State OF THE Market

AgIS Capital

Agricultural Investment Strategies

VOLUME 8 • SECOND QUARTER, 2024

WELCOME TO OUR ANNUAL STATE OF THE MARKET REPORT

Our Annual State of the Market Report provides an overview of the trends and forces driving farmland returns. This issue discusses how the referenced trends affect current and future farmland investment performance. We also review the National Council of Real Estate Investment Fiduciaries (NCREIF) Farmland Index and offer context and commentary on the asset class's recent and projected performance based on macroeconomic trends. Finally, we examine the causes of the historically low-income performance of permanent crops since 2020, with particular focus on nut crops.

Down, But Not Out

The general farm economy in the United States (U.S.) is expected to slow down in 2024. The relatively strong value of the U.S. dollar continues to suppress the competitiveness of U.S. agriculture producers. Persistent inflation remains elevated above targeted levels, maintaining a lower bound for the Federal Reserve Bank's policy rate, contributing to high lending costs and reduced margins, all when commodity prices are trending lower. Further, there are no signs of stopping Russia's ongoing invasion of Ukraine and international strained relations between NATO and Russia persist. Tensions between China and the U.S. also remain elevated, and the conflict between Hamas and Israel has the potential to elevate and spread throughout the Middle East. The farmland market is down, especially permanent cropland in California. We see a light at the end of the tunnel, and we believe our investment strategy of acquiring high quality, water-rich, permanent plantings will reward institutional investors. The next two years may prove to be the best period to accumulate permanent cropland assets.

IN THIS ISSUE

ABOUT AGIS CAPITAL

AgIS Capital (AgIS) acquires and manages high-quality, investment-grade farmland assets. When opportunities exist to create and capture additional value for clients, we also invest in related operating companies involved in agricultural commodity processing. At present, AgIS is emphasizing investments in U.S. permanent croplands because we believe that sector's value proposition is more consistent with the risk and return objectives of institutional investors. We also strategically review offshore opportunities that complement our investment operations in the United States.

Trends

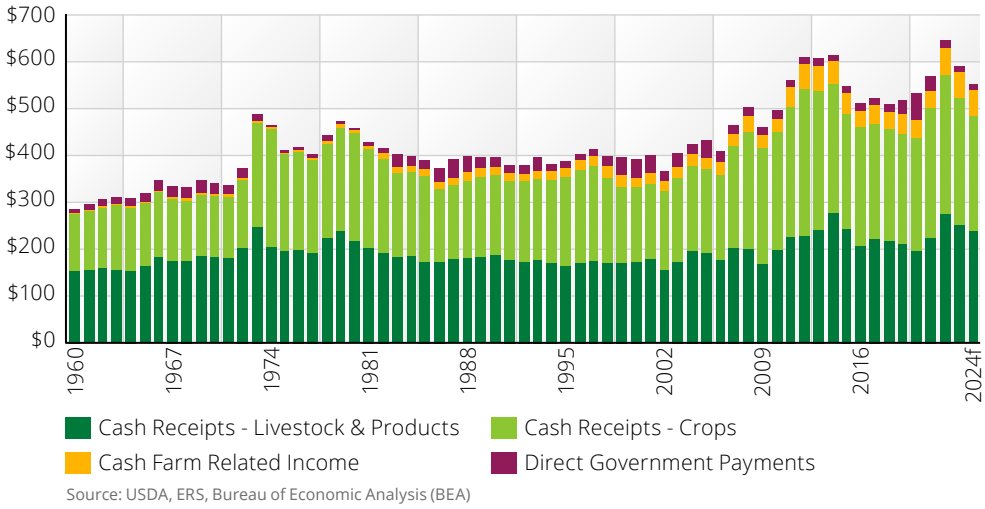
On February 8, 2024, the United States Department of Agriculture's (USDA) Economic Research Service (ERS) released its 2024 Farm Sector Income Forecast.

In real terms, gross cash income is expected to fall 6.2 percent to $549.8bb in 2024, down 14.2 percent from the record of $640.9bb set in 2022.

The reduction is primarily attributable to lower than expected cash receipts for crops (down 9.1 percent), and also a reduction in receipts for livestock products (down 4.7 percent), farm-related income (down 3.1 percent), and direct government payments (down 18.3 percent) (see Figure 1)). The value of feed crops (corn, sorghum, barley, and oats) is expected to fall 15.0 percent to $79.1bb, while oil crops (primarily soybeans) are forecast to drop 12.1 percent to $54.9bb.

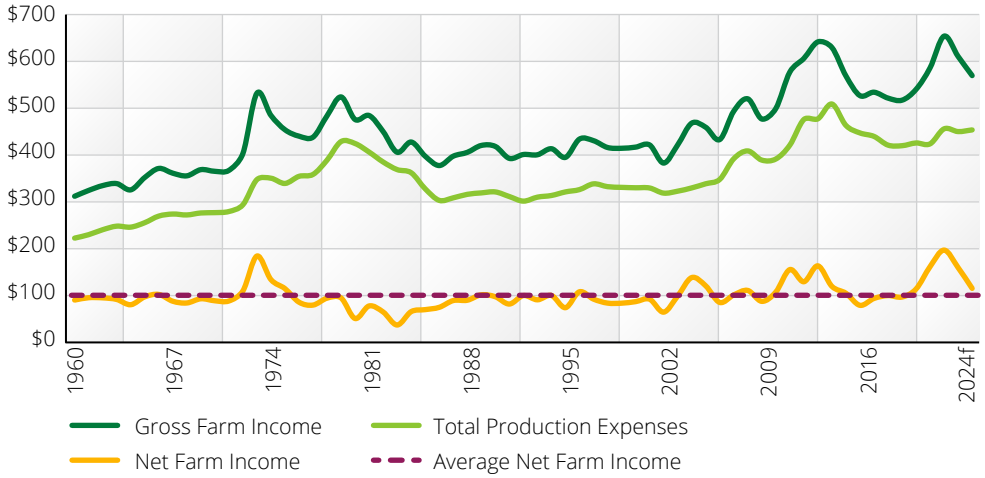
The real value of total production expenses is expected to increase 1.5 percent to $455.1bb (see Figure 2)). Higher livestock and poultry purchases and pesticide and storage costs are expected to outweigh lower feed purchases and fuel expenses. In real terms, interest expense is also expected to fall 1.6 percent to $34.4bb, though it will remain 34.6 percent higher than in 2022.

Figure 1) Real Gross Cash Income Components: 1960 to 2024f, billions, 2024 dollars



Source: USDA, ERS, Bureau of Economic Analysis (BEA)

Figure 2) Real U.S. Farm Income Components: 1960 to 2024f, billions, 2024 dollars



Source: USDA, BEA

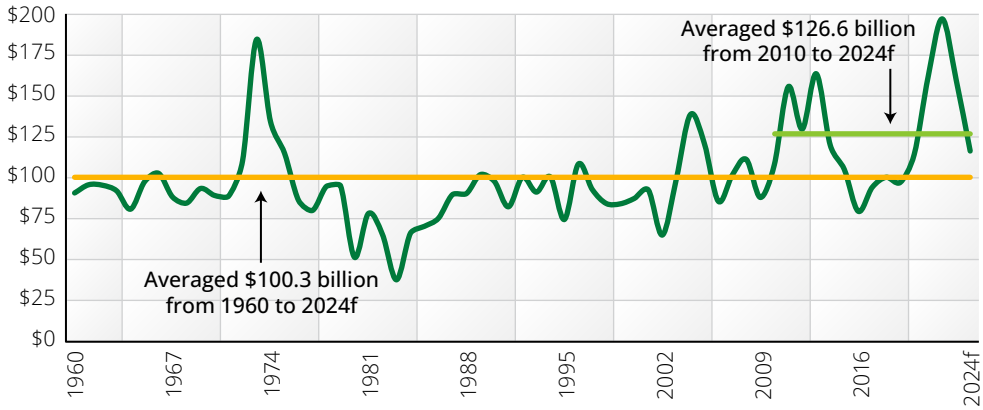
Due to the reduction in cash income and increased production expenses, real net farm income (NFI) is expected to drop 27.2 percent to $116.1bb in 2024 (see Figure 3)).

In real terms, the 2024 NFI forecast would be the twelfth highest since 1960 despite the reduction just referenced. The estimates would be 15.8 percent higher than the average between 1960 and 2024f and 8.3 percent lower than the average from 2010 to 2024f (as depicted in Figure 3)).

In real terms, U.S. agriculture exports are expected to fall 7.3 percent to $169.5bb because of lower-than-expected corn, sorghum, and soybean exports. Agriculture imports are expected to remain flat at $200.0bb. If expectations come to fruition, U.S. agriculture imports will exceed exports by $30.5bb, the lowest net export margin in over 60 years (see Figure 4)).

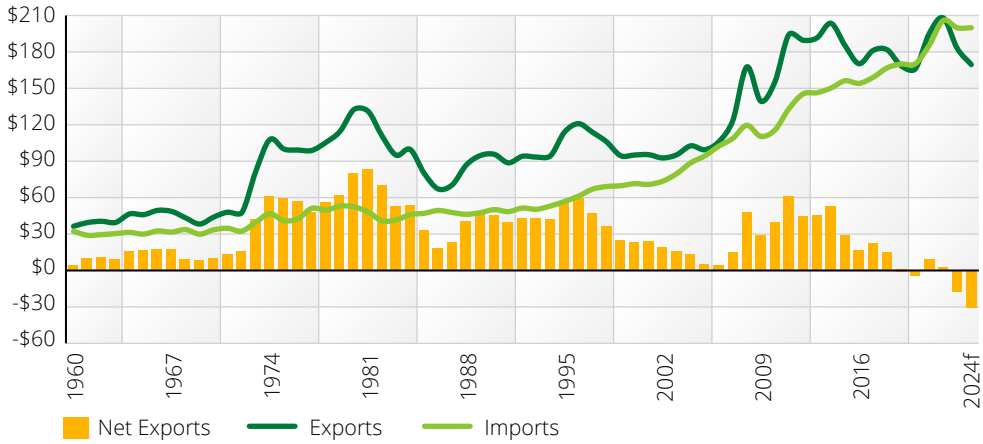
The real value of farm sector debt is forecasted to increase 2.8 percent to $547.6bb. Real estate debt is expected to increase 3.8 percent to a record high of $377.1bb, while non-real estate debt is expected to remain flat in 2024 at $170.5bb, which remains 31.4 percent lower than the record achieved in 1979 (as portrayed in Figure 5)). For the most part, farm sector coverage ratios remain in line with the past decade, but that could change if interest rates remain elevated.

Figure 3) Real U.S. Net Farm Income:
1960 to 2024f, billions, 2024 dollars



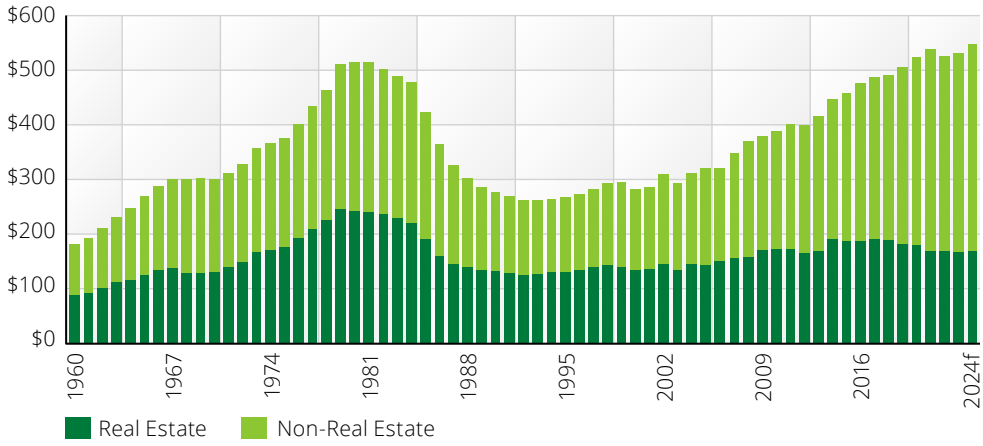
Source: USDA, BEA

Figure 4) Real U.S. Agriculture Imports and Exports:
1960 to 2024f, billions, 2024 dollars



Source: USDA, BEA

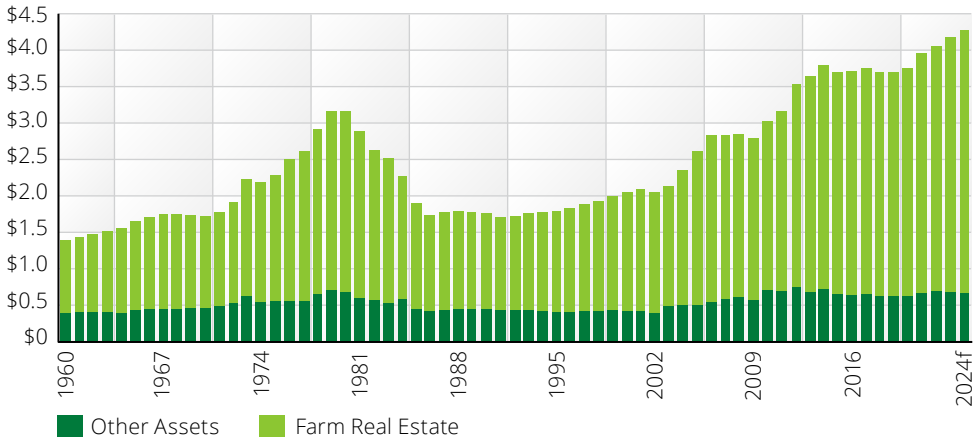
Figure 5) Real U.S. Farm Debt in Real Estate and Non-Real Estate:
1960 to 2024f, billions, 2024 dollars



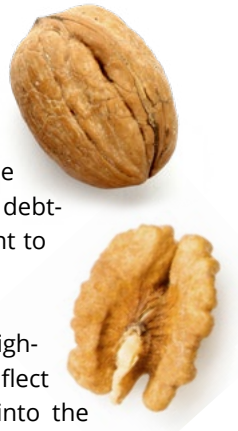
Source: USDA, BEA

The real value of farm assets is expected to increase 2.4 percent to $4.3tt, and the real value of farm real estate is forecasted to increase 3.2 percent to $3.6tt. Farm real estate now comprises 84.3 percent of farm assets, the highest on record (see Figure 6)).

Figure 6) Real U.S. Farm Assets in Farm Real Estate and Other Assets: 1960 to 2024f, trillions, 2024 dollars



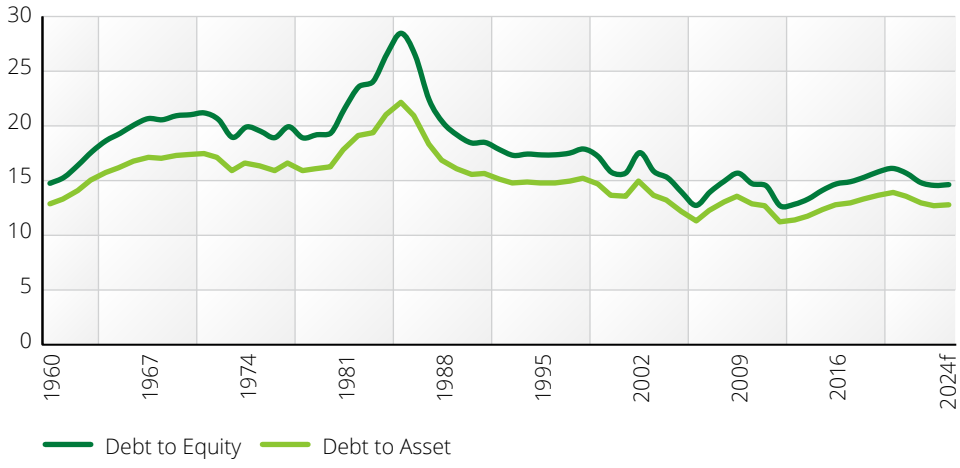
Source: USDA, BEA



The real value of farm sector equity is expected to increase 2.3 percent in 2023 to $3.7tt, marking a record for the fourth consecutive year. The proportional increase in farm debt relative to farm assets caused the debt-to-equity and debt-to-asset ratios to creep up less than half a percent to 14.7 percent and 12.8 percent, respectively, as illustrated in Figure 7).

The USDA's farm income and balance sheet forecasts provide a high-level overview of the profitability of the U.S. agriculture sector and reflect diverse uses, crop types, and geographies. To gain more insight into the current situation, we analyze the performance of the NCREIF Farmland Index, which provides more detail on the relative performance of various property and crop types.

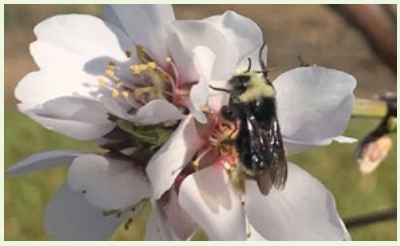
Figure 7) U.S. Farm Sector Debt Ratios: 1960 to 2024f



Source: USDA

SUSTAINABILITY HIGHLIGHT:

Leveraging Biodiversity to Reduce Risk and Support Crops



An almond blossom being pollinated by a bumblebee

During almond pollination season, millions of European honeybees are brought out to the orchards to pollinate almond blossoms, a critical process for establishing the year's crop. The honeybees do a great job, but there have been many years where adverse weather conditions have affected their ability to pollinate during the short timeframe nature gives us.

A bumblebee hive in the almond orchard during bloom

This year, we are trialing the incorporation of California native bumblebees on some of our clients' almond farms. The bumblebees complement the European honeybees with differing flight patterns, and tolerance to colder temperatures. We are hoping that utilizing native species and adding diversity to our pollination efforts reduces pollination risk while supporting a more robust ecosystem and improving yields.

Learn more about AgIS Capital's ongoing Sustainability efforts on **our website**.

The NCREIF Farmland Index

For the 33rd consecutive year, the NCREIF Total Farmland Index (TFI) posted a positive annual total return. The Index's annual total return was 5.0 percent for the year ending December 31, 2023 (see Row 1, Column (g) in Figure 8)). The income return was 3.3 percent, and the capital return was 1.6 percent. The TFI is comprised of 1,339 assets, a net increase of 24 properties from the previous year. The value of the TFI was $16.6bb, while the average value per property was $12.4mm.

The Annual Cropland Index is comprised of 1,003 assets, a net increase of 11 from the prior year. The Index's market value was $10.3bb, while the average value was $9.4mm per property. Annual crops posted a total return of 10.2 percent in 2023, with income returns of 3.5 percent and capital returns of 6.5 percent.

The NCREIF Permanent Cropland Index is comprised of 336 properties, a net increase of 13. The Index's market value

Figure 8) NCREIF Farmland Returns: One- and Five-year, Annualized, Million Dollars, as of 12/31/2023

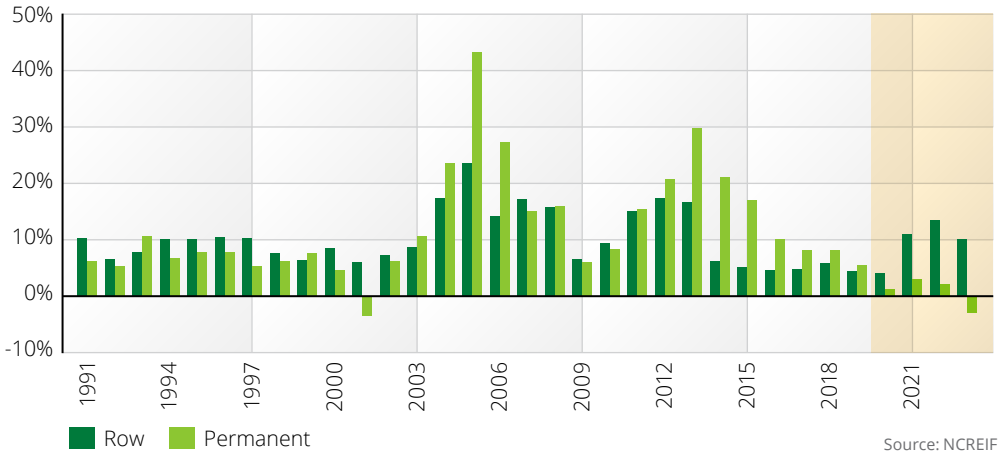
		Market Value (a)	Percent of Index (b)	Property Count (c)	Value Per Asset (d)	One Year Return Income (e)	One Year Return Capital (f)	One Year Return Total (g)	Five Year Annualized Return Income (h)	Five Year Annualized Return Capital (i)	Five Year Annualized Return Total (j)
I	**NCREIF Farmland Index**										
1	Total Farmland	$16,555.5	100%	1339	$12.4	3.3%	1.6%	5.0%	3.7%	2.3%	6.0%
2	Annual Cropland	$10,324.1	62%	1003	$10.3	3.5%	6.5%	10.2%	3.5%	5.1%	8.8%
3	Permanent Cropland	$6,231.4	38%	336	$18.5	3.1%	-5.9%	-2.9%	3.9%	-2.0%	1.8%
II	**Management-Type Subindexes**										
4	Directly Operated Permanent	$4,495.3	27.2%	233	$19.3	-5.0%	-7.3%	2.4%	3.4%	-2.6%	0.7%
5	Leased - Annual	$10,262.6	62.0%	1002	$10.2	3.5%	6.6%	10.3%	3.5%	5.2%	8.8%
6	Leased - Permanent	$1,736.1	10.5%	103	$16.9	5.2%	-1.5%	3.6%	5.4%	-0.2%	5.2%
III	**Crop Type-Subindexes**										
7	Annual Commodity	$6,385.4	38.6%	808	$7.9	3.3%	8.0%	11.5%	3.3%	6.7%	10.1%
8	Annual Fresh Produce	$1,111.6	6.7%	49	$22.7	3.8%	0.7%	4.5%	3.9%	1.9%	5.8%
9	Annual All Others	$2,827.1	17.1%	146	$19.4	3.8%	5.8%	9.7%	3.9%	3.4%	7.4%
10	Almonds	$1,093.3	6.6%	68	$16.1	-1.9%	-12.9%	-14.7%	2.4%	-5.1%	-2.8%
11	Apples	$456.5	2.8%	26	$17.6	3.8%	1.5%	5.3%	0.6%	0.1%	0.7%
12	Pistachios	$1,097.8	6.6%	35	$31.4	5.1%	-13.4%	-5.6%	7.8%	-1.2%	6.6%
13	Wine Grapes	$2,258.9	13.6%	99	$22.8	5.0%	-2.1%	2.9%	3.4%	-1.6%	1.8%
14	Citrus	$473.4	2.9%	28	$16.9	1.1%	-2.5%	-1.4%	3.3%	-0.9%	2.5%
15	Other Permanent Crops	$853.6	5.2%	81	$10.5	3.4%	-4.8%	-1.5%	4.2%	-1.3%	2.9%

Source: NCREIF. Returns are for the year ending 12/31/2023.

was $6.2bb, with an average value of $18.5mm per property. The Permanent Cropland Index posted a total return of -2.9 percent, with income of 3.1 percent and capital returns of -5.9 percent, which is only the second year the Permanent Cropland Index posted a negative total return, the other year being 2001. The 2023 total return marks the fourth consecutive year in which the Annual Cropland Index posted higher returns than the Permanent Cropland Index (See Figure 9)). Additionally, the past four years have generated four of the lowest five total returns since its inception in 1991 (see the yellow shaded area in Figure 10)). Notably, the Permanent Cropland Index has not posted a negative income return.

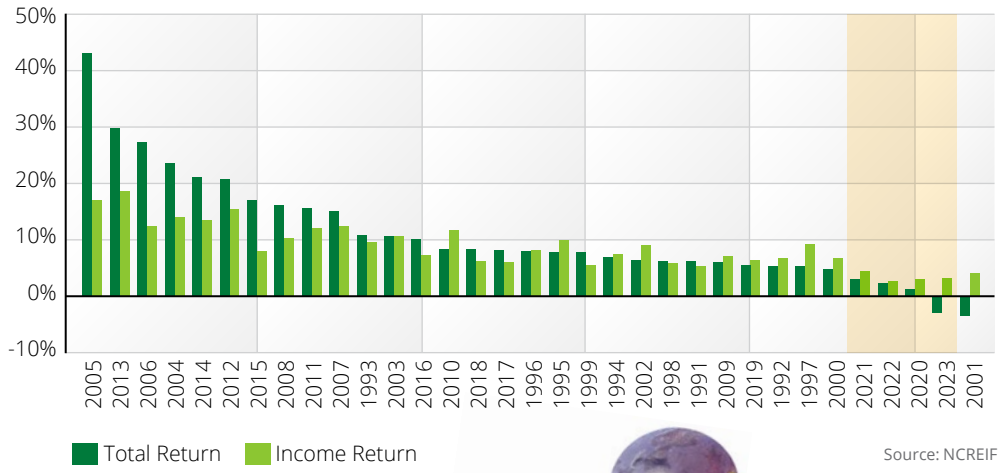
Other notable returns include the Almond Index, which posted the lowest-ever income (-1.9 percent), capital (-12.9 percent), and total return in 2023 (-14.7 percent). The Pistachio Index posted the third lowest income return (5.1 percent) and the lowest ever capital (-13.4 percent) and total return (-5.6 percent), the latter being the index's first-ever negative total return. We believe the negative capital returns for almonds and pistachios reflect lower expectations for future farm income in the near term, and for a subset of assets without strong surface water rights, reduced future farm income for any term as the Sustainable Groundwater Management Act (SGMA) causes certain basins to implement groundwater pumping restrictions.

Figure 9) Annual Total Returns for Row and Permanent Cropland: 1991 to 2023



Source: NCREIF

Figure 10) NCREIF Permanent Cropland Total Returns Ranked from Highest to Lowest: 1991 to 2023



Source: NCREIF

Figure 11) Recent Permanent Crop Income Returns Rank Among the Lowest Ever Posted

Index	2020 (a)	2021 (b)	2022 (c)	2023 (d)	Years (e)
1 Total Permanent	3rd	5th	4th	2nd	33
2 Operated Permanent	3rd	5th	**1st**	2nd	33
3 Leased Permanent	5th	9th	8th	6th	32
4 Wine Grapes	**1st**	4th	2nd	10th	27
5 Almonds	6th	7th	2nd	**1st**	32
6 Pistachios	-	4th	**1st**	3rd	21
7 Citrus	4th	7th	**1st**	2nd	30
8 Apples	4th	-	-	-	25
9 Other Permanent	-	10th	6th	2nd	31

Source: NCREIF

While only the Almond Index posted negative income returns, four of the six Crop Type Subindexes in 2023 generated income returns among the lowest three ever posted (see Figure 11)). In the next section, we outline three primary factors that have negatively impacted permanent crop income and, thus, total returns.

Our Thoughts

The performance of the NCREIF Permanent Cropland Index (PCI) since 2020 has been dreadful. It generated an annualized total return of 0.9 percent during this period, with annualized capital returns of -2.3 percent and annualized income returns of 3.3 percent. The income and total returns generated during these four years are among the five lowest ever posted. Despite these past four years, the annualized income, capital, and total returns of the index since inception are 8.7 percent, 1.9 percent, and 10.5 percent, respectively. What caused these returns to change so drastically?

This year, we delved into the California nut sector to analyze nut performance. By our estimates, the total value of walnuts, almonds, and pistachios properties comprise approximately 38 percent of the NCREIF Permanent Crop Index. These three crop types have historically driven the returns of the PCI.

Like the PCI, the total returns of the Almond Index during the past four years are among the five lowest on record (see Figure 12), row (5)). Pistachio returns have fared better in absolute terms than the PCI and the Almond Index; however, total returns during the past three years are still among the six lowest (see Figure 12), row (6)). Regarding walnut performance, NCREIF does not publish a walnut index and instead includes walnut performance in the Other Permanent Cropland Index. Despite not having an index, we know firsthand that walnut income and capital returns have been extremely poor during the past four years.

What caused nut crop performance to be so poor the past few years? In the political sphere, 'regime change' signifies a change of administration or government. In economics, a regime change (or market regime change) denotes a fundamental change in the behavior of prices. In what follows, we detail three culprits that caused the previous market regime to end and the current "new" market regime to begin. The first market regime was roughly from 2010 through 2015, while the current regime started in 2018 and has yet to end.

Figure 12) Recent Permanent Crop Total Returns Rank Among the Lowest Ever Posted

Index	2020 (a)	2021 (b)	2022 (c)	2023 (d)	Years (e)
1 Total Permanent	3rd	5th	4th	2nd	33
2 Operated Permanent	3rd	6th	4th	**1st**	33
3 Leased Permanent	5th	8th	11th	4th	32
4 Wine Grapes	2nd	9th	7th	8th	27
5 Almonds	5th	4th	2nd	**1st**	32
6 Pistachios	10th	5th	3rd	**1st**	21
7 Citrus	12th	7th	10th	2nd	30
8 Apples	4th	11th	13th	15th	25
9 Other Permanent	10th	14th	6th	2nd	31

Source: NCREIF

SUSTAINABILITY HIGHLIGHT:

Cover Crops Providing Benefits in the Orchards

This winter and spring, the cover crops in our orchards and vineyards have been providing the farms with a multitude of benefits. While California received high amounts of winter rains, the ground cover stabilized the soil to prevent erosion. Their roots allowed for increased and more even water infiltration to the soil. While they were making use of the water from the rains, they added biomass, fixed nitrogen and nutrients from the air, and provided habitat for soil microbial life in the soil. Our bees used for pollination, as well as native pollinators were able to forage on the pollen from the flowering plants.

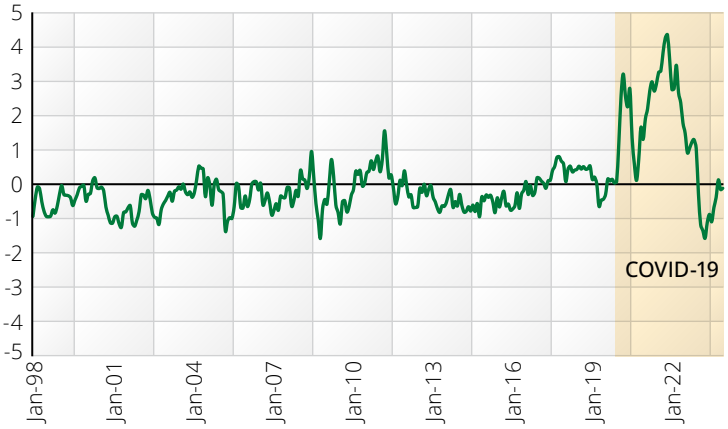
Bee hives in an almond orchard

Now that we are into the Spring, the cover crops have stabilized the soils so that they are not water-logged or anaerobic from all of the winter rains. This helps prevent disease risk to the crops and allows us to get into the field sooner to do our farming activities without getting equipment stuck and minimizing the risk of soil compaction.

Whether using naturally occurring vegetation or strategically planted varieties, cover crops and ground cover have an important role to play in a well-managed farm.

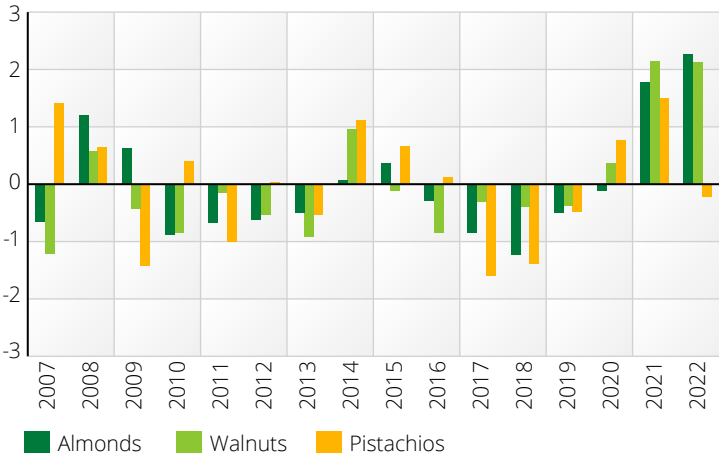
Learn more about AgIS Capital's ongoing Sustainability efforts on **our website**.

Figure 13) Monthly Global Supply Chain Pressure Index in Standard Score: 01-1998 to 01-2024



Source: New York Federal Reserve Bank

Figure 14) The Ratio of Ending Stocks to New Crop for Walnuts, Almonds and Pistachios in Standard Score: 2007 to 2022



Source: Almond Board of California, California Walnut Board, and Administrative Committee For Pistachios

CULPRIT ONE: SUPPLY CHAIN IMPEDIMENTS

The first culprit of poor nut performance is supply-chain impediments or factors that disrupt the ordinary marketing of nuts and increase the transaction costs between buyers and suppliers.

The onset of the second market regime began when China imposed countervailing duties on U.S. nuts. India and Turkey followed China. Tariffs increase the cost of nuts, so consumption in those countries will be relatively less than without tariffs. The reduction in consumption (either relative or absolute) will result in higher ending stocks and an increase in marketable supply the following year, which ultimately lowers prices, ceteris paribus. Carter and Steinbach estimate that retaliatory tariffs cost the almond industry 325 million pounds in lost export shipments between April 2018 and April 2022.[1] They estimate the value of the lower exports to be $875mm.

The COVID-19 pandemic caused the next set of impediments. Consumer purchasing habits changed, ports shut down or operated at a reduced capacity, and international trade plunged in 2020. Trade, however, rebounded sharply in 2021. The demand shock—induced by higher savings and government stimulus—caused the freight rate of a 40-foot container from Shanghai to Los Angeles to increase from below $2,000 before COVID-19 to $12,000 in September 2021 (Carter et al.)[2], while the rate on the return haul was a meager $1,400. To maximize profits, shipping companies began sending empty containers back to Shanghai instead of moving them up the coast to the Port of Oakland to be filled with agricultural exports. Carter et al. estimate that the reduction in container availability between May 2021 and September 2021 cost California tree nut producers $520mm in lost export sales.

The lost shipments increased ending stocks, which increased the marketable supply available the following year, suppressing output prices.

The Federal Reserve Bank of New York compiles its Global Supply Chain Pressure Index (GSCPI) using transportation costs, manufacturing indicators, and inventory levels. Figure 13) displays the GSCPI in standard score, with zero representing the average, positive numbers representing deviations above the mean (more congestion than usual), and negative numbers representing deviations below the mean (less congestion than usual). The area in light orange highlights how supply chain conditions worsened considerably after the onset of COVID-19.

Supply chain impediments reduced export shipments of California tree nuts, resulting in higher ending stocks. Figure 14) illustrates how the proportion of ending stocks to crop production began increasing in 2019 before rising significantly in 2021. Thus, supply chain impediments were a significant contributing factor to the poor performance of the California nut sector over the past four years.

Supply chain impediments were a significant contributing factor to the poor performance of the California nut sector over the past four years.

1 Carter, Colin A. and Sandro Steinbach. 2022. "California Almond Industry Harmed by International Trade Issues". ARE Update 26(1): 1–4. University of California Giannini Foundation of Agricultural Economics.
2 Carter, Colin A., Sandro Steinbach, and Xiting Zhuang. 2021. "'Containergeddon' and California Agriculture." ARE Update 25(2): 1–4. University of California Giannini Foundation of Agricultural Economics.

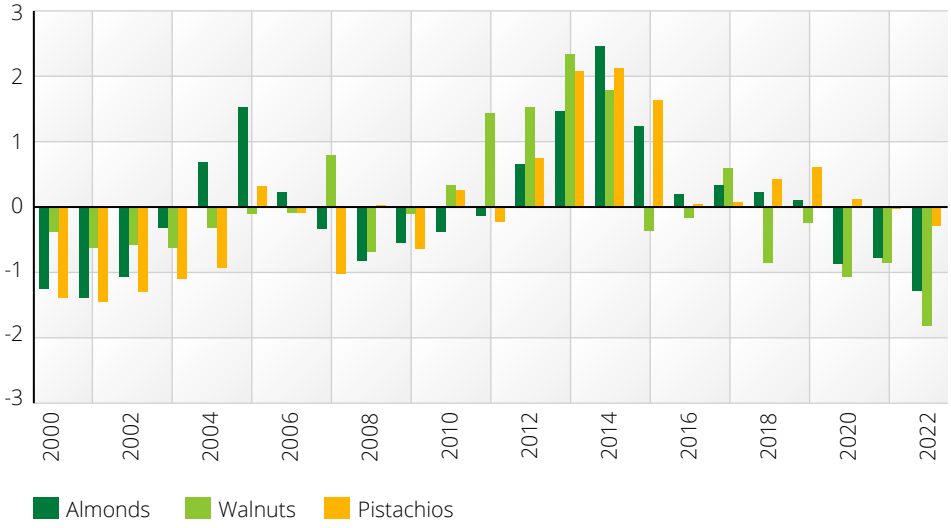
CULPRIT TWO: THE SUPPLY RESPONSE

The second culprit that caused a market regime change is the old adage, "high prices cure high prices," or in economic terms, "The Supply Response." Figure 15) details how the price of almonds, walnuts, and pistachios—in real terms—was generally considerably higher than usual between 2010 and 2015 during the first market regime.

In response to high prices, growers plowed profits into the ground and developed new nut orchards. Nut acreage increased 42.5 percent, or 560,256 acres, from 1.3mm in 2009 to 1.9mm in 2015 (see Figure 16)).

The orchards planted during the first market regime began bearing nuts during the second regime, increasing the productive capacity of the nut sector at the same time as supply chain impediments were hampering California nut shipments, which resulted in higher ending stocks and lower output prices.

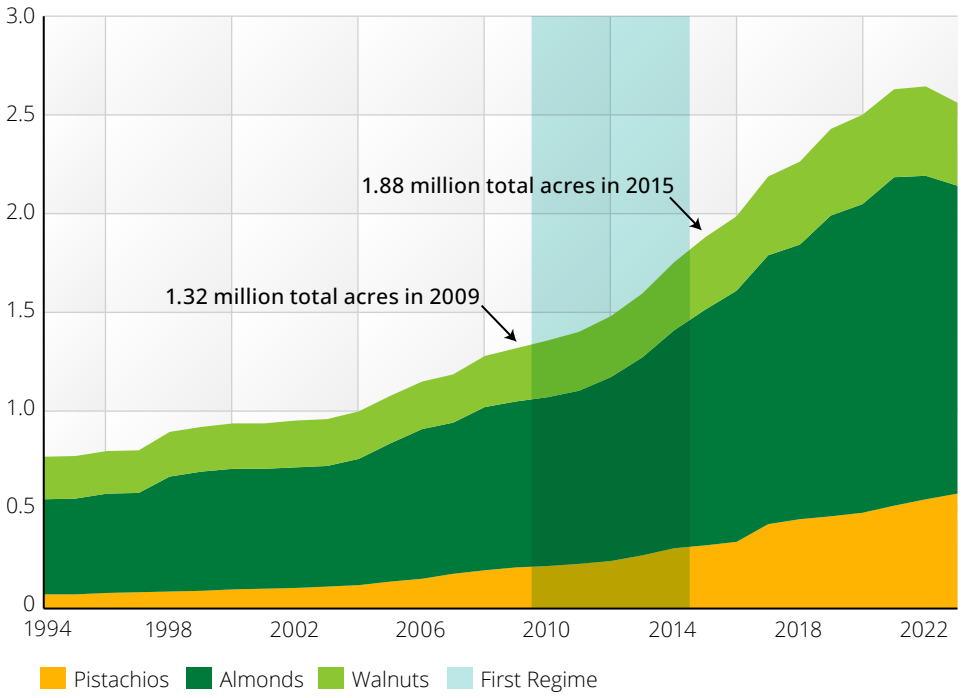
Figure 15) Real Price of Almonds, Pistachios, and Walnuts in Standard Score: 2000 to 2022, 2024 dollars



Source: USDA, BLS, AgIS Capital

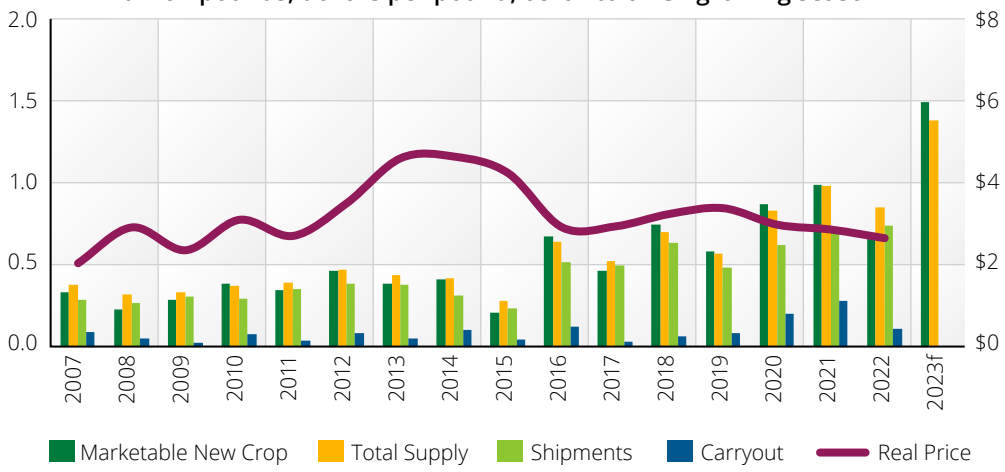
> "High prices cure high prices," or in economic terms, "The Supply Response."

Figure 16) Total Almond, Walnut, and Pistachio Acreage: 1994 to 2023, million acres



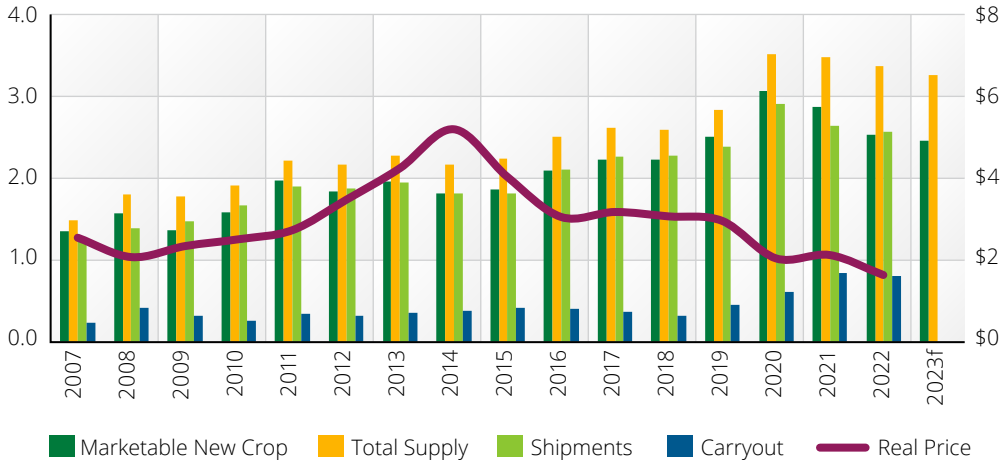
Source: USDA

Figure 17) Real Pistachio Prices and Balance Sheet Components: 2007 to 2023f, billion pounds, dollars per pound, 08/01 to 07/31 growing season



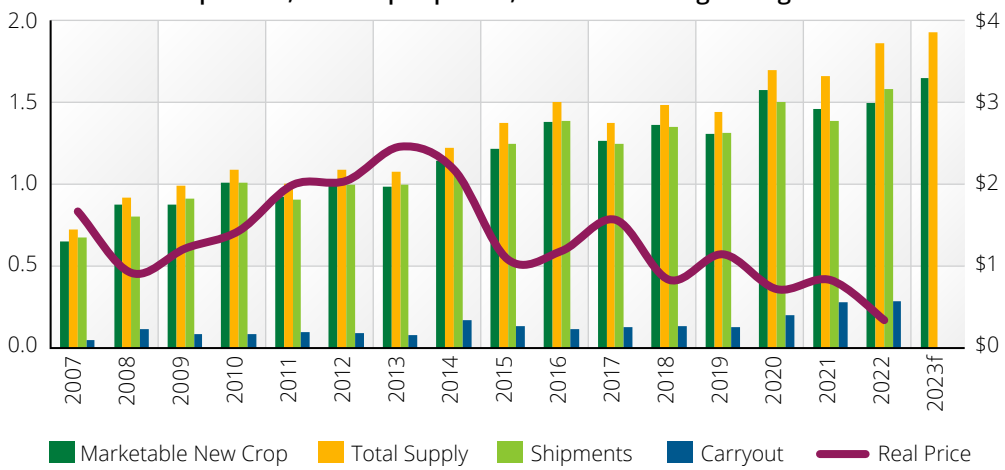
Source: Administrative Committee for Pistachios, USDA, AgIS Capital

Figure 18) Real Almond Prices and Balance Sheet Components: 2007 to 2023f, billion pounds, dollars per pound, 08/01 to 07/31 growing season



Source: USDA, ABC

Figure 19) Walnut Prices and Balance Sheet Components: 2007 to 2023f, billion pounds, dollars per pound, 08/01 to 07/31 growing season



Source: California Walnut Board, USDA

Figures 17), 18), and 19) plot the new crop, total marketable supply, shipments, ending stocks, and prices for California pistachios, almonds, and walnuts. Notably, the price series in the three graphs illustrates how real prices were elevated throughout most of the first market regime, and production, total marketable supply, and ending stocks rose during the 2020, 2021, and 2022 crop seasons.[3] Therefore, growers' response to high prices and profits significantly contributed to the new market regime.

Notably, the price series in the three graphs illustrates how real prices were elevated throughout most of the first market regime.

3 Note, total supply and ending stocks for pistachios during the 2022 crop year fell because of the short crop in 2022. Additionally, ending stocks for the 2023 crop year cannot be calculated until the conclusion of the marketing season.

CULPRIT THREE: THE RELATIVE VALUE OF THE U.S. DOLLAR

Finally, the last culprit was the rise in the value of the U.S. dollar beginning in 2015. Figure 20) displays the real narrow effective exchange rate (RNEER) of the U.S. dollar from 1964 through 2023. Note how the index averaged 81.3 between 2010 and 2015 before increasing 23.3 percent to an average of 100.3 from 2018 to 2023.

When the value of the U.S. dollar depreciates relative to the currency of a trading partner, the appreciation of the foreign currency enables foreign buyers to purchase relatively more U.S. exports, ceteris paribus. However, goods such as almonds, walnuts, and pistachios are limited in quantity, so their price—in U.S. dollars—must rise to ration demand. Inversely, when the relative value of the U.S. dollar strengthens, foreign consumers can purchase relatively less goods, ceteris paribus. In such an instance, prices must fall for equilibration. Thus, the dollar negatively affects the output prices of U.S. agriculture exports, though other causal factors can appear to supersede the impact of currency.

If output prices correlate negatively with currency and positively with farm income, then we might expect farm income to correlate negatively with currency. Figure 21) portrays annual income from the Operated Permanent Crop Index and the RNEER in standard score so that zero is the average of each index, positive numbers represent standard deviations above the mean, and negative numbers are standard deviations below the mean. Therefore, in 2001, the RNEER had one standard deviation above the mean, while the operated permanent crop income was one below the mean. The figure illustrates how income returns between 2010 and 2014 were nearly one standard deviation above the mean income return (9.2 percent). The figure also demonstrates how the strengthening dollar from 2015 to 2023 coincides with reduced operating income returns. Thus, the high relative value of the U.S. dollar since 2015 is a significant contributing factor to the poor performance of the California nut sector over the past four years.

In this section, we outlined our thoughts on how the market environment for California nuts has changed from the early 2010s to the early 2020s. Supply chain impediments increased the price of U.S. nuts beginning in 2018 (tariffs) and then stifled nut shipments after the COVID-19 epidemic. These impediments contributed to higher ending stocks, which suppressed the price of nuts and deteriorated farm income. Additionally, growers planted additional nut orchards in response to strong income returns between 2010 and 2014. These plantings began bearing nuts concurrently with the supply chain impediments. Lastly, the dollar's relative value strengthened considerably after 2015, which reduced the purchasing power of foreign consumers and placed downward pressure on nut prices and farm income.

Figure 20) Monthly Real Narrow Effective Exchange Rate of the U.S. Dollar: 01/1964 to 1/2024

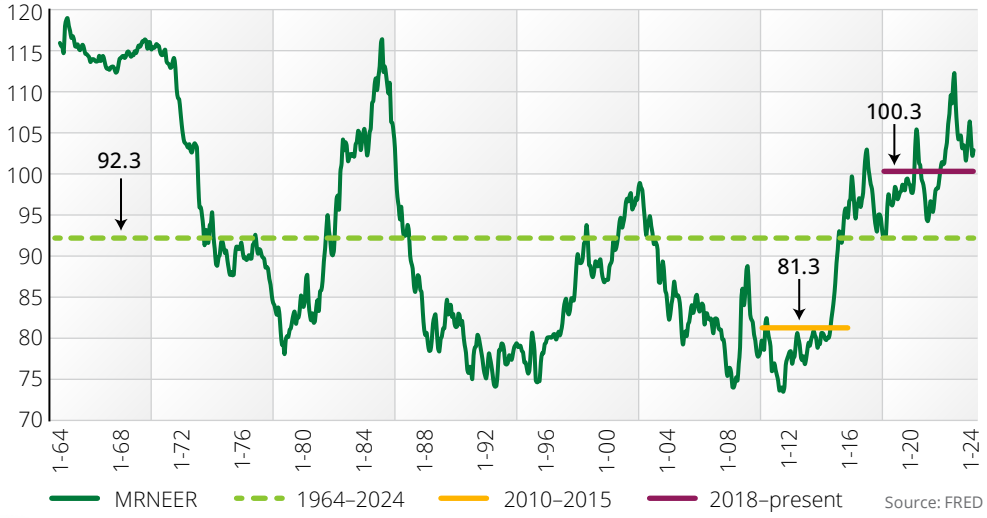
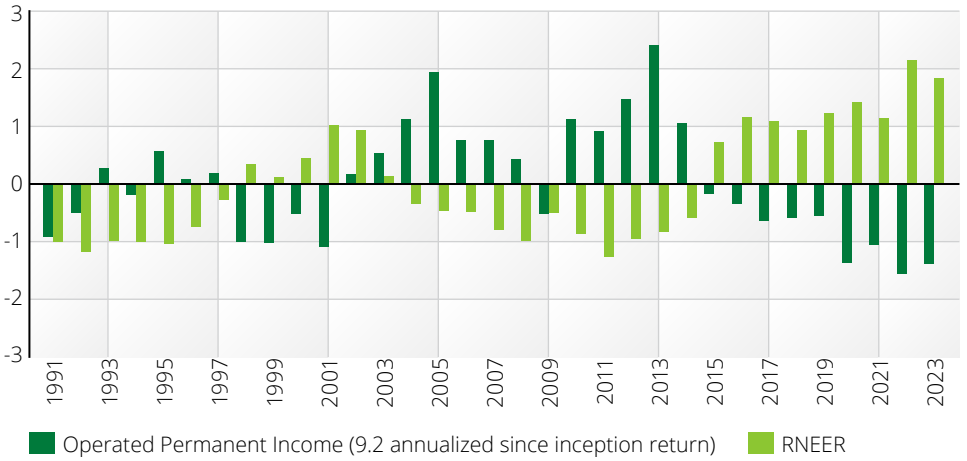


Figure 21) NCREIF Operated Permanent Crop Income and the RNEER in Standard Score: 1991 to 2023



Source: Source: NCRIEF, FRED.
Note, there were less than 20 properties in the NCREIF Operated Permanent Crop Index before 1998. The property count doubled by 2000. Therefore, large assets or crop types may potenneally skew the early years of the index.

THE NEXT MARKET REGIME

The defining characteristics of the California nut sector's current market regime are surplus quantities of almonds and walnuts and unsustainably low prices. As we gaze into our crystal ball, we see a dominant underlying force capable of upending the current market regime: SGMA.

> We see a dominant underlying force capable of upending the current market regime: SGMA.

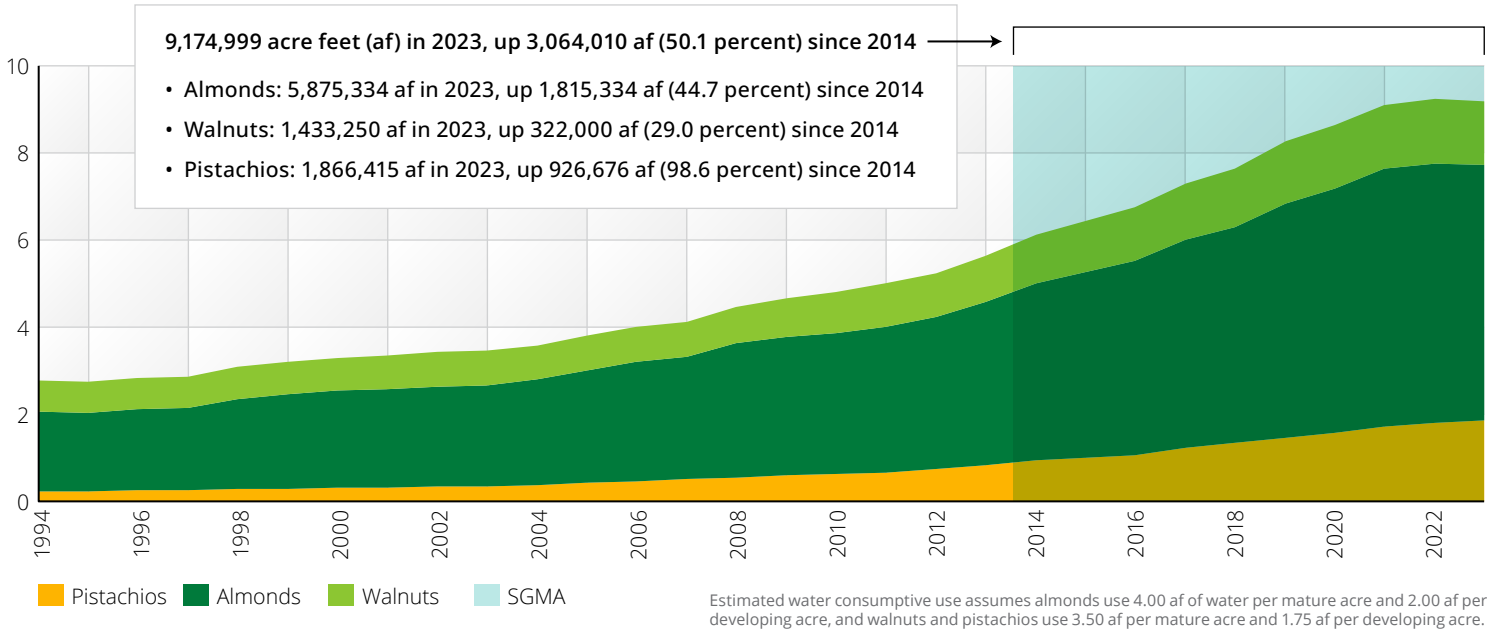
In response to unsustainable groundwater pumping, California passed SGMA legislation in 2014. SGMA equips local and state authorities with the right to regulate groundwater pumping in specific groundwater basins, many of which reside under the San Joaquin and Sacramento Valleys. One of the legislation's primary objectives is to stop groundwater over-drafting by 2040. This implies that landowners in regulated areas will only be entitled to extract quantities that do not overdraft the aquifer.

This will significantly impact agriculture markets, not just in California but around the world. U.S. almond supply comprises ~75 percent of the world, and just seven California counties produce ~85 percent of U.S. almond production. U.S. pistachio supply comprises ~50 to 65 percent of the world supply, and just five California counties produce over 90 percent of U.S. pistachio production. All the counties above except one reside atop designated critically overdrafted water basins.

Most critically overdrafted basins are expected to have a yearly sustainable rate of 0.5 acre-feet (af) or less. Almonds require 4.0 af annually for commercial production; pistachios and walnuts require 3.5 af. By our estimates, almond growers without surface water (or "white areas") will need to remove seven of every eight planted acres to irrigate the remaining acres, and pistachio growers will need to remove six of every seven planted acres. One-fifth of California pistachio acreage is estimated to be planted in white areas atop critically overdraft basins. Many water districts also do not have sufficient surface water rights to provide growers with additional water once groundwater restrictions are enacted. Figure 22) displays the estimated water consumptive use for almonds, walnuts, and pistachios from 1994 to 2023. While consumptive use for nut crops in 2023 was 50.1 percent higher than when the SGMA legislation was passed in 2014, consumptive use for all crops on the same acreage during this period is harder to estimate because a field may have been using groundwater to irrigate a number of other agricultural commodities.

We believe restricted groundwater pumping and the consequent acreage removals required to achieve sustainability will be the impetus for the next market regime change. The acreage reduction will result in lower supply, which should increase prices.

Figure 22) Estimated Water Consumptive Use for Almond, Walnut, and Pistachio Production: 1994 to 2023, million acre-feet (af)



Estimated water consumptive use assumes almonds use 4.00 af of water per mature acre and 2.00 af per developing acre, and walnuts and pistachios use 3.50 af per mature acre and 1.75 af per developing acre.

Source: USDA, AgIS Capital.

Conclusion

> The next few years will likely present some of the best opportunities to buy permanent cropland.

Permanent crop returns in aggregate have been relatively poor over the past five years. Increased acreage led to increased production for many crop types, and the additional supply arrived just in time to see significant supply chain impediments, including new tariffs imposed by major export partners, shipping congestion, and poor availability of containers. To add insult to injury, the dollar's value increased considerably after 2015 and has remained elevated since reducing the relative purchasing power of foreign consumers and making foreign agriculture imports relatively less expensive. These culprits brought about a market regime change, which we believe is mainly responsible for the poor performance of the permanent cropland sector.

We are at the outset of a new market regime change brought about by regulations and scarcity. Permanent crop returns will rebound as orchards with insufficient water rights are no longer in production. These returns will be amplified if the dollar reverts lower and supply chains normalize.

The next few years will likely present some of the best opportunities to buy permanent cropland.

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