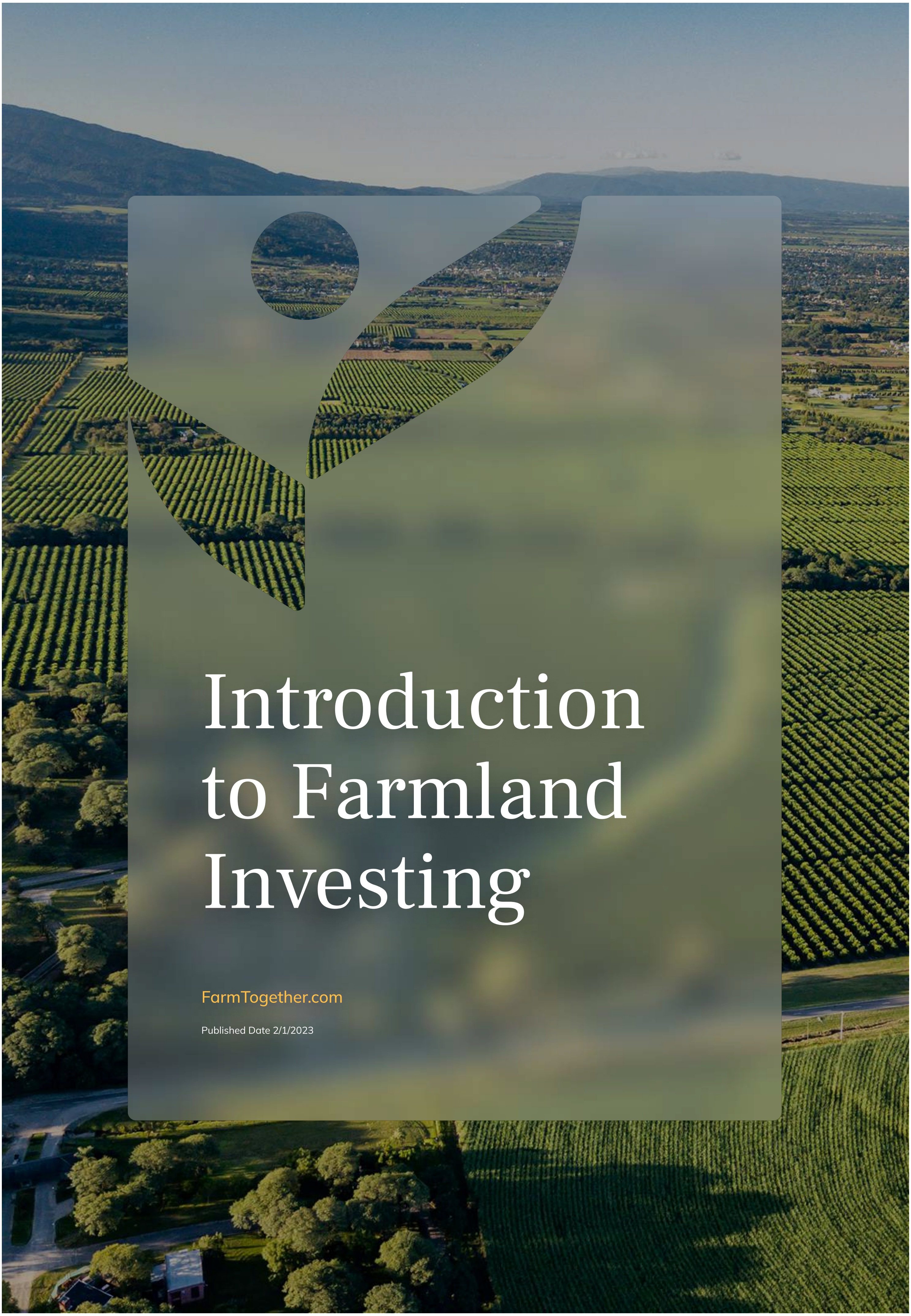

Introduction to Farmland Investing

FarmTogether.com

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Introduction to Farmland Investing

The goal of the typical investor is to maximize returns for a given amount of risk. In this paper, we will highlight that alternative investments can be a critical component in achieving this objective. While alternative investments cover a broad range of financial strategies, assets, and instruments, there is one that has historically stood out: farmland.

Farmland has proven to be a unique asset class that has delivered strong average annual returns with relatively less risk or volatility, while adding to the overall diversification of most portfolios. Yet, while farmland has been an attractive asset class from an absolute returns perspective, it is one of the least understood due to a variety of historical constraints in the market. As modern financial platforms evolve, farmland investing, which was historically dominated by large institutions, is becoming increasingly accessible to long-term investors of all shapes and sizes. In this paper, we seek to provide a general understanding of farmland as an asset class and to highlight the various financial characteristics that can make it an essential addition to any portfolio.

Sierra Foothills Pistachio Orchard
Tulare County, CA

The Benefits of Including Alternative Investments in an Investment Portfolio

Broadly speaking, alternatives investments ("alternatives") are investments in assets other than stocks, bonds or cash. Alternative investments may also use strategies that go beyond traditional methods of investing, such as long/short equities or arbitrage strategies. Since alternatives tend to behave independently from typical stock and bond investments, adding them to a portfolio may provide broader diversification, reduce overall portfolio risk, and enhance returns. Common types of alternative investments include real assets, commodities, venture capital, hedge funds, and private equity.

Within the alternative investment space, real assets, in particular, have proven to improve traditional portfolios in multiple ways:

Diversification

> With historically low or negative correlations to traditional stocks and bonds, as well as to each other, real assets can help provide diversification to an investment portfolio. As private investments, they tend not to move in lockstep with traditional assets or commodities, in part because they are relatively illiquid and are not often exposed to speculative trading in public markets.

Higher Risk-Adjusted Returns

> For over 25 years, real assets have provided similar or higher returns than stocks with much lower volatility, resulting in higher risk-adjusted returns. Similarly, real assets delivered higher risk-adjusted returns compared to bonds or publicly-traded REITs.

Liability-Matching Characteristics

> Real assets have the potential to provide bond-like current income from contractual lease obligations and the sale of commodities, along with long-term capital appreciation from land improvements and rising land values to help meet future liabilities.

Inflation Hedging

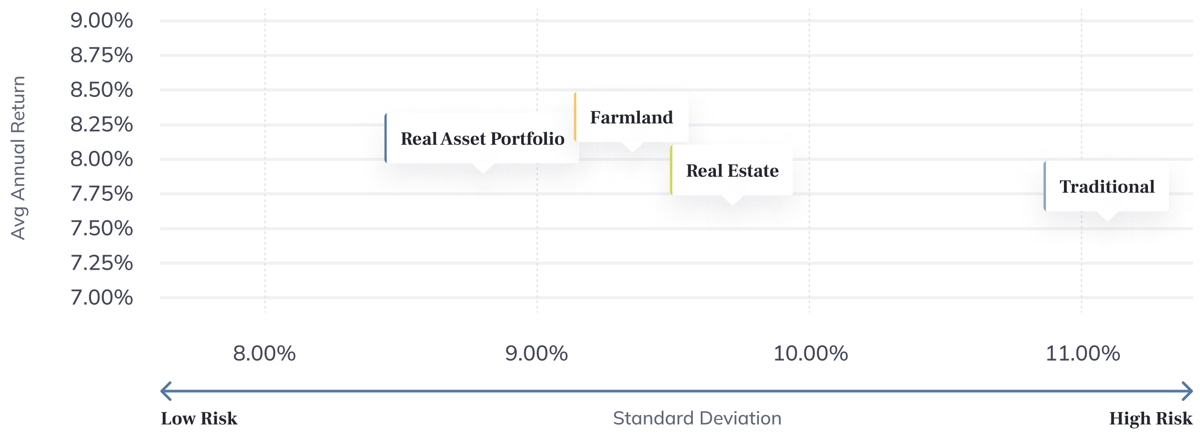
> Historically, real assets have provided a strong hedge against inflation. Both the cash yield and the land value of a real asset are linked to inflation measures, such as the Consumer Price Index (CPI). For example, when inflation rises, commodity prices also tend to increase, which can lead to a higher cash yield. Also, rising commodity prices can increase the profitability of timberland and farmland, causing land values to appreciate and therefore helping to provide a long-term hedge against inflation.

Sources:

Blackrock (https://www.blackrock.com/us/individual/education/what-are-alternative-investments)
Nuveen - Get real with income-producing real assets (August 2022)

Including real assets in a traditional portfolio can improve the risk-adjusted returns, as illustrated in the analysis below. The first chart shows the benefit of adding farmland, real estate, or an allocation of both assets to a traditional portfolio. In all cases, the portfolios with a real asset component have higher average annual returns, less volatility and higher Sharpe ratios than a traditional portfolio of 60% stock and 40% bonds. The second table compares returns, standard deviation and Sharpe ratios of the four hypothetical portfolios.

Real Assets Increased Risk-Adjusted Returns of Traditional Portfolios



Farmland Performance Comparison (1992 - 2022)

	100% Traditional Portfolio	**Adding Only Farmland**	Adding Only Real Estate	Adding 2 categories of real assets, fixed at 10% each
Allocation Representing Highest Risk-Adjusted Return, Based on Sharpe Ratio	Stocks 60% Bonds 40%	Stocks 51% Bonds 34% Farmland 15%	Stocks 51% Bonds 34% Real Estate 15%	Stocks 48% Bonds 32% Real Estate 10% Farmalnd 10%
Average Annual Total Returns	7.60%	**8.07%**	7.72%	7.99%
Standard Deviation	11.16%	**9.45%**	9.60%	8.98%
Sharpe Ratio	0.45	**0.58**	0.53	0.60

Data are based on annual total returns from January 1, 1992 through December 31, 2022. Asset classes are represented by the following indexes: Stocks - S&P 500; Bonds - Bloomberg Barclays U.S. Aggregate Index; Privately Held U.S. Farmland - NCREIF Farmland Index; Privately Held U.S. Commercial Real Estate - NCREIF Real Estate Index. Indexes are unmanaged and unavailable for direct investment.

Farmland Value Drivers

As highlighted in the previous charts, farmland investing, in particular, can improve both the average annual return and the risk-adjusted return of a portfolio. Here, we break down the unique characteristics of farmland that make this asset an attractive component of a long-term investment strategy.

Diversification

For the last three decades, the historical returns of farmland investing have been uncorrelated to conventional assets and securities such as stocks, bonds, real estate, timber, and even short-term agricultural commodity prices. Therefore, the inclusion of farmland in a portfolio can help increase its diversity, and such a portfolio may be more resistant to adverse market conditions.

Correlation Across Major Asset Classes (1992 - 2022)

	Farmland	US Stocks	US Bonds	Real Estate	US REITs
Farmland	1.00				
US Stocks	-0.05	1.00			
US Bonds	-0.17	0.19	1.00		
Private Real Estate	0.42	0.19	-0.07	1.00	
US REITs	-0.01	0.51	0.28	0.17	1.00

Data are based on annual total returns from January 1, 1992 through December 31, 2022. Asset classes are represented by the following indexes: Stocks - S&P 500; Bonds - Bloomberg Barclays U.S. Aggregate Index; Privately Held U.S. Farmland - NCREIF Farmland Index; Privately Held U.S. Commercial Real Estate - NCREIF Real Estate Index; Publicly Traded U.S. REITs - FTSE Nareit U.S. Real Estate Index. Indexes are unmanaged and unavailable for direct investment.

Bespoke Hazelnut Orchard
Oregon

Strong Risk-Adjusted Returns

In addition to being an uncorrelated asset, farmland has experienced historically less volatility than both traditional and alternative asset classes. Farmland has additionally delivered a higher average annual return than most asset classes in the last 30 years (1992 – 2022). From a portfolio perspective, this means that adding farmland results in a higher Sharpe Ratio — the Sharpe Ratio is a metric which investors can use to quickly evaluate returns on a risk-adjusted basis. The higher the Sharpe Ratio, the greater the expected return after considering and standardizing for the asset's volatility.

Performance of Publicly Traded Assets and Real Assets (1992 - 2022)

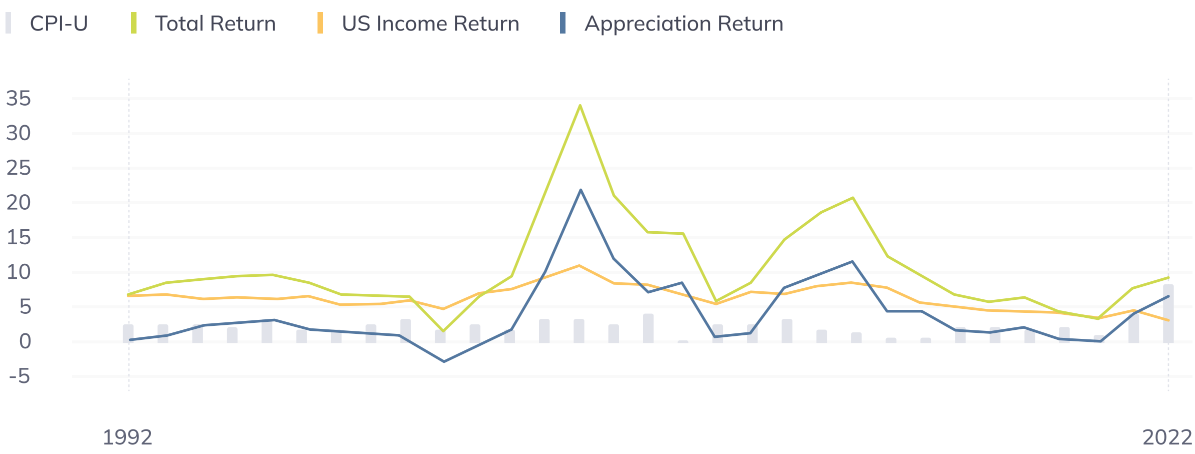
	Farmland	US Bonds	US Stocks	Real Estate	US REITs
Mean	10.71%	4.64%	9.58%	8.39%	9.43%
Standard Deviation	6.64%	5.60%	17.80%	7.62%	19.32%
Sharpe Ratio	1.22	0.36	0.39	0.76	0.45

Data are based on annual total returns from January 1, 1992 through December 31, 2022. Asset classes are represented by the following indexes: Stocks - S&P 500; Bonds - Bloomberg Barclays U.S. Aggregate Index; Privately Held U.S. Farmland - NCREIF Farmland Index; Privately Held U.S. Commercial Real Estate - NCREIF Real Estate Index; Publicly Traded U.S. REITs - FTSE Nareit U.S. Real Estate Index. Indexes are unmanaged and unavailable for direct investment.

Inflation Hedge

As a commodity-producing asset, farmland has historically provided a superior hedge against inflation. Over the past several decades, farmland returns have moved in strong correlation with rising prices; in fact, the NCREIF Farmland Index's Total Return has consistently provided returns more than double the inflation rate since before 1992.

NCREIF Farmland Returns vs. Inflation (% in 1992 - 2022)



Data representative through December 2022. Sources: NCREIF Farmland Index and the Consumer Price Index - Urban.

The inception date of the NCREIF Farmland Index is Q4 1992. The CPI-U produces monthly data on changes in the prices paid by urban consumers for a representative basket of goods and services since 1913. NCREIF Farmland Index returns are used for the time frame above to demonstrate income and capital appreciation components, which are not available from the TIAA-CREF Center for Farmland Research database.

Long-Term Tailwinds

Growing Demand for Food

The global population is expected to grow from 8 billion to 10 billion by the year 2050. Also, as greater numbers of people rise from poverty to the middle class, diets will improve and people will consume more meats and proteins. Food production will have to increase by 70% by the year 2050, and 90% of the growth in crop production will come from higher yields. As farmers push productivity higher, land should appreciate in value. By 2050, the demands on agriculture to provide sufficient food, fiber, and energy are expected to be 50 to 70 percent higher than they are today.

Decreasing Supply of Farmland

It is estimated that only 7% of Earth's land is suitable for cultivation, and most of the world's productive arable land is already in crop production. There are roughly 893.4 million acres of farmland in the US, yet only 324.1 million of these acres have productivity, versatility, and resilience ("PVR") values with the optimal soil characteristics and growing conditions to support crop production with minimal environmental limitations. This is slightly less than one-third of agricultural land. However, research shows that America's already limited farmland acreage has decreased by 12.39 million acres each year since 2105, posting an average loss of nearly 1.8 million acres per year.

Vista Luna Organic Vineyard
San Joaquin County, CA

Yuba Almond Orchard
Yuba County, CA

Oak Ridge Pistachio Orchard
Kern County, CA

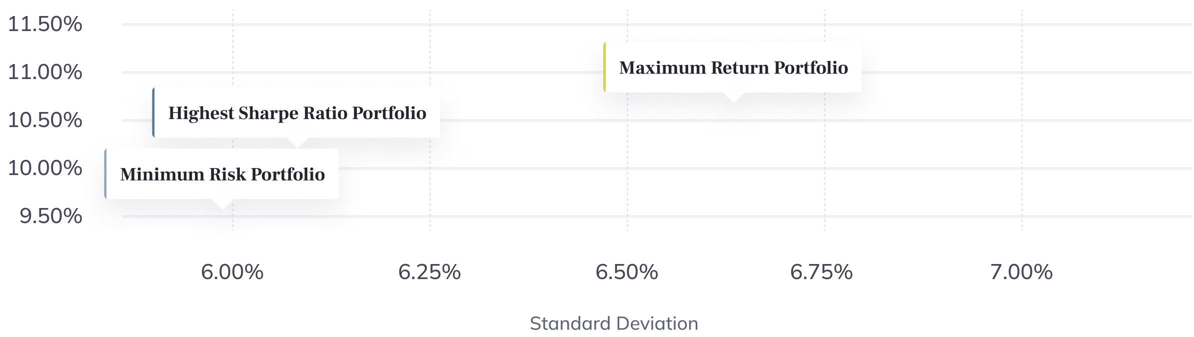
Sources

United Nations estimate
American Farmland Trust (Farms Under Threat: The State of America's Farmland)
USDA NASS - Farms and Land in Farms 2022 Summary

Comparison of Farmland to Other Real Asset Classes

In a risk-return analysis comparing portfolios consisting of only real assets (farmland and commercial real estate), farmland dominated these portfolios. The chart below outlines average annual returns and risk for the three real asset portfolios analyzed (maximum Sharpe Ratio, minimum risk, and maximum returns).

Structuring a Portfolio of Farmland and Private Real Estate (100% Private Real Assets)



Farmland Performance Comparison (1992 - 2022)

	Highest Sharpe Ratio	Minimum-Risk	Maximum-Return
Hypothetical Portfolio Allocation	Farmland 77% Real Estate 23%	Farmland 56% Real Estate 44%	Farmland 100%
Average Annual Total Returns	10.18%	9.69%	10.71%
Standard Deviation	6.06%	5.96%	6.64%
Sharpe Ratio	1.25	1.19	1.22

Data are based on annual total returns from January 1, 1992 through December 31, 2022. Asset classes are represented by the following indexes: Privately Held U.S. Farmland - NCREIF Farmland Index; Privately Held U.S. Commercial Real Estate - NCREIF Real Estate Index. Indexes are unmanaged and unavailable for direct investment.

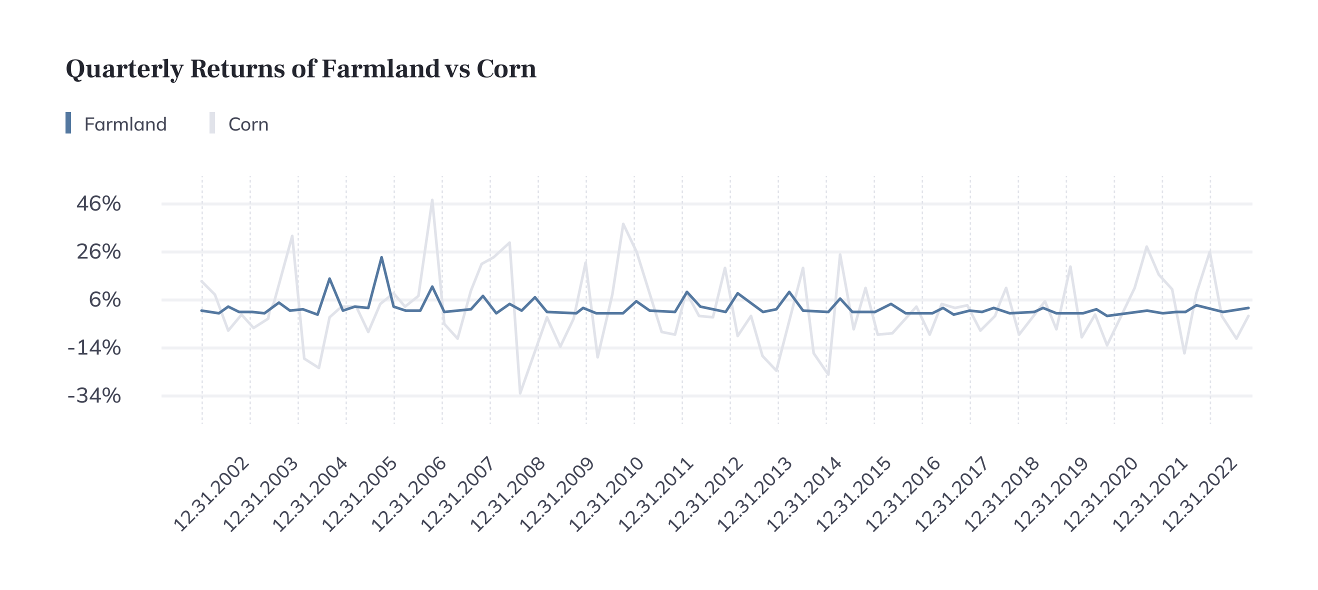
Overview of Farmland as an Asset

Similar to traditional real estate, returns from farmland investing consist of both appreciation in the value of the land itself and annual income from the operations of the farm. The income component can be structured as either an annual lease payment or a profit share from annual crop sales through a direct management contract.

With leased farms, a tenant operator will perform all duties related to the operation of the farm; they will earn income from the sales of the crop while making annual rental payments to the landowner. When investing in a share of a leased property, investors' annual income during the hold period will be a prorated share of this rental income; this type of investment can provide the investor with upside if commodity prices exceed expectations, while helping to protect their portfolio from price volatility.

In a direct management contract, the annual income investors earn during the hold period is directly linked to gross crop income. While this can expose investors to fluctuations in commodity prices or production risk, this investment can provide a significant source of upside, especially in crops with high varietal differentiation, such as apples or citrus, as well as value-added potential from certifications like USDA Organic that can enhance yields.

The returns of agricultural commodities are generally much higher than farmland, but so is the standard deviation and risk. The chart below plots quarterly farmland returns against the returns of a cash crop like corn; it is clear that the cash crop has been more volatile relative to farmland. The average quarterly return of U.S. corn futures since 2002 is roughly 2% with a standard deviation of 14.7%, which implies a Sharpe Ratio of 0.16.



Sources

NCREIF Farmland Index, Chicago Board of Trade.

Types of Farmland

Farmland investing can take on various forms, including livestock, permanent cropland, and row cropland. FarmTogether focuses on the following two categories:

Andromeda Apple Orchard
Grant County, CA

Permanent Cropland

Permanent crops, including tree, vine, and shrub crops, have longer life cycles, some lasting decades; examples include apples, cherries, wine grapes, almonds, hazelnuts, and more. These crops have a pre-productive phase, often lasting several years, before experiencing a "J-curve" return profile, with cash returns ramping up significantly once the plants mature. Thus, while these crops carry higher risks in case of crop failure, price drops, or market changes, they offer greater potential for positive economic returns due to the higher value of their harvests.

Although they constitute a smaller portion of US cropland, they are an increasingly prominent category of farmland investments, representing almost 25% of the NCREIF Farmland Index as of July 2023. With consumer preferences shifting towards healthy snacks and alternative food options, investing in high-quality permanent cropland appears particularly promising at this time.

Row Cropland

Row cropland investments include annual crops such as corn, soybeans, cotton, wheat, and rice. In general, row cropland's cash returns will be typically lower, but less volatile than that of permanent cropland that has entered maturity, given the fixed annual lease payments. These crops typically have shorter harvest periods and involve lower upfront capital expenditure; as a result, row crops generally have more flexibility in the short term around farm diversification and operational changes. The crop decisions are made annually, providing farmers with further flexibility to react to relatively current market conditions.

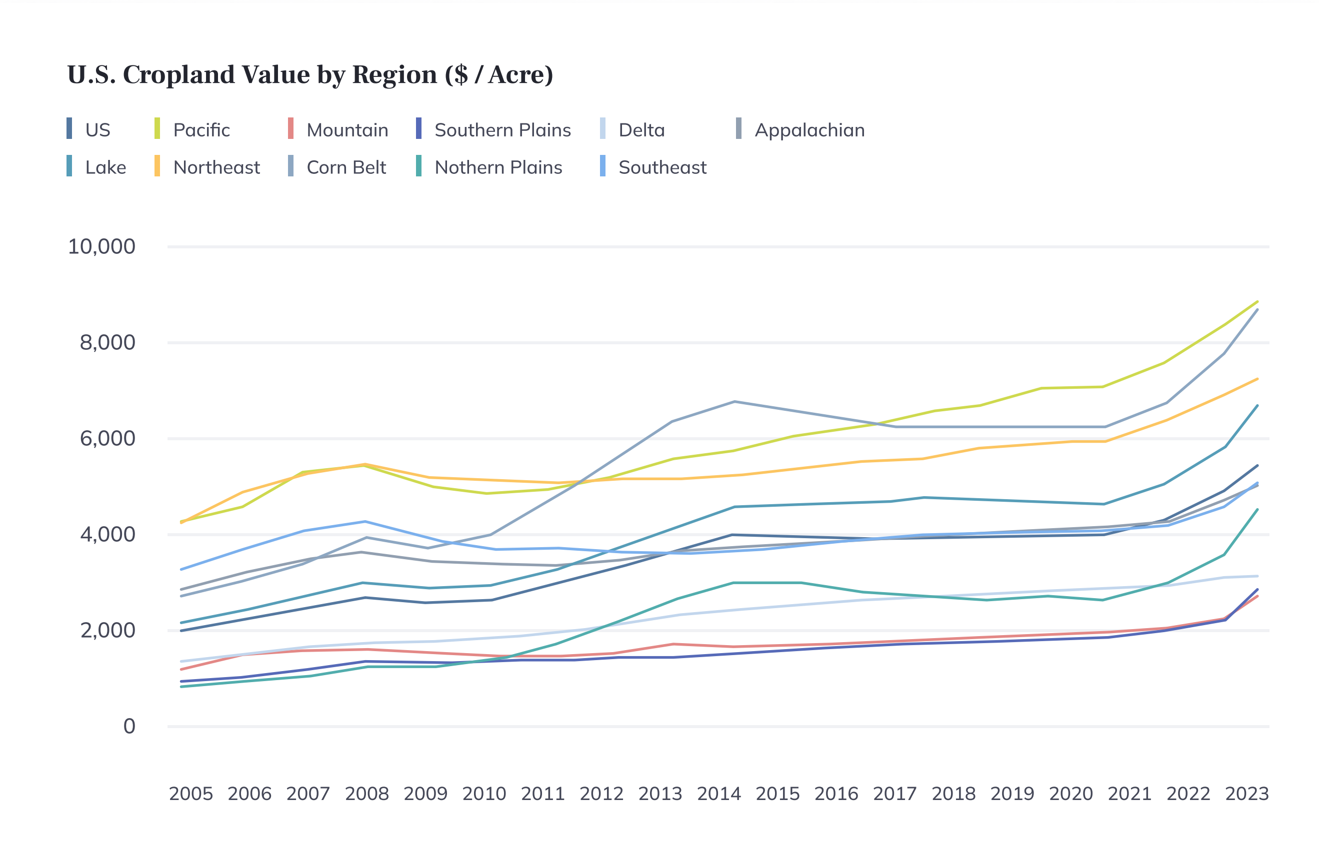
The year-to-year flexibility and comparatively lower risk of row crops can be a good complement to the higher-risk, higher-reward nature of permanent crops.

Historical Review of Farmland Price

In the 2000s, there was a swift movement of capital into farmland. The massive increase in demand for food crops and animal protein – mainly from China and other emerging markets – drove agriculture commodity prices up across the board, increasing farm income and delivering record appreciation rates in land values. Since 2000, the NCREIF Farmland Income Index, which tracks the value of U.S. farmland, has more than tripled. A similar positive trend in farm income growth and appreciation of land values occurred in other major crop-producing regions, such as South America, Oceania, and Europe.

The early 2010s were a different chapter for farmland. While the global farmland investment space successfully weathered the 08'/09' economic crisis and benefited from the race for real assets during this period, it was not immune to the downturn in agricultural commodity prices which resulted from increased global acreage, conducive weather, and the resulting record stocks. However, despite these headwinds, farmland continued to produce positive returns.

U.S. farmland prices leveled off in 2014, after exhibiting rapid growth over the previous decade, supported by relatively strong farm income, low borrowing costs, and the entry of institutional investors. Driven by stronger commodity prices resulting from the COVID-19 pandemic and subsequent inflation, cropland values have experienced similar jumps since 2021. Current cropland values across the US are sitting at a record average of $5,460 per acre, an increase of 19% since 2021.



Source

USDA Land Values 2023 Summary

Recent Trends in Farmland Investing

Agricultural land ownership is fragmented, with ownership resting largely with families who own a single property and farm it themselves. Non-owner-operators or, in other words, investors, own just 2% of the total US farmland market, which sits at an estimated $3.3 trillion in total value.

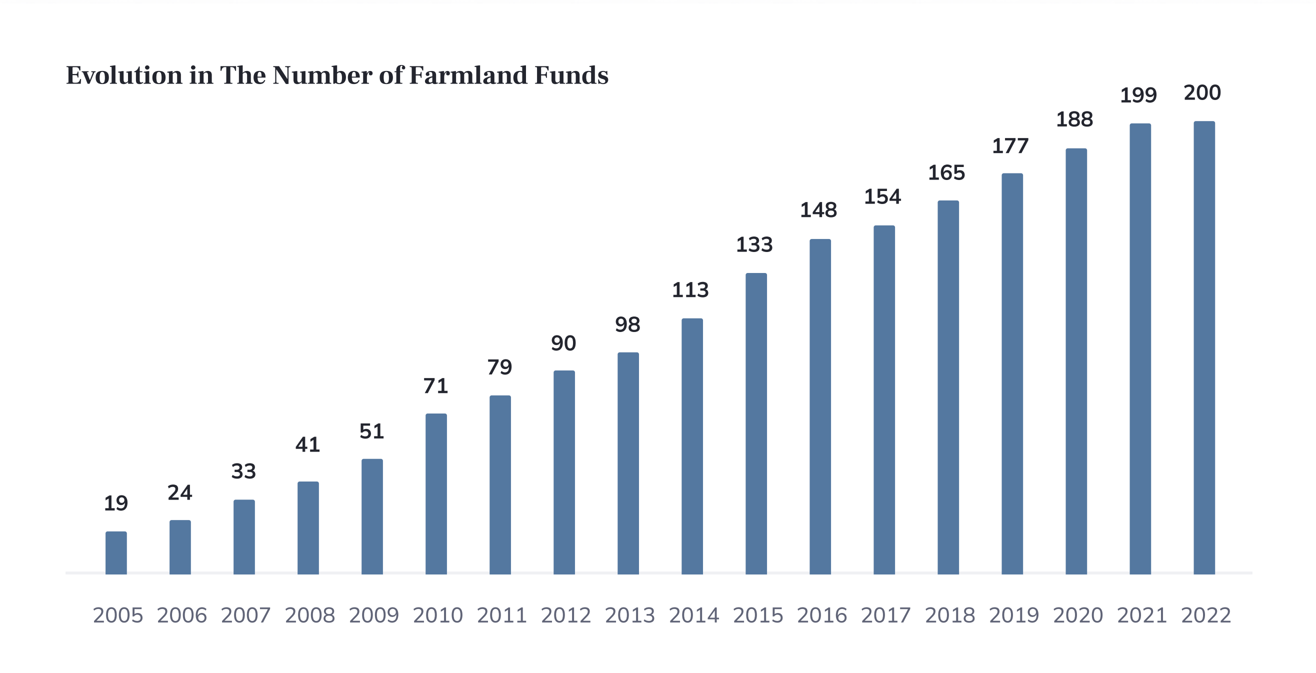
This represents a compelling opportunity for institutional investors, who are increasingly attracted to farmland for similar reasons that have attracted them to timberland over the last few decades: historically low correlations with traditional assets, relative stability of returns, and inflation protection.

However, until recently, agriculture and farmland did not have a natural home in the investment portfolios of the mainstream institutions. This is now changing and has the potential to make significant changes to capital ownership structures in the industry and the number of investments in the sector over time.

Institutional farmland investments typically focus on globally competitive agricultural sectors, including bulk commodity row crops, such as corn, soy, wheat, and rice, that can be produced most efficiently at scale, as well as relatively storable permanent crops, such as tree nuts or wine grapes.

Growth In Institutional Farmland Investments

Since the early 2000s, institutional investors, including pension funds, university endowments, sovereign wealth funds, and family offices, have joined the space in different waves. In 2005 there were fewer than 20 farmland funds operating around the world. By 2022, the number of farmland funds had reached 200, with an aggregated AUM of $46 Billion, as shown in the following figure.



Sources

US Department of Agriculture; National Agricultural Statistics Services – Land Values, 2023 Summary (Aug 2023, latest published data)
Valoral Advisors –The State of the Global Food and Agriculture Investment Space (February 2023)

Challenges of Investing in Private Real Assets and Farmland

There are several barriers to entry that can make it difficult for investors to undertake investments in private real assets, particularly in farmland. Direct investors must deal with the following hurdles:

Lack of Transparency

> Sophisticated due diligence capabilities are essential to analyze the potential profitability and cash-flow profile of the assets and opportunities.

Capital Requirements

> Deep financial reserves are necessary to achieve economies of scale, as well as to invest in technology and infrastructure.

Operational Risks

> Investing in farmland involves a range of operational risks that include: weather, pest damage, marketing perishable crops, and complying with local regulations. Expertise in local markets and access to a network of local operators can allow investors to transfer operational risk and gain steady income through leasing contracts.

Vehicles to Gain Exposure to Farmland Investing

Public Farmland REITs

> Today, there are two main farmland REITs listed in the U.S: Gladstone Land - listed since 2013 - and Farmland Partners – listed in 2014 and which has subsequently acquired another U.S. farmland REIT - American Farmland. Farmland REITs typically lease the land to local tenants, through a wide range of possible lease contracts. Besides crop prices, cash yields are driven by the quality of the portfolio and tenants, the lease arrangements, and efficiencies in scale and expenses. Long-term appreciation in the value of the farmland portfolio is a major driver of total return.

Technology-Driven Farmland Investment Managers

> These platforms are relatively new, and FarmTogether would fall under this category. These companies provide a platform for investors to invest in institutional-quality farmland opportunities through a variety of investment products. The service provider is responsible for the curation, due diligence, leasing and management of the operations. The platforms allow investors to directly invest in properties and build their own portfolio depending on their investment perspective and risk appetite (e.g., row crop vs. permanent crop, fixed lease vs. variable lease, etc.). For those seeking more diversified farmland exposure, investors can participate in dedicated funds managed by the platforms, such as FarmTogether's Sustainable Farmland Fund.

Summary

Farmland investing is a subset of real asset investing that provides income via lease payments and capital appreciation. The historical returns related to farmland investment have been attractive; the NCREIF benchmark not only shows positive annual returns every year since 2002 but also that the standard deviation of the returns is comparatively lower than that of competing assets, allowing investors to generate consistent returns with limited variability. In turn, an investment in farmland can help create a diversified portfolio that may help hedge against adverse market conditions.

FarmTogether provides wide-scale accessibility to institutional-quality farmland through a variety of investment products, including crowdfunded farmland offerings, 1031 exchange, sole ownership bespoke offerings, and the Sustainable Farmland Fund.

Daybreak Organic Pear & Apple Orchard
Chelan County, WA

www.farmtogether.com
Introduction to Farmland Investing

If you would like to learn more about FarmTogether, please contact us at info@farmtogether.com