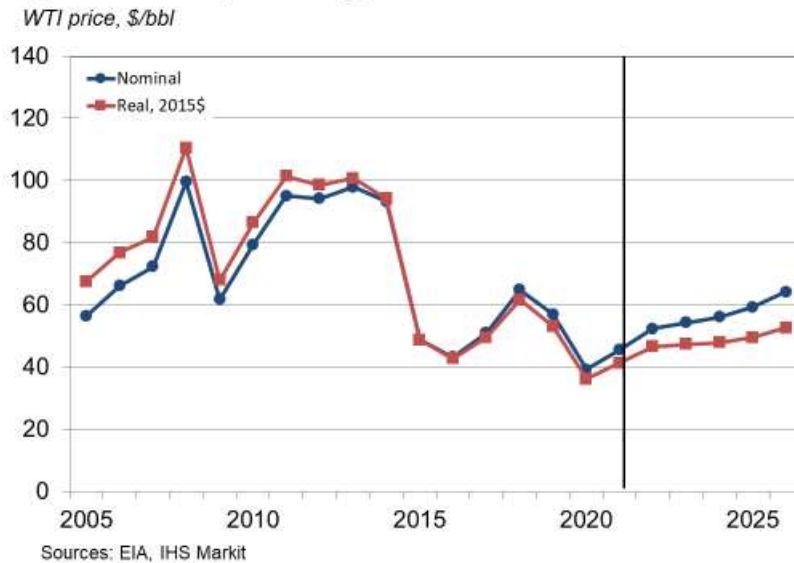
**Figure 5. Low Interest Rates Dampen Borrowing Costs**



Low short-term interest rates for annual operating expenses help control the costs of borrowing. However, as longer-term interest rates rise, producers with capital and equipment needs will face higher borrowing costs than in the past few years and longer-term lending rates will be less encouraging for expansion or establishment of new enterprises. Although longer-term interest rates are inching higher, they are expected to remain favorable for the next few years.

Large decreases in travel and transportation related to COVID-19 resulted in average West Texas Intermediate crude oil spot prices in 2020 below \$40 barrel. Moderate gains are projected but crude prices are expected to remain below \$70 per barrel throughout (Figure 6). Prior to 2015, extended periods of high prices induced substantial exploration and expansion of production capacity that is beyond current demand. As a result, some of this capacity was idled as prices plummeted in 2015. However, prices strengthened into 2018 as some of that capacity had to come back online to accommodate global economic growth that induced higher energy demand. The pandemic-induced squeeze on the economy led to a reversal in oil prices last year, but gains have been made in recent months. Current production capacity is expected to be adequate to keep crude prices below \$70 per barrel for the next five years.

**Figure 6. Adequate Supplies at Low Prices?**



Oil price outlooks always have substantial risk around them, and while the medium term prices are expected to grow modestly, uncertainty in the outer years of the projection period persist. While supplies are currently plentiful, growing demand will absorb them, and new production technologies could require higher prices to come online. On the other hand, adoption of more efficient vehicles and electric vehicles will limit the rate of oil price increases.

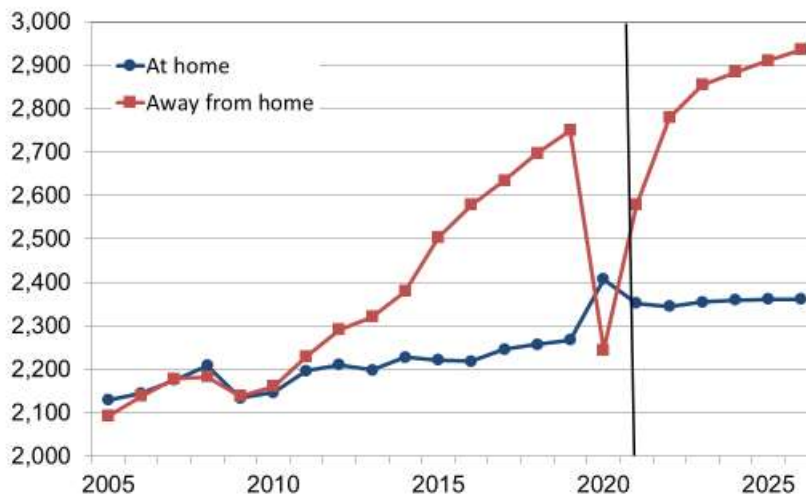
Factors including the steady pace of global economic growth, continuing war and geopolitical unrest in the Middle East and Venezuela, excess production capacity resulting from recent exploration and development, and sizeable reserves existing in various production regions around the world all suggest that volatility will remain a fact of life in petroleum markets.

As petroleum product prices have been moving up, fuel prices have also gained substantially in early 2021. Agriculture will be impacted by rising fuel prices by adding to production and transportation costs. Higher fuel costs not only make it more expensive to operate machinery, but will also push up costs for purchased inputs.

The disappearance of jobs and income during the pandemic had a direct and stark effect on food consumption patterns. In 2020, real per capita expenditures for food away from home fell sharply with restaurant closures and reduced seating (Figure 7). Partly offsetting this decline was a simultaneous rise in food purchases for at-home consumption. Not only did the pandemic shift where meals were eaten, but also what was consumed. Restaurant meals are higher priced, so changes in where meals are eaten do not necessarily result in a corresponding change in the amount of food consumed. Further, restaurant purchases generally result in consumption of higher-quality cuts of meat and premium products not generally consumed at home. Nevertheless, there was a large decrease in food expenditures in 2020 that is being quickly reversed as food establishments expand openings with increased management of COVID.

**Figure 7. After Pandemic, Shift to Eating Out Resumes**

*Real per capita food expenditures, \$2015*



Sources: BEA, IHS Markit

Other important factors adding to last year's shift to more food being consumed at home include increased unemployment as workers were laid off and furloughed, leaving them at home and uncertain about income security. Similarly, the shift to working from home for many white-collar workers moved daytime food consumption from restaurants and cafeterias into the home. Finally, the use of distance learning in schools all but eliminated school lunch programs, although some locales provided meals for food insecure students. Historically, increases in per capita food expenditures coincided with an increase in the real price of food. As such, consumers paid more for the same basket of food even in inflation-adjusted terms. During the pandemic, supply chain breakdowns led to spiking prices for meats, resulting in lower purchases of beef, in particular, and switching to less expensive meats such as chicken and turkey. The long-term expectation is that food spending will increase primarily with modest food price inflation and population growth and food expenditures are expected to consistently surpass pre-pandemic peaks.

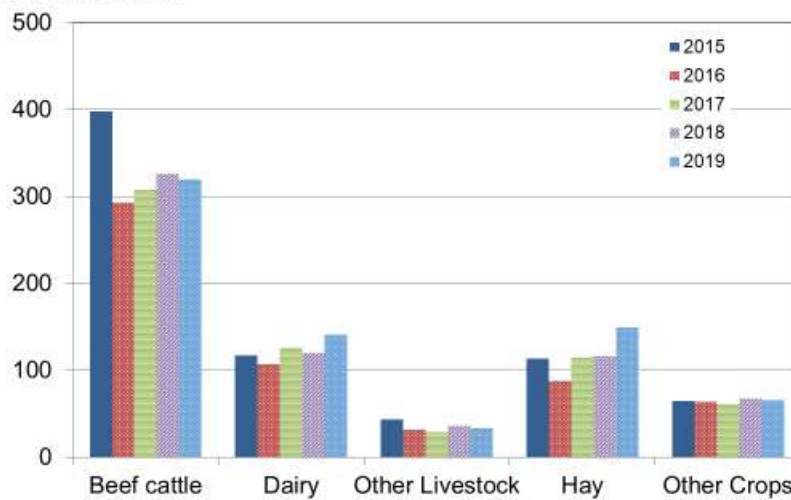
## The Outlook

Nevada agriculture revolves around livestock, especially beef cattle production. In most years more than 40% of state agriculture gross receipts stem from beef cattle. Dairy production also accounts for a large proportion of the value of agriculture. While hay is the largest crop, it is directly related to cattle, dairy, and sheep production. As such, livestock, especially cattle production dominates the state's agricultural sector (Figure 8).



**Figure 8. Beef Cattle Dominate Nevada Agriculture**

Cash receipts, \$ mil



Source: USDA: NASS

While the long-term Nevada agricultural outlook will return to the general contours of expectations from a year ago, the short-term view is somewhat weaker as the prices for cattle remain weakened, and milk prices, although improved from pandemic lows, are below year-ago expectations. With international wool prices remaining low and volatile, the sheep and wool industry also saw softer profits last year but is experiencing modest improvement in 2021. Improvement will persist and that industry will remain moderately profitable throughout the outlook. A bright spot is hay as prices for alfalfa and other hay remain elevated this year. The next few years are also expected to see higher hay prices than previously anticipated, but prices will not be near record levels. It is generally expected that the state's producers will be able to maintain production in most sectors. In reality, there will be periods when gross receipts far exceed costs in a year, and there will be periods when profitability is lacking.

### *Production Costs*

The production costs agricultural producers face inform the outlook as much as demand for the commodities produced. In the long term, producers must be able to recover their costs plus make a profit to continue to expand production to meet growing global demand. This outlook reflects expectations of producers' abilities to maintain margins above costs in the long term. While producers must also be able to recover fixed costs in the long run, annual production decisions are influenced by the feasibility of at least covering variable operating costs. Indices of major agricultural production cost categories appear in Appendix Table 2.

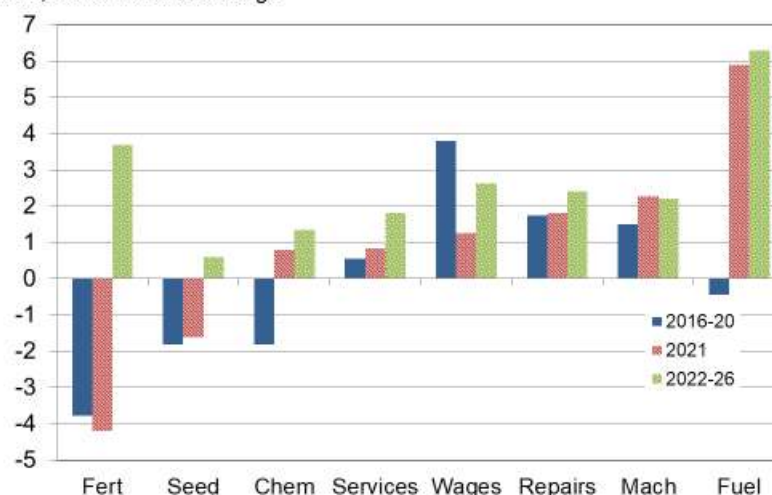
There are several cost categories utilized in developing the enterprise budgets that reflect estimates of operating cost and the resulting outlook projections. Major crop costs include seed, agricultural chemicals, fuels and energy, machinery, labor, repairs, and services. Livestock



enterprises are faced with costs for feed, feeder animals, veterinary, equipment, fuels, trucking, and labor, among the major cost categories. Not all cost categories move together over time, with some exhibiting faster rates of inflation and greater volatility (Figure 9).

**Figure 9. Fuel, Fertilizer To Exceed General Inflation**

*Costs, annualized % change*



Sources: USDA, BLS, IHS Markit, UCED

In the period from 2016 to 2020, wage costs increased relatively faster than any other major category. Despite boosts to minimum wage rates in most states and at the federal level, higher unemployment during the pandemic has resulted in a lower rate of increase in wages this year. Wages are expected to rebound with higher growth going forward. Fuel is the most volatile category, with relatively low prices over the previous five years, especially as prices declined in 2020 as travel was curtailed. Those low fuel prices have drastically reversed in 2021 as the recovery in travel is underway. Those rising fuel costs have been highly exacerbated by pipeline closures resulting from policy and foreign interference in the technological aspects of the delivery system. Over the coming five years, not all cost categories are expected to behave as in the previous decade. Fuel price increases are expected to persist over the outlook period. Because fertilizer, particularly nitrogen fertilizer, is dependent on natural gas, that cost category will reflect rising fuel input costs.

Seed is projected to have the lowest average annual cost increase. Wages are projected to increase at a slightly faster rate than general inflation in the next five years outpacing most other cost categories. As the excess pool of labor tightens with further recovery from the pandemic, wages will accelerate in the medium term. Categories such as services will reflect wage gains as labor makes up a substantial portion of the costs. As no sharp acceleration or deceleration of the economy is expected, and the job market is driving the wage rate projections, cost categories influenced heavily by labor costs will also follow a relatively smooth upward path that suggests controlled inflation. Most cost categories are expected to increase around 2% to 3% per year.

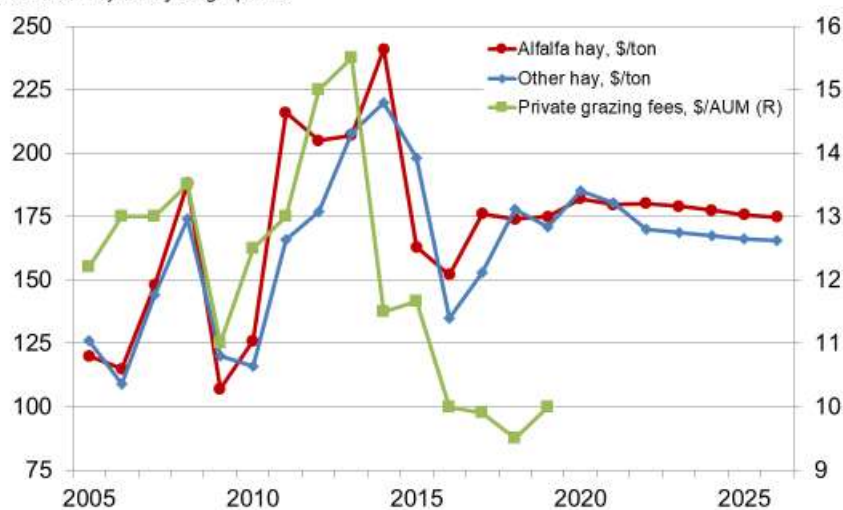
The volatility and potential for sharp increases in fuel prices means that this category embodies significant risk for producers. However, fuel costs are generally not among the largest cost categories. For livestock, feed costs generally account for the largest category. For crops, it is usually fertilizers and other agricultural chemicals.

## Hay

Alfalfa and other hay prices ticked up in 2020 (Figure 10) and remain similar this year, mimicking the movement in overall feed costs. Nevada hay production was constrained last year due to a low harvested acreage due primarily to severe water shortages. The drought has intensified in 2021 and indications are that acreage will remain subdued. Early in the year when the hay harvested acreage intentions were announced, there was no expectation of recovery from a year ago. Because of this, Nevada hay production will be severely limited and prices are likely to spike even higher than current levels.

**Figure 10. Moderate Hay and Forage Prices Expected**

*Nevada hay and forage prices*

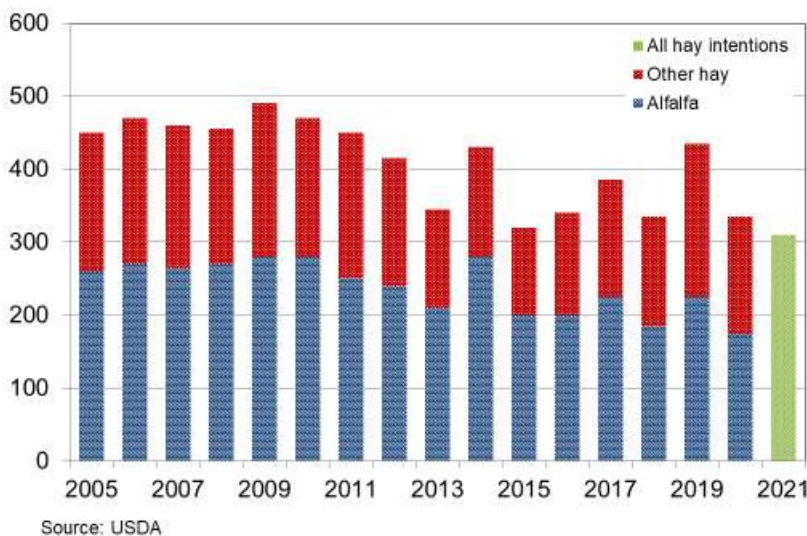


Sources: USDA, UCED

The March *Prospective Plantings* report from USDA indicated that Nevada hay producers planned to decrease harvested acreage another 25 thousand acres this year following a steep drop last year (Figure 11). Although reported alfalfa yields show little movement over time because virtually all of it is irrigated in Nevada, mitigating the impacts of variable precipitation, the steep cut to water allocations in the past few years did result in average yield reductions. As such there was a reduction in alfalfa yields last year that is expected to persist, and even worsen in 2021. It should be mentioned that Nevada hay producers' intentions as reported by USDA in March rarely reflect what actually is harvested in the state that year.

**Figure 11. Hay Acreage Drops With Drought**

*Nevada hay acreage, ths*



There is continued upward potential for hay prices this year. Water allocations have been reduced resulting in a pullback on area and lower yields. Alfalfa prices are expected to stabilize after this year for the remainder of the outlook. Prices for other hay varieties are projected to drop back to a more typical relationship with alfalfa under the assumption of normal precipitation returning after this year. This is one of the major uncertainties surrounding this outlook. The price outlook for important Nevada commodities is presented in Appendix Table 3.

In the longer term, production recovery will be affected by the ability of producers to establish new stands that were damaged by the lack of water during the current and previous years' drought. There is some local substitution of corn for silage acreage in recent years, especially in dairy regions. However, this increase in silage acreage is small compared to the loss in hay area and is occurring only on a localized basis.

A significant portion of the state's hay is shipped westward to supply California dairy and cattle production and for providing high quality hay to the horse racing industry. Hay acreage in California is only about half of what it was 15 years ago. In addition, Nevada high-quality alfalfa cubes are shipped to Asian markets such as Japan. This has tightened the regional market for high-quality alfalfa hay and will be a major contributing factor to the potential for higher prices for hay in the next several years. Although some dairy herd liquidation resulted from the COVID-induced decline in demand for dairy products, dairy herd expansion (especially that resulting from the Dairy Farmers of America whole milk powder plant in Fallon) will gradually put upward pressure on regional hay and other feed demand. This will support local prices and provide the incentive for increased future production. As always, water will be a crucial factor in the ability of hay producers to expand output.

Nevada cow-calf producers are partly insulated from rising feed costs because of limited volatility in federal grazing fees. However, the need to purchase seasonal and supplemental feed still exposes them to fluctuations in feed costs. Moreover, extremely low precipitation this past winter exacerbates stress to grazing lands given drought in successive years. The deterioration resulting from year over year drought is especially challenging to cattle producers that utilize private grazing lands as they are subject to more variation in costs from contract to contract. Regardless of whether livestock are grazed on public or private grazing lands, forage quality and quantity are expected to deteriorate in the short term. The range will likely take several years to recover, leaving lingering although diminishing effects on grazing.

With lower yields and increasing costs, per acre profits diminished last year and are expected to remain constrained in 2021 (Figure 12). If adequate water is available in the next few years, per-acre profits will recover. Despite higher market prices, because of reduced acreage harvested, total revenues for producers are below those of the past. One factor that mitigated impacts on hay producer profits last year was lower operating costs, primarily due to lower fuel costs. As those costs move upward again, profits become squeezed in 2021 and show little chance for recovery over the next five years. For hay, the largest cost categories are machinery, fuel, and irrigation, with wages also reflecting considerable labor costs. Hay is more exposed to fuel costs than most other crops in Nevada. Hay is also water-intensive, making growing competition for this vital commodity a major risk factor. Steady prices expected in the next few years will maintain returns over costs. Eventually steadily rising costs will begin to erode profitability again in the last part of the projection period. Net returns for major Nevada agricultural commodities are shown in Appendix Table 4.

**Figure 12. Creeping Costs Will Erode Hay Profitability**

*Nevada alfalfa, \$/harvested acre*



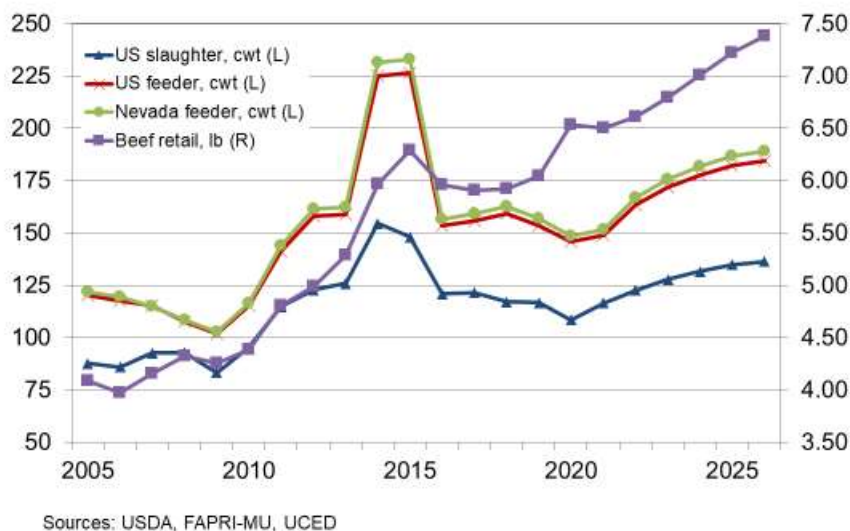
Sources: USDA, UCED

## Cattle

U.S. and Nevada ranchers saw cattle prices fall sharply in 2016, and prices continued sliding into 2020 (Figure 13), when they faced further pressure from supply chain disruptions in the meat processing sector from the impacts of the COVID pandemic. In 2021, feeder steer prices are again moving upward, although they remain lackluster. As excess inventories continue to be shed, cattle prices will increase cyclically through 2026.

**Figure 13. Cattle Prices Still Feeling COVID's Pinch**

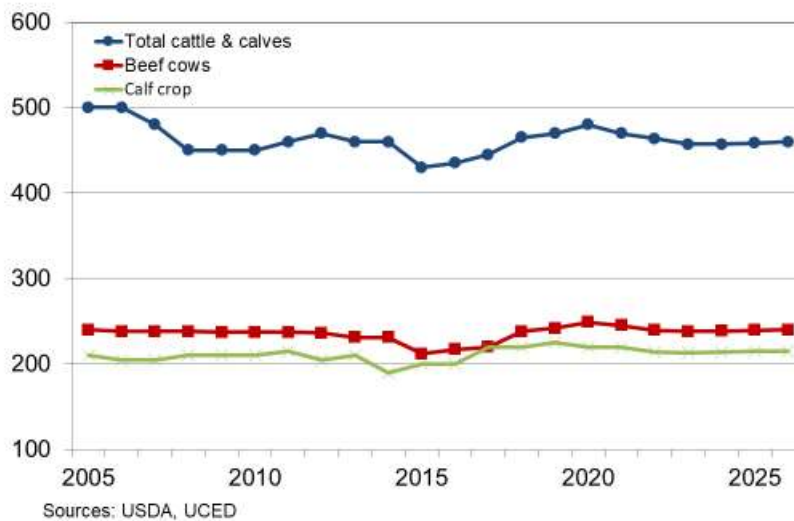
Cattle prices, \$



Nevada cattle inventories fell by the beginning of 2021 and are expected to fall further into 2023 (Figure 14). With low returns expected again this year, Nevada cattle numbers are expected to exhibit modest decreases induced by prices still reflecting the impacts of the pandemic before stabilizing in the last few years of the outlook.

**Figure 14. Cow-Calf Industry Stability Will Return**

*Nevada cattle, 1,000 head*



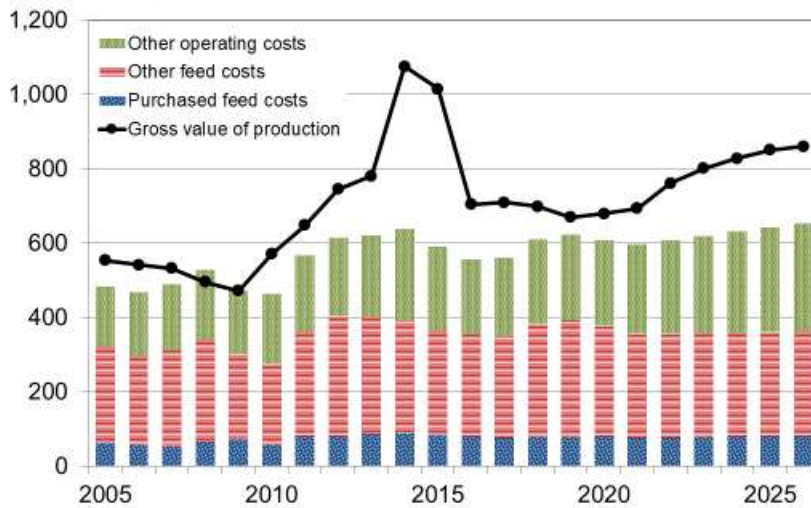
While non-feed costs are assumed to increase steadily in the next five years, driven in part by rising fuel costs, feed costs are expected to show slower rates of growth. In addition, many western herds are grazed on federal lands where grazing fees will remain at long-term historical rates, adding further stability to feed costs during the projection period. The grazing advantage is likely to improve if western rangelands are able to recover following the current drought. One area of risk for western public grazing is the increase in fire incidence and severity that has occurred in recent years, affecting the area available for grazing, if only on a temporary basis. Once wildfire impacts grazing lands, it takes several years for perennial grasses to re-establish and produce adequate forage.

As cattle prices remain constrained this year and non-feed costs exhibit upward pressure, low returns will persist and cow-calf profitability will only increase modestly in 2021, before recovering thereafter (Figure 15). As this portion of the cycle develops, herd expansion will conflict with the desire to sell cattle at improved prices, and inventories will rise only slowly until they reach levels where supplies and demand can equilibrate without price rationing. After this time, prices will begin to fall cyclically. Because of the high proportion of cow-calf operations in the west this region will be heavily impacted by the cyclical nature of the impacts on demand for calves.



**Figure 15. Prices, Profits Expected to Improve**

*Basin & Range cow-calf, \$/bred cow*

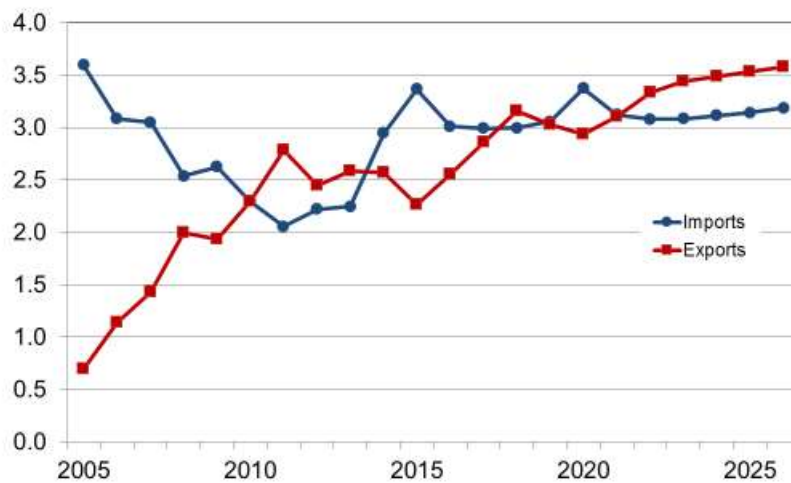


Sources: USDA, UCED

The combination of higher domestic beef prices and a stronger dollar hurt U.S. beef competitiveness on international markets and the trade balance reversed as exports decreased and imports jumped (Figure 16).

**Figure 16. Beef Trade Recovery Depends on Pandemic**

*Beef trade, bil lb*

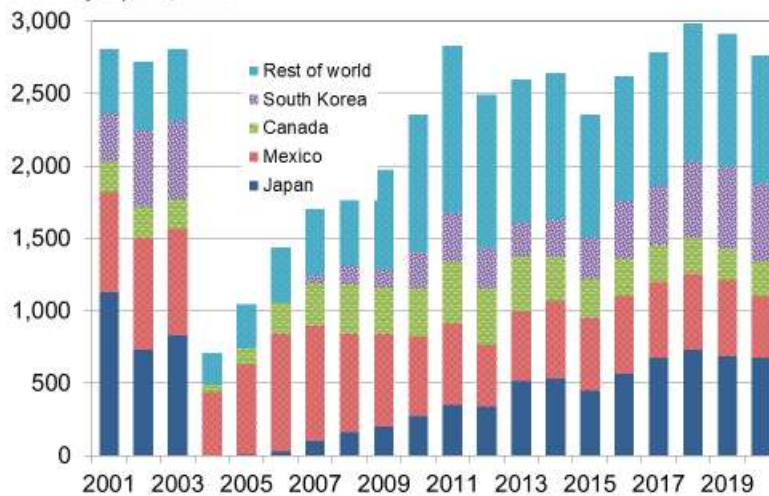


Sources: USDA, FAPRI-MU

Furthermore, several beef importers limited trade because of health concerns surrounding imported goods. Of the four largest export destinations for U.S. beef, only Canada did not reduce the quantities of American beef coming into its market (Figure 17).

**Figure 17. U.S. Beef Exports Weakened Last Year**

*U.S. beef exports, mil lb*



Source: USDA, FAS: Global Agricultural Trade System

As beef prices stabilize and the dollar eventually flattens relative to other currencies, U.S. beef will regain a competitive position on world markets. U.S. exports are expected to be competitively priced on international markets in the long run, and the U.S. net export position will favor American beef trade over the projection period.

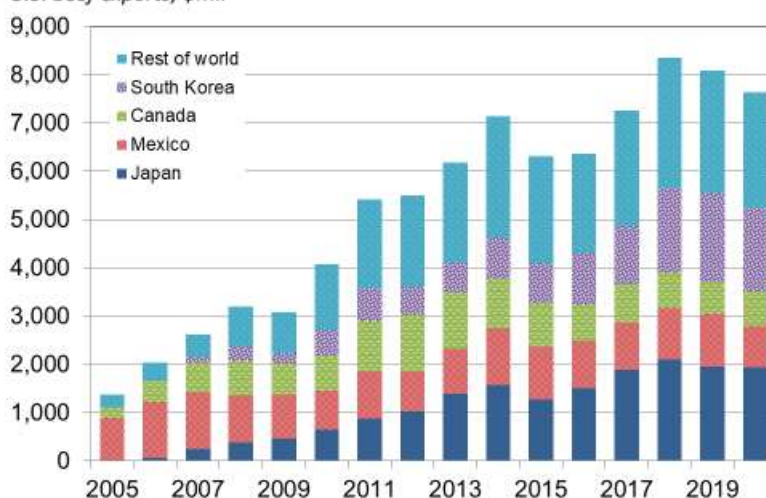
The weaker beef export volume last year also contributed to lower export value (Figure 18). In coming years, the recovering global economy, especially for developing countries, will expand meat, including beef demand. A stable U.S. dollar and rising populations and affluence in other nations, especially those with limited productive capabilities, provide an opportunity for American beef producers on the international market.

Increasing affluence has also been the dominant driver of rising commodity imports by China. However, U.S. beef is on the commodity list that could be subject to tariffs in response to those imposed by the U.S. While there is inconsistent enforcement of those trade restrictions by China, it is possible that beef trade with that country could be curtailed at times. What the current administration decides on permanent trade developments with China leaves a level of uncertainty about Chinese beef trade with the U.S.



**Figure 18. Trade Values Fall Off With COVID**

*U.S. beef exports, \$mil*



Source: USDA, FAS: Global Agricultural Trade System

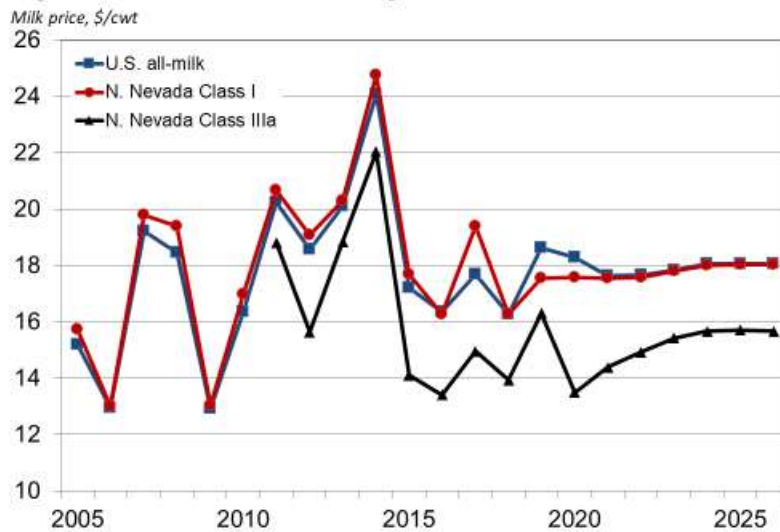
Many developing nations are also seeing incomes reach thresholds that typically indicate more demand for higher-quality diets, and beef producers will benefit. Particularly developing nations with a constrained land base, many of them Asian nations with rapid income growth, will turn to global markets to acquire agricultural products they have limited capability of producing domestically.

As global trade returns to normal patterns export volume will expand, helping to maintain export values. Export quantities are projected to consistently increase throughout the outlook, and gradual strengthening of prices will boost export values. Japan, Mexico, and South Korea are expected to maintain their positions as top international markets for U.S. beef.

### *Dairy*

Milk prices were extremely volatile in 2020, and were often very low. The reduction in school lunch programs sharply reduced fluid milk consumption by students. The closure of restaurants or reduction in occupancy for those remaining open curtailed the consumption of items such as cheeses and butter, which are consumed at a higher rate with premium dining. All classes of milk experienced drops in the first half of 2020 before recovery began later in the year. For the year as a whole, all-milk prices managed to average close to 2019 levels (Figure 19, but required significant supply rationing to attain those levels. Dairy herds in many parts of the country, including Nevada, were reduced and feed rations were altered to reduce output per cow for some time periods. Particularly, manufacturing grades of milk experienced volatility and reduced levels. While they are not expected to regain the highs of 2014, milk prices are expected to gradually increase in the medium to long term to levels similar to averages prior to 2010.

**Figure 19. COVID Hit Dairy Products**

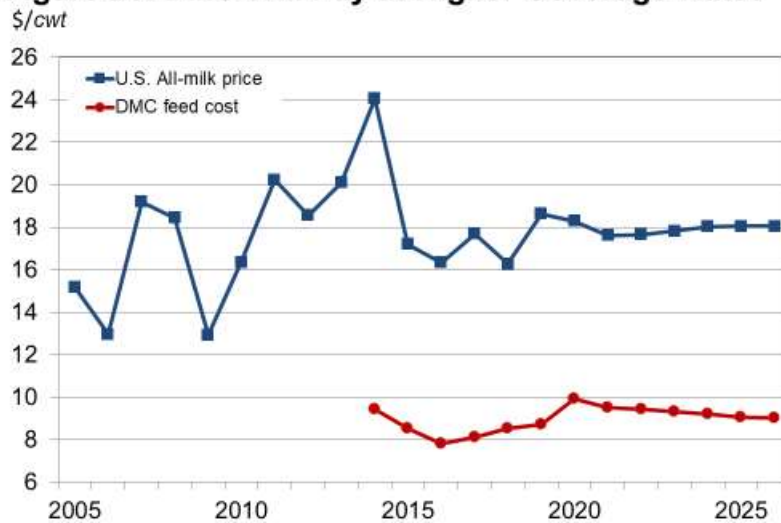


Source: Nevada Dairy Commission, USDA, FAPRI, UCED

Even as prices stabilize in 2021, dairy producers are feeling the squeeze from substantially higher feed costs, especially corn and soybean meal, but also hay and other feedstuffs. The Dairy Margin Coverage (DMC) will continue to come into play to help dairy producers maintain margins. The DMC establishes a margin floor and reduces the volatility in margins. Government purchases of dairy products will occur under the Dairy Product Donation Program as a means of temporarily supporting prices sufficiently to bring margins back above the threshold that triggers payments. Because margins are targeted instead of prices, milk prices are expected to stabilize in a pattern similar to the feed costs projected in this baseline (Figure 20).

The basic margin protection level was increased from \$4 to \$5 per hundredweight at no cost to the producer in the February 2018 spending bill. The annual \$100 administrative fee has been waived for underserved farmers, which include veterans, socially disadvantaged, minorities, and women. Tier 1 coverage applies to the first five million pounds of historical base production. However, higher margins (up to \$9.50 per hundredweight) can be obtained for a premium to be paid by the dairy farmer. The margin is calculated monthly instead of using the previous two-month average that was under the previous Margin Protection Program (MPP). In combination with the higher margin this shorter time frame provides more potential for payments as margins will now be required to drop below the threshold for a shorter period of time in order to trigger payments.

**Figure 20. DMC Will Pay at Higher Coverage Rates**



Sources: USDA, FAPRI-MU

For coverage above the basic \$5 per hundredweight margin, the premiums are significantly higher for Tier 2 coverage, that is, annual base production above five million pounds. This feature makes the legislation geared more toward small dairy producers rather than large operations such as those found in the west. However, the restriction of selecting DMC coverage or Livestock Gross Margin (LGM) insurance has been removed, improving the safety net for larger producers. While milk prices are expected to be high enough and feed component prices low enough not to consistently trigger payments at the \$5 margin, it is probable that some payments will be made at higher levels of margin coverage in the baseline.

The DMC was conceived and implemented in an environment when feed costs were extremely high. If that environment persisted, the program would pay substantially more to dairy producers. However, with expected moderate feed costs over the next ten years, the program will be only periodically triggered, especially at lower margins. On the flip side, if feed costs were to jump dramatically and margins become substantially reduced, the program would become very expensive to operate.

It should be noted that Nevada dairy rations are different than the standard rations used in many grain and oilseed producing areas, but the feed cost calculation for the DMC is based on those standard rations. As a result, the DMC margin might not reflect margins in Nevada.

With little relaxing of feed costs in coming years, dairy producers will struggle to keep net returns positive, especially given the unremarkable level of milk prices expected. However, with the meager increases in milk prices in coming years barely able to offset increases in non-feed costs, dairy market net returns are expected to be quite constrained (Figure 21). The DMC will be required to keep some (especially smaller) dairy farmers in operation.

**Figure 21. Feed Costs Hitting Dairy Hard in 2021**

*Nevada dairy, \$/cwt of milk sold*

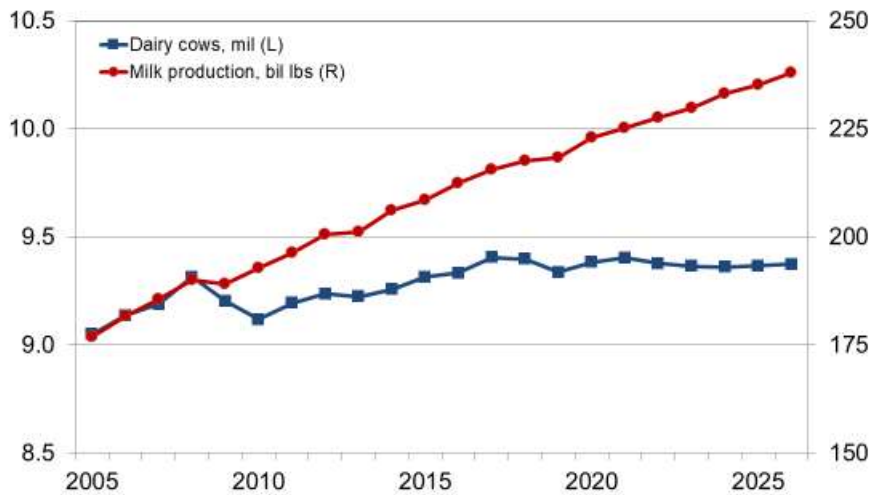


Non-feed costs are expected to increase at rates similar to overall inflation so that when total operating costs are considered, the rate of increase will not outpace the increases in dairy gross revenues. Margins will be slightly positive over the projection period. This suggests that small dairies that are unable to withstand low margins will face challenges, and larger operations are more likely to be the source of expansion. Larger dairies characteristic of Nevada have some potential to expand production to provide milk to local processors. It should be noted that the gross value of dairy production also includes sales of calves and cull cows. With lower cattle prices in 2020 and 2021, the value of cattle sales for dairy producers is currently constraining profitability and will provide only modest relief in the next few years.

Milk prices will be insufficient to induce expansion of milk cow inventories on a national basis in the next several years. Although dairy cow inventories have remained in a relatively small range since 2000, milk production increased more than 20% over that time (Figure 22). Ongoing increases in milk yield per cow will be instrumental in supplying the milk requirements of the U.S. Breeding, nutrition, veterinary science, and lactation cycle management are among the factors combining to increase the average cow's ability to produce milk. Milk production increases will be vital to supplying domestic requirements and meeting expanding dairy product demand on international markets, as well.

**Figure 22. Yield Increases Will Drive Milk Supply**

*U.S. dairy*



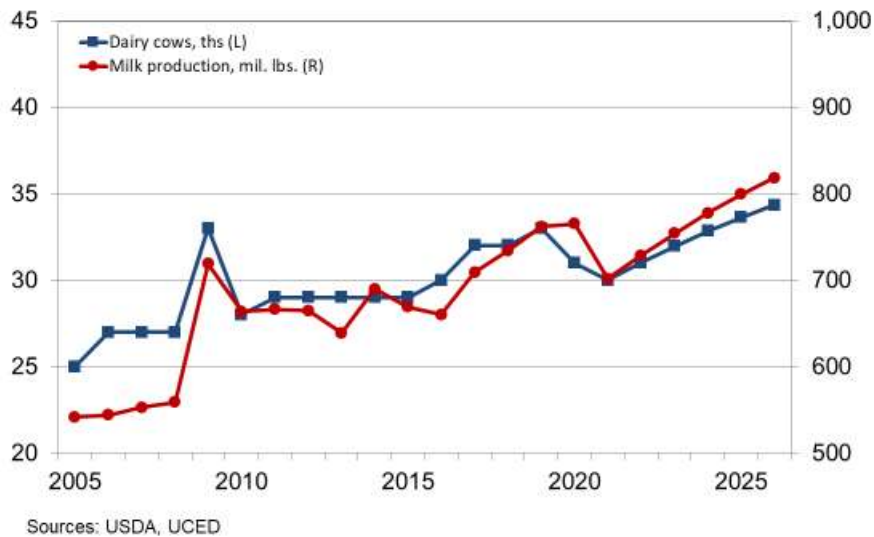
Sources: USDA, FAPRI-MU

Milk prices in Northern Nevada are heavily influenced by the whole milk powder plant in Fallon. Most Northern Nevada produced milk is utilized at the plant and bought from producers at the lower Northern Nevada Class IIIa price instead of a Northern Nevada Class I price as in previous years. In order to supply Class I milk to California bottlers, Northern Nevada producers received a lower effective price as they had to meet transportation costs to California. With the spike in fuel prices, those costs have increased markedly this year. Because they now sell much of their milk to the Fallon plant, those transportation costs will be much less, allowing them to sell milk at the lower Class IIIa price. The price differential is expected to be made up by no longer having to factor transportation costs to California into the local milk price.

Expansion of the state's dairy herds necessary to increase milk production levels sufficient to meet the plant's two million pound per day capacity with locally produced milk was occurring slowly prior to the pandemic. With the disruption to dairy markets and prices in the past year, Nevada dairy cow inventories have been reduced. With the current extreme drought, another major limiting factor is water. The drought is severely cutting water availability to run and expand dairy farms, as well as to produce locally-grown feeds such as hay and corn silage. Hay acreage is receding from prior years' levels. As a result, the herd expansion has reversed in the last two years (Figure 23). Furthermore, economic headwinds facing the dairy industry are making it difficult for local producers to expand and out-of-state producers to establish new operations in Nevada. But because of current modest milk prices, the plant can buy milk from surrounding states such as Idaho and Utah and remain in operation.

**Figure 23. 2020 Herd Liquidation Hit Nevada Industry**

*Nevada dairy*



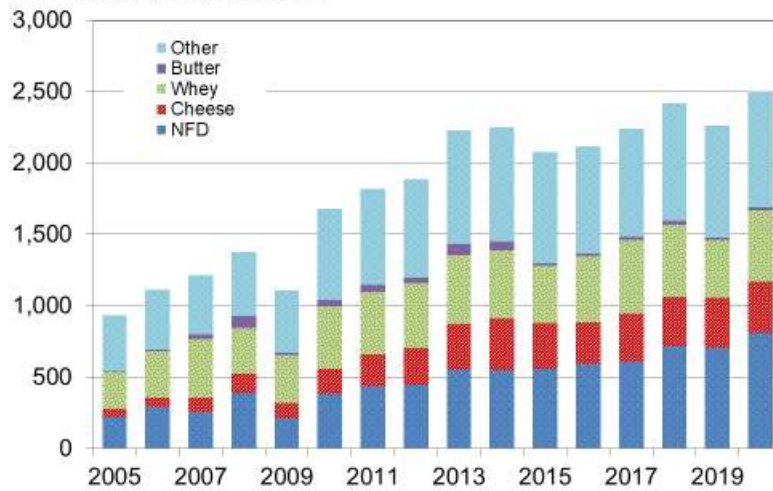
Expansion of Northern Nevada’s dairy industry would markedly increase feed demand especially for locally-grown hay and corn silage, providing larger local markets for those crops and supporting prices for crop producers. Especially with inadequate precipitation during the past two winters, a major issue for expanding the state’s dairy herd and producing feed is the ever-present need for scarce water.

Domestic consumption will provide only limited growth potential. Rapidly growing and increasingly affluent populations in developing and emerging economies, especially in Asia, are providing excellent market opportunities for dairy products (Figure 24).



**Figure 24. Dairy Export Volumes Remained Healthy**

*U.S. dairy exports, ths tonnes*

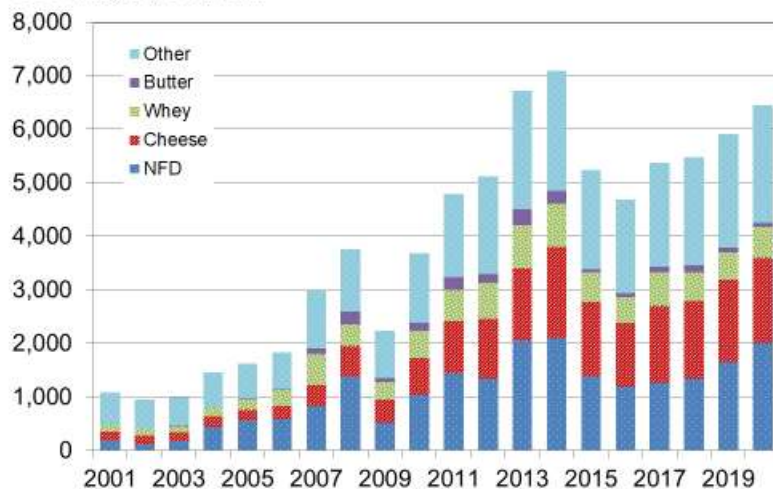


Source: USDA, US Dairy Export Council

In recent years, milk powder and cheese purchases in overseas markets have increased as dairy prices softened after the spike of 2013 and 2014. While export quantities have been generally healthy, the lower prices and strengthening dollar through 2020 pushed the value of those exports lower (Figure 25).

**Figure 25. Modest Prices Dampened Export Values**

*U.S. dairy exports, \$mil*



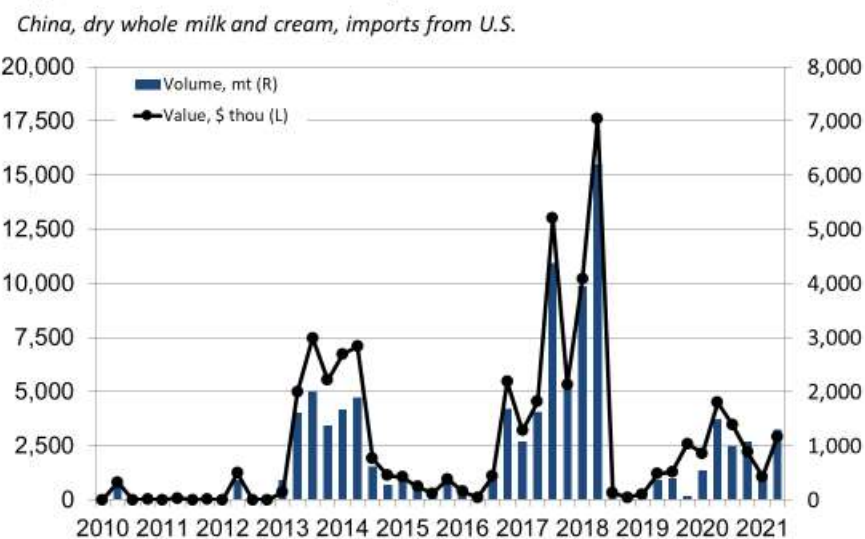
Source: USDA, FAS: Global Agricultural Trade System

Like many other agricultural commodities, global markets for dairy products are viewed as an opportunity for expanding the domestic industry. Nevertheless, U.S. dairy product market

share requires competitive prices, and a strong dollar will dampen U.S. competitiveness. With the expectation of a slightly weaker dollar in the long-term, the international market will remain a vital supporter of the domestic dairy industry. Competing exporters like New Zealand and Australia have favorable exchange rates and geographic location advantages to expanding Asian markets, making their products less expensive on those markets. Nevertheless, the U.S. dairy industry's growth potential is greatly enhanced by international demand. China (as well as other rapidly growing Asian economies) is viewed as an immense market to target for increasing dairy product exports.

The emerging world market is precisely the impetus behind the evolving dairy product industry in Nevada. China is the primary market for the milk powder products of the Fallon plant, but recently other affluent international markets looking to the world market for dairy products have been targeted. This will help mitigate some volatility of U.S. sales of products such as whole milk powder, since China has proven to be an on-again off-again market (Figure 26). New Zealand and Australia are dominant exporters and have been successful in capturing much of the large Chinese market, but the market is also attractive to other suppliers.

**Figure 26. China WMP Imports Remain Weak**



Source: USDA, FAS: Global Agricultural Trade System

### *Sheep and Wool*

Sheep and wool producers historically relied on a variety of government programs to mitigate margin fluctuations. As some of those programs were eliminated (e.g., National Wool Act of 1954) severe adjustment took place in this industry. There were several programs since 2000 such as the Lamb Meat Adjustment Assistance Program, the Ewe Lamb Replacement and Retention Program, and reinstitution of federal support for wool and mohair under the Farm Security and Rural Investment Act of 2002. However, the lamb meat and ewe lamb programs were temporary. Much of the support has disappeared, leaving the marketing loan program for

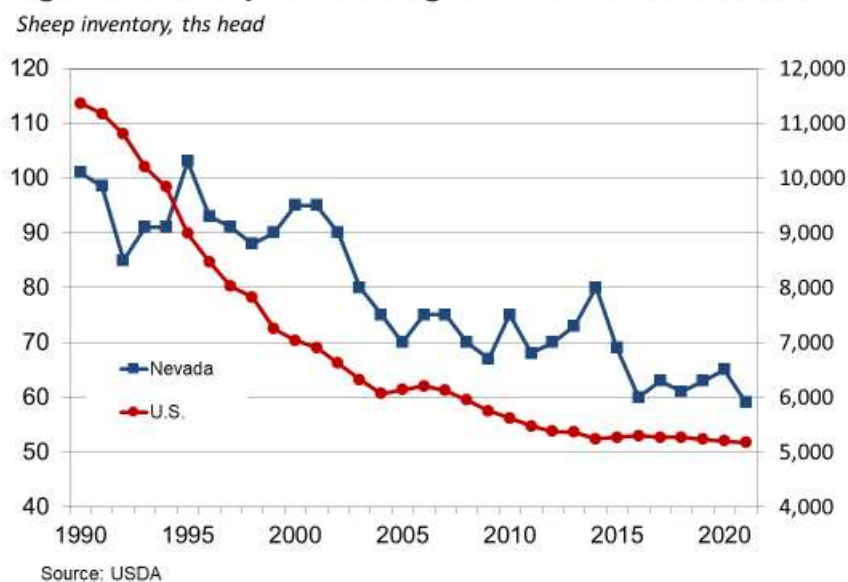


wool the primary support mechanism, which is not likely to be triggered at current and expected wool prices. There is also a Livestock Risk Protection program from the RMA.

Under the 2014 farm bill, the Sheep Production and Marketing Grant Program was introduced to strengthen and enhance the production and marketing of sheep and sheep products in the United States. That program has been retained under the current farm bill. It also authorized the Livestock Indemnity Program to assist with disasters that kill sheep and lambs and provides for cost-share of sheep killed by federally re-introduced or regulated predators including avian predators. Even with these programs, there is little support for the sheep and wool industry.

Sheep producers have continually reduced the national flock size to maintain prices and margins given flagging demand. In the period since 1990, national sheep inventories have fallen around 55%, and in Nevada they have been reduced by more than 40% (Figure 27). The effects on sheep and wool markets stemming from COVID, and the deterioration of forage conditions in the Great Basin contributed to the estimated 6,000 head reduction in the Nevada flock from 2020 to 2021. However, some of the reduction in the Nevada flock since 1990 was a sharp drop in the two years of 2015 to 2016 that was never reversed, partly related to declining forage availability with the previous drought.

**Figure 27. Sheep Flock Long-Term Decline Continues**



Unlike other markets for livestock and products, the U.S. is not a dominant player in the global sheep and wool markets. As a result, developments in major sheep producing regions have a more pronounced impact on U.S. producers than for other commodities, and American producers have struggled to maintain competitiveness. Nevertheless, this also provides windfall opportunities for domestic producers as they can also benefit from adverse global conditions or

global demand increases which force global wool and sheep meat prices higher. However, these windfalls are very short-term in nature and often unpredictable.

Because Nevada sheep and wool producers represent a small share of national and global output, they are subject to prices largely determined elsewhere. Their position as price-takers has limited the competitiveness of American sheep and wool producers for the past six decades and contributed to the decline in national and state flocks.

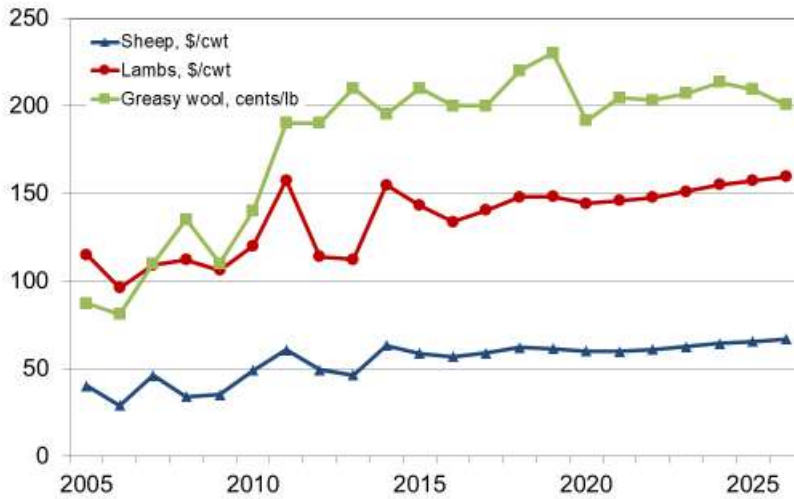
While lamb and mutton are losing ground to other meats in the developed world, consumers in developing nations are increasing consumption of these products as incomes push their propensity to consume upward and population growth adds to the demand base. As a result, global lamb and mutton trade is increasing, albeit slowly and inconsistently. However, the U.S. participation in global sheep meat markets is extremely small. As a result lamb and sheep prices are largely determined in the domestic market.

Wool demand has generally declined over the past two decades, although it has stabilized in recent years, primarily as a result of rising demand in China, developing Africa, and the Former Soviet Union. Recently, upper-end products made from high quality wool have found niche markets, and are supporting demand and prices for wool. In the past year, market disruption during the pandemic induced steep price declines for wool as consumer demand for clothing and textiles dropped globally under stay-at-home measures. While those prices have made significant recovery as economic engines respond to COVID alleviating actions such as vaccines, they have not regained pre-pandemic levels, and remain well below the historic highs reached in 2018.

Even with the otherwise expected tepid growth in global markets that will offer some support to prices (Figure 28), the sheep and wool industry in the U.S. will continue to decline in order to match supply of sheep meat to a weak demand base. However, the rate of sheep inventory decline is not expected to be as rapid as in the past three decades. Much of industry profitability will come from the wool side, although wool has a high exposure to prices determined on the Australian market, and domestic producers have little ability to influence those prices.

**Figure 28. Flat Australian Prices Dictate Wool Market**

*Nevada average prices*

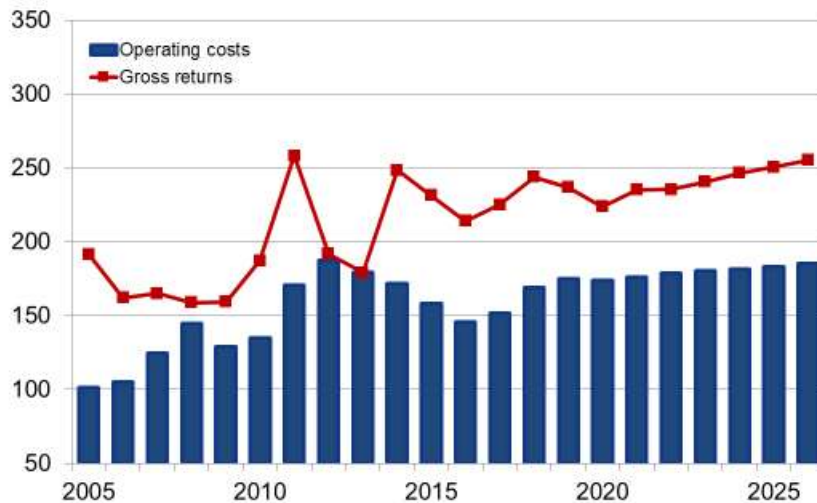


Sources: USDA, ABARES, UCED

Moderate upward cost pressures are expected to persist throughout the baseline. Maintaining adequate returns will require sheep numbers to continue declining to rationalize supply and demand. However, with the expected continued downsizing of domestic flocks resulting in prices adequate to rationalize supply and demand, profitability will be maintained (Figure 29).

**Figure 29. But Returns Keep Pace With Costs**

*Sheep and wool, \$/bred ewe*



Source: USDA, UCED

There are a few important harvest considerations related to potential prices for sheep products. Because there is currently little slaughter of livestock, including sheep in Nevada, live animals must be marketed and shipped out of state. As a result, live sheep and lamb prices are somewhat lower in the state compared to national benchmark prices at San Angelo, Texas. Shearing does take place within the state and Nevada prices hold a premium over national average prices. The presence of Merino sheep in Nevada enhances wool quality and results in higher prices locally.

## **Risks to the Outlook**

This outlook is perhaps the most uncertain of the past decade. The primary risks to the outlook stem from assumptions about economic, technological, energy, geo-political, policy, and weather developments that might be substantially different from actual developments in the future. This year, the added threat of a resurgence in COVID with the Delta variant further challenges the already uncharted territory.

Outlook accuracy aside, the factors discussed in this report present real risks for production, prices, and producers' bottom lines. For agriculture, weather is an ever-present risk. Damaging weather can take the form of several weeks or months of abnormal temperature or precipitation that can affect large areas. The duration and depth of the severe drought gripping most of the west will dictate production of water- and forage-dependent commodities in the Great Basin. Weather impacts, and associated disasters such as wildfire, can also come in sudden catastrophic events that tend to be more localized in nature. Since many crop safety net programs tend to be price oriented, they generally do not come into play in such instances. However, more recent programs combine price and yield that address drastic declines in overall revenues. If the breadth of damage is wide enough, Congress can enact ad hoc disaster bills. With smaller emergencies, however, farmers and ranchers are often left with insurance as their only source of aid. Insurance programs have become more of a focus for policymakers, and are the primary risk-mitigating tool under current farm law. Congress reduced other programs in the interest of budgetary savings and to continue pushing U.S. agricultural policy toward more non-market distorting programs.

There are several factors, both domestic and foreign, that could either derail an economic expansion or accelerate it. The increasingly global economy offers substantial business and trade opportunities. It also means that political, economic, and financial troubles in a major economy can spill over into markets elsewhere. The uncertainty surrounding trade wars with China presents risks to the agricultural economy. But while such developments could dampen global growth, they will not derail it. Nevertheless, high deficits and debt will force resources to be devoted to service these shortfalls in years ahead instead of being used to fuel growth.

Interest rates have dropped again in order to stimulate the lackluster economy impacted by the COVID pandemic. But inflation is emerging and it is yet to be determined if and to what extent it is driven by transitory impacts resulting from COVID economic disruptions.

Regardless, it could convince the Fed to start increasing rates in the future and continue to do so as the economy tightens and inflation threats intensify. Higher interest rates boost costs for producers. Furthermore, housing demand continues to rise, thereby adding to the increase in demand for credit and leading to higher interest rates.

The volatility in energy markets and prices has intensified this year. There are several sources of this volatility that are particularly troublesome and both are very difficult to predict. The first is the perpetually unstable geo-political situation in major petroleum producing regions, particularly the Middle East. The continued unrest in Iraq and Syria boosts risk to global energy markets and petroleum prices. Cartels, wars, terrorism, and economic sanctions and their consequences impact the supply and price of oil. There is also the fallout on energy markets of shutting down important pipelines, and international interference in the ability of others to operate. The speculative trade in petroleum contracts often causes wild swings in prices, and can exacerbate volatility.

As always, there is uncertainty surrounding the crude oil price, including the increases projected. As prices rise with economic expansion, substantial exploration and expansion of production capacity will occur. This presents a downward risk for crude oil prices in the short to medium term.

Past exploration has resulted in new production capacity that will not be absorbed overnight and crude oil inventories should generally be more than adequate in the next five years. This has led to high inventories and sustained low prices. As such, recent exploration activity has dropped dramatically. While oil prices will rise with growth in the global economy, there is the potential for the market to balance at substantially different prices than in this projection, particularly in the outer years as continually increasing oil production will be necessary to meet global demand.

Farmers and ranchers will have to navigate this minefield of risks. However, the generally mediocre financial situation for agriculture in the U.S. at present magnifies that risk in the short term. As always, producers' long-term survivability will depend on making sound decisions based on the price and cost environment they are facing. This outlook lays out one estimate of what that environment will look like and provides information to weigh in the decision making process.

## **Appendix Tables**

**Table 1. Economic Assumptions**

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Real GDP growth, %</b>										
U.S.	2.3	3.0	2.2	-3.6	4.0	3.9	2.5	2.5	2.5	2.4
World	3.4	3.2	2.6	-4.0	4.4	4.1	3.2	3.1	3.1	3.0
<b>Interest rates, %</b>										
Fed funds rate	1.00	1.83	2.16	0.38	0.09	0.09	0.10	0.12	0.13	0.14
Prime rate	4.10	4.90	5.28	3.54	3.25	3.25	3.25	3.25	3.25	3.26
30-yr mortgage	3.99	4.54	3.94	3.12	2.90	3.14	3.27	3.42	3.61	3.82
<b>WTI crude oil price</b>										
\$/barrel	50.96	64.89	56.98	39.24	45.53	52.34	54.24	56.02	59.25	64.15
% change	17.9	27.4	-12.2	-31.1	16.0	15.0	3.6	3.3	5.8	8.3
<b>Population, % change</b>										
U.S.	0.6	0.5	0.4	0.3	0.2	0.4	0.5	0.5	0.6	0.6
World	1.1	1.1	1.1	1.0	1.0	1.0	1.0	0.9	0.9	0.9

*Sources: IMF, IHS Markit*

**Table 2. Production Cost Indices, 2015=100**

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Seed	95	97	99	98	101	104	106	107	109	111
% change	0.6	2.3	1.2	-0.4	3.3	2.6	1.7	1.5	1.4	1.5
Fertilizer	76	76	80	83	86	90	89	89	89	90
% change	-7.8	0.8	5.1	3.3	3.6	4.1	-1.0	0.4	0.5	0.5
Agricultural chemicals	98	95	95	92	96	97	99	100	102	104
% change	-3.4	-3.2	0.2	-2.6	3.6	2.0	1.5	1.6	1.6	1.7
Feed	89	94	97	98	103	101	100	99	99	98
% change	-6.5	5.4	3.1	0.5	6.0	-2.5	-0.7	-0.7	-0.8	-0.6
Farm machinery	103	105	108	108	110	112	113	115	116	117
% change	2.0	2.0	3.3	-0.1	2.0	1.8	0.9	1.1	1.2	1.3
Trucks & Autos	100	100	100	101	102	103	104	105	105	106
% change	0.0	-0.5	0.3	0.6	1.1	1.3	0.9	0.3	0.6	0.8
Fuels	100	112	116	112	115	122	130	133	138	143
% change	13.7	12.5	3.5	-3.3	2.2	6.4	6.7	2.4	3.2	4.2
Wages	106	113	119	121	124	128	132	137	141	146
% change	2.8	6.0	5.5	1.5	2.6	3.3	3.4	3.2	3.2	3.3
Farm services	99	101	103	102	104	107	109	111	114	116
% change	-2.8	1.9	1.9	-0.2	1.8	2.4	2.2	2.2	2.1	2.2
Farm repairs	102	106	108	109	111	114	116	119	122	125
% change	1.8	3.3	2.4	0.8	1.8	2.3	2.5	2.6	2.5	2.2
Farm supplies	101	105	109	110	111	113	114	116	118	120
% change	1.2	3.7	3.5	1.4	0.9	1.1	1.2	1.5	1.7	1.6

*Sources: USDA, BLS, IHS Markit*



**Table 3. Nevada Agricultural Commodity Prices**

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Livestock &amp; product prices</b>										
Feeder steers, \$/cwt	159.09	162.63	156.82	148.64	151.76	166.97	175.79	181.91	186.87	189.11
Milk, \$/cwt										
N. NV Class I	19.40	16.26	17.55	17.57	17.55	17.57	17.80	18.01	18.03	18.03
N. NV Class IIIa	14.96	13.94	16.30	13.49	14.38	14.93	15.42	15.67	15.71	15.66
Sheep, \$/cwt	58.74	62.01	61.33	60.00	59.81	60.80	62.38	64.17	65.42	66.81
Lambs, \$/cwt	140.27	147.86	147.96	144.24	145.77	147.66	151.00	154.85	157.16	159.54
Wool, \$/lb	2.00	2.20	2.30	1.91	2.05	2.03	2.07	2.13	2.09	2.01
<b>Hay, \$/ton</b>										
Alfalfa	176	174	175	182	180	180	179	177	176	175
Other hay	153	178	171	185	180	170	169	168	166	166

*Sources: USDA, FAPRI, UCED*

**Table 4. Nevada Estimated Returns**

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Livestock and Products</b>										
Cow-calf, \$/bred cow										
Gross revenue	710.20	699.25	669.96	680.00	693.91	761.65	800.97	828.21	850.32	860.29
Variable costs	560.60	609.41	622.68	607.12	597.66	607.89	619.92	631.56	642.73	653.73
Net returns	149.60	89.84	47.28	72.88	96.25	153.77	181.04	196.65	207.59	206.56
Milk, \$/cwt										
Gross revenue	19.80	18.20	20.39	19.02	18.18	18.74	19.20	19.55	19.70	19.76
Variable costs	16.82	16.91	17.15	17.83	18.99	18.80	18.83	18.88	18.93	19.03
Net returns	2.98	1.29	3.25	1.19	-0.82	-0.06	0.37	0.66	0.77	0.73
Sheep and Wool, \$/ewe										
Gross revenue	225.00	243.87	236.78	223.78	235.20	235.40	240.48	246.40	250.66	255.13
Variable costs	151.77	168.87	175.13	173.70	176.08	178.46	180.21	181.65	183.23	185.32
Net returns	73.22	75.00	61.65	50.08	59.12	56.95	60.27	64.75	67.43	69.81
<b>Alfalfa hay, \$/acre</b>										
Gross revenue	756.80	817.80	857.50	800.80	790.78	828.97	841.22	842.22	842.67	845.99
Variable costs	672.20	692.27	713.14	689.47	703.22	725.29	738.30	755.67	775.32	794.22
Net returns	84.60	125.53	144.36	111.33	87.56	103.68	102.92	86.56	67.35	51.77

Sources: USDA, UCED