

*Research Document / Whitepaper*  
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# US Farmland Investments: Opportunities & Risks



## Table of Figures

Figure 1 - Inflation-Adjusted Average Land Prices, 1910-2006 .....	9
Figure 2 - Nominal Farm Income, 1970 – 2008 .....	12
Figure 3 - Nominal Farm Income Projection .....	12
Figure 4 - Calories Consumed Per Capita, 1961-2001 .....	14
Figure 5 - Feed, Food and Fuel Demand, 1960 – 2014 (projected).....	15
Figure 6 - Farm Product Demand, Yield, and Acreage Base, 1965-2015 (projected) ....	16
Figure 7 - Biorefinery Locations in the USA .....	18
Figure 8 - Farm Debt-to-Equity Ratios, 1976-2007 .....	19

## Introduction

### Agriculture in the Americas: An Ancient Legacy

For thousands of years, agriculture has been a major component of the economy of the inhabitants of North America. Early human societies gathered wild grains as far back as 20,000 years ago, but the earliest known intentional sowing and harvesting of plants took place in the Fertile Crescent of the Middle East some 10,000 years ago. The domestication of farm animals took place at around the same time. An apparently independent invention of agriculture occurred in the Americas not long after the first Neolithic farmers began developing fields between the Tigris and Euphrates rivers in what is now Iraq, and agriculture developed independently at a number of other sites around the world as well.

The exact reasons for the origin of intentional agriculture are lost in human prehistory; anthropologists offer a number of competing theories for the shift from hunter-gatherer to pastoralist and farming lifestyles, including climate changes, population pressure, and social pressures including a desire to show wealth and power by building up food surpluses not practical for hunter-gatherer societies. Regardless of the reasons for agriculture's invention at the time, the transition to a sedentary or semi-sedentary lifestyle based on the use of domesticated animals and plants was a revolutionary development for the societies which embraced it. Today there are no large population groups which do not rely on agriculture and domesticated animals for the majority of their nutritional requirements, a state of affairs which was achieved many centuries ago and which shows no signs of ever changing. We are now an agricultural species and seem likely to remain so indefinitely.

Agriculture in the Americas is thought to have begun in Mesoamerica, a region running roughly from central Mexico south to Honduras and Nicaragua. Around 8000 BC, hunter-gatherer tribes in the region began using wild grains as a supplementary food source. When hunting was poor or when drought reduced the quantity of wild game, tribal groups would harvest plants from areas near their camps. Over time, seeds from these naturally-occurring protofarms would grow in locations more convenient to regular hunting camps or semi-permanent population centers, and gatherers would use the same area from season to season. Eventually, inspiration struck one or more unnamed prehistoric geniuses, who realized that the tribe's food supply could be made more secure by cultivating the crops at conveniently permanent locations, rather than relying on the vagaries of the wild croplands. American agriculture was born.

There is no definitive single origin point for American agriculture; so many different people contributed at so many locations, all of which are vanished in prehistory, that there is simply no way to draw a bright line and say "this is where it happened". However, we know that three major crops formed the foundation stone of prehistoric American agriculture: maize, beans, and squash. Maize was

first cultivated on a large scale in the Tehuacan Valley of Mexico, around 5000 BC; we know of the importance and timing of this staple crop because it became ubiquitous in the artwork, religion, and mythology of these early people at that time. Squash, while not as critical as maize to the pre-Columbian agricultural economy, was still a very important crop and was cultivated for three thousand years before maize. Beans were domesticated during the same general time frame, and were also an important staple crop.

Once these staples had begun to provide their caloric advantage to the Mesoamerican farmers, other plants and animals were domesticated in quick succession, including many crops which are still popular and important today. Tomatoes, guavas, avocados, manioc, prickly pear, agave, chili peppers, and cacao all provided additional food resources to the earliest American farmers. Nor was Mesoamerican agriculture limited to food; rubber trees, cotton plants, and tobacco were all deliberately cultivated and grown to provide products for consumption. This wealth of agricultural diversity assisted greatly in the development of advanced civilizations in Mesoamerica, and the success of these agricultural communities diffused agricultural knowledge and techniques through two continents. Even today, fully two-thirds of the world's food crops are species which were originally native to the Americas.

By the time of first contact between European explorers and indigenous Americans around 1000 AD, agriculture had become the dominant food system for the Central and Southern American kingdoms, empires, and tribal societies, although many hunter-gatherer societies still existed and thrived. In North America, the Mississippi culture, among others, had intensive agricultural practices that supported large populations, although again there were still many hunter-gatherers. By the time of serious European colonization in the latter half of the second millennium, indigenous American agriculture was quite advanced and broadly comparable to the state of the art in European agronomic practice, although the absence of indigenously useful domestic farm animals meant that cultivation with the assistance of animal labor was a European innovation. The information transfer from indigenous to European farmers has even entered American folklore, as in the mythic, but largely true, tales of helpful Indian farmers assisting Pilgrims with the cultivation of crops in a new and unknown land and climate.

Modern agriculture in North America is strikingly different from the practices of these ancient times, of course. And yet, some equally striking similarities are a testament to the continuity of agricultural development in the Americas. The primary American staple crop remains the same basic plant that the first proto-Aztec farmers developed ten millennia ago: corn. The key elements of soil conservation, seed development, and weather patterns continue to control the yields of farmers just as they did when the first clever tribesman (or woman) wondered what would happen if they put the leftover squash seeds in a bare patch of dirt. American farmers today are practicing a tradition that was ancient

when humans invented writing. That depth of continuity is worth considering in the assessment of farmland as an investment; ownership of farmland is ownership of an element of human society and culture that has passed through 400 generations of development and refinement. Agriculture is permanent; farming may become computerized, but it will never be virtual. Agriculture is real.

## **Modern American Agriculture: A Thriving Sector**

The United States is a uniquely well-endowed country for agricultural production and diversity. Just about every crop which can grow in US climatic zones is commercially farmed here. Economically significant production of crops is truly titanic in scale – more than 250 million tons of corn, 65 million tons of beans, 65 million tons of wheat, and dozens of other crops in 2003. Total US agricultural productivity approaches \$100 billion per year.

In the modern era, American farming began in the U.S. when farms spread into the continental United States from the Atlantic colonies. In the early days, corn and wheat dominated cooler regions, and hogs were a primary form of livestock. In the southern states, cotton and beef formed the basis of the agricultural economy. Tobacco and other pharmaceutical plants were staples of early American agriculture for many years, a role that has declined in recent decades.

The modern American farm sector is considerably more diverse. The staples of colonial days are still major contributors to farm GDP, but new crops and new classes of livestock have joined the bounty. Soybeans, alfalfa, hay, rice, sorghum, and barley are all grown. A hundred million cows and sixty million pigs still roam the dusty cattle trails and stockyards, but they have been joined by more than 400 million chickens and almost 8 million sheep. In the warm semi-tropical areas of southern California, the southern states, and Hawaii, a wide variety of fruits and vegetables are grown.

Agricultural production is distributed widely throughout the United States. Some regions are much more intensively agricultural than others, but with the exception of very barren areas of the United States, few states are without some significant agricultural activity.

The true wealth of America's farm system, however, is in the men and women who work within the system – farmers, ranchers, farmhands, farm managers, equipment operators, and many others. Because of the relatively stable history of the United States' agricultural sector and the great importance a growing young United States put on agricultural pursuits, the US has an extensive system of agricultural education and training. American farmers have access to educational and technological resources that would have been unprecedented even a generation ago, and they take advantage of that access, resulting in US agricultural yields that are the envy of the world.

US farmland has many characteristics which make it an attractive asset. The value of farmland is rooted in the value of its product, and the tremendous strength of the American agricultural sector derives from its profound geographical, technological, and cultural advantages.

As a nation, the United States has the largest mass of arable land located in latitudes favorable to crop production. Favorable weather patterns mean that large areas of this mass are farmable using dryland methods – and farmable at high productive yields. This large production center is geographically located midway between four large export markets: Europe, Asia, Mexico and Canada, providing competitive advantage in the international food market.

The farm bounty of the United States is also easily brought to market. Reliable heavy infrastructure along the Mississippi, Ohio, and Columbia Rivers, and an extensive system of railroads and highways, ties together ports, processing centers, and farms. The world export market is made accessible by major ports in New Orleans, Portland, Houston, Los Angeles, Baltimore, and other cities.

As a nation with a lengthy and well-developed agricultural tradition, American farmers have access to advanced biotechnology research centers, as well as a comprehensive system of traditional agronomical institutes. Farmers nationwide have access to new techniques and the most modern equipment, and enjoy a stable and well-capitalized farm economy.

Both internal and external demand for US farm products are strong and growing, with ever-stronger export growth due to the improving incomes in developing countries and the growing market for alternative fuels such as ethanol and biodiesel. The US enjoys a reputation as an efficient and reliable producer of agricultural goods worldwide.

No economic sector operates in a vacuum; the structure of governments and economic systems contribute their own share of value. The United States has a strong private property tradition and law, and owners and investors are often protected to a degree unseen in many other countries. The monetary system and the valuation of assets in the United States are highly transparent, and this contributes to a general sense of market probity, however unpleasant the occasional exceptions can be. In general, the United States is an excellent place to be in business, and the farm sector is particularly strongly suited to taking advantage of this attractive climate.

## Elements of Farmland Value

### The 20<sup>th</sup> Century Valuation Trend

Farmland is an asset with deeply-rooted valuation. Unlike stock equities, which can vary greatly in value over very short time horizons and with very minor changes in circumstances, farmland tends to hold its value over very long periods of time, with fluctuations driven by major events. For this reason, farmland is generally a poor investment choice for investors seeking quick turnarounds in value or “overnight success”. The converse of this price stability, of course, is that farmland almost never loses value over the long term. In fact, while prices for agricultural land in the United States have had their ups and downs, farmland is unique among assets in that its value has never gone to zero, or even close to it; even during the Great Depression, farmland maintained much of its value. People have to eat, and food comes primarily from farms; this equation seems unlikely to change regardless of technological innovation or market crisis. There is no conceivable scenario, short of apocalyptic nuclear conflict which destroys all possibility of growing crops in the radiated soil and wipes out all of the world’s cities, in which US farmland would go to zero value. In that type of disaster scenario, no other conventional investments would hold value either, and investors would be trying to stay alive, not worrying about their portfolios.

In the United States, for the first 75 years of the 20<sup>th</sup> century, farmland prices were stable or increased only slowly. The slow, steady spread of genuinely mechanized farming meant greatly increased output per acre of land. Although this increased the profitability of existing farmland, it also put a negative pressure on expansion; the existing arable land base was adequate to meet the nutritional needs of the nation. During the 1930s, the Great Depression slowed the economic growth of the nation in general and its agricultural sector in particular; farmers did not starve but they did not see their land increase in value, either.

Even after the Second World War, farmland prices were slow to recover from the Depression. As the federal government increased in power in the United States, the tight regulatory control over shipping and agricultural technologies and practices meant that land prices did not move very much, even as the world’s demand for American produce was increasing year after year. That changed with the simultaneous widespread deployment of the now-familiar standardized container cargo system, and the deregulatory impulses of the 1970s and 1980s.

Shipping companies, now freed from obsolete and slow-to-change regulations, quickly embraced the vastly superior container system, which permitted both domestic and international freight to be carried at a fraction of the previous cost structure. In addition, the US dollar was at a historically weak ebb, making American produce even more attractive to foreign markets. With skyrocketing demand and newly cheap shipping, US agricultural exports exploded and the

demand for farmland went into the stratosphere, driving land prices up in turn. In addition, the popularization of no-till agriculture in the 1970s improved yields and reduced erosion, increasing both the profitability and future value of existing farmland. A weak US dollar during this period further drove exports, as foreign buyers found American agricultural exports to be exceptionally inexpensive and of high quality. The spread of genetically-modified crops in the 1990s further enhanced yield profiles for American farms, which were quick to adopt this new technology.

Farmland has continued a steady rise in value over the last several decades. In fact, in the last 54 years, there have been only four years in which farmland prices did not rise in the aggregate.

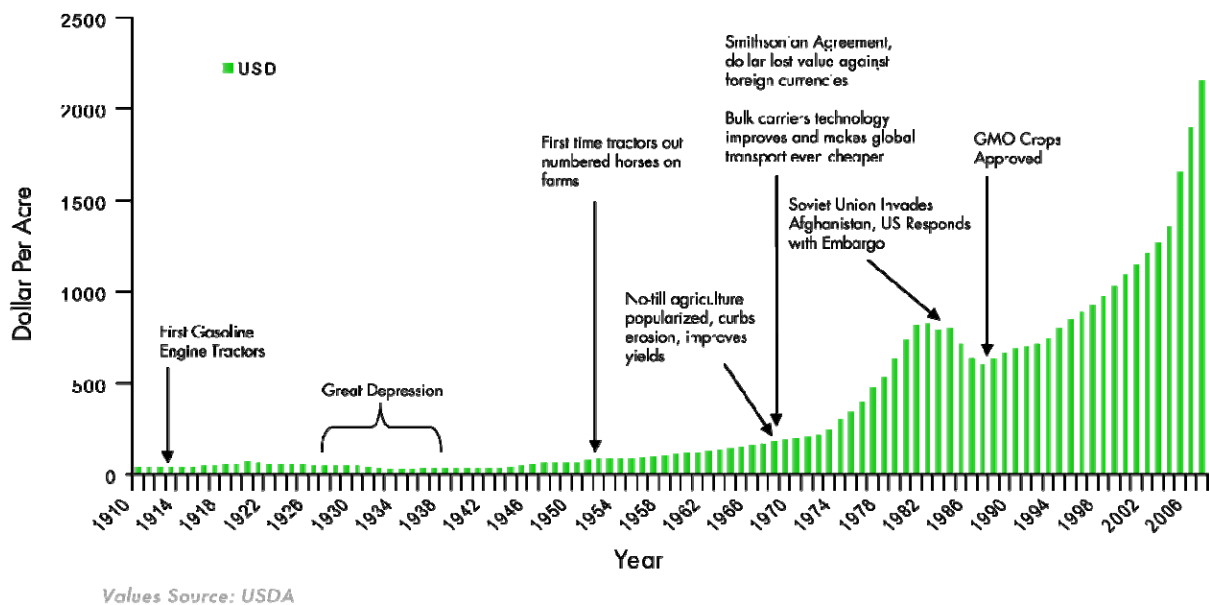


Figure 1 - Inflation-Adjusted Average Land Prices, 1910-2006

### The Bad Years: 1983, 85, 86, 87

There is one period in the history of land valuation over the last century where land values depreciated significantly, the mid-1980s. The decade of the 1980s saw a dramatic shift in the capital structure of American agriculture and the ownership of its assets. A massive accumulation of farm debt in the 1970s ran head-on into an unfavorable economic climate and incredibly high interest rates in the 1980s. The result was that many previously successful farmers went out of business and the agriculture land market hit rock bottom – although at worst the market gave back the gains since the mid-1970s.

Some of the pressure arose from new farming efficiencies. Producing greater quantities of farm products required the efforts of fewer people thanks to new

technology. Given the capital intensive aspect of modern agriculture, farmers were under increasing pressure to become even more efficient. This required substantial investments in modern farm machinery, which is very expensive. Tractors, combines, new planters, grain storage and other technologies such as irrigation led to higher yields, but did not come cheap. Margins were squeezed, and the result was extremely high debt to income ratios.

During the mid 1970s, economic factors favored farmers. Interest rates were relatively low, so farmers could borrow cheaply. People in foreign countries wanted American agriculture products and had the money to pay for it, so foreign markets became important to the farmers. Prices for agricultural land were on an upward trend which seemed inexorable, but nominal prices were still perceived as reasonable and so farmers were buying more land on credit to expand. In the 1980s the economy went bad for farmers. Outside economic factors forced interest rates up. Farmers had to pay more for the loans they needed to operate each year. In addition, consumers tend to buy less during bad economic times, so the prices paid for farm commodities went down.

With less demand and lower prices for their products, many American farmers had no way to pay back the banks for the loans they had taken out. Many borrowed even more money, hoping that better crops and prices would rescue them in a year or two. It didn't happen.

In the 1980s, foreign markets dried up, driving prices down further. The Soviet Union invaded Afghanistan and President Jimmy Carter responded by stopping the shipment of US farm products to the USSR. That embargo on farm products hurt the farm export market at precisely the worst possible time, as other countries experienced hard economic times in this period and cut back on agricultural imports. US farmers could not sell as many goods overseas as they previously had. Farmers had made heavy capital investments to increase production capacity for a market that seemingly disappeared.

In the 1970s and early 1980s, the prevailing model in the farming community was for farmers to own every acre they operated. At the same time, new and aggressive investors were entering the market. This new pool of investment capital put upward pressure on the cost of land. The cost of every available acre was bid up far beyond its realistic economic value. The new investors were not interested in the moderate but stable returns that farmland had historically provided. Many entered into highly leveraged transactions accepting low cash on cash returns for the chance to profit from rapid appreciation. (The situation was very similar to what we are seeing in the current residential real estate market where speculators bought investment properties hoping to capitalize on the booming housing market only to get left making payments on homes they could not sell or rent when rates went up.) This artificial runup of prices in the 1970s was corrected by the market in the 1980s, and appreciation in land prices has proceeded at a more reasonable and sustainable pace since then. Analysts differ

over whether the price runup of the 1970s was a genuine “bubble”, but it seems clear that the appreciation since that time has been based on real economic value and not speculation.

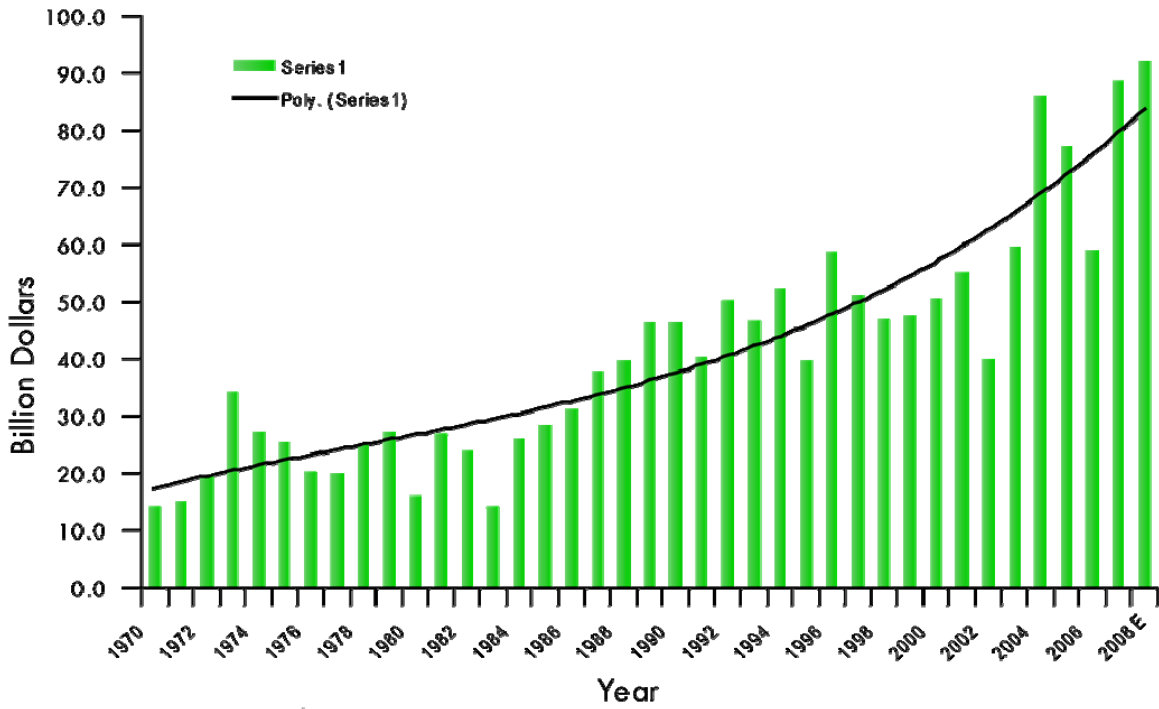
Since the 1980s, farmers have found that the solution for increasing profitability and reducing risk is a combination of equipment ownership, and some land ownership mixed with renting additional land to meet the maximum production possibility of the equipment. Most farmers today recognize the advantage of outside investment capital. They seek out land investors who prefer to enter into cash rent or crop share arrangements. The need for farmers to reduce their debt has resulted in many farmers selling off portions of their farms to investors, and then leasing it back. This creates an increase in their capital efficiency, reduces their debt to income ratios/risk, and results in a better ROI.

## The Fundamentals of Value

What determines the value of farmland – and what direction are those drivers tending in?

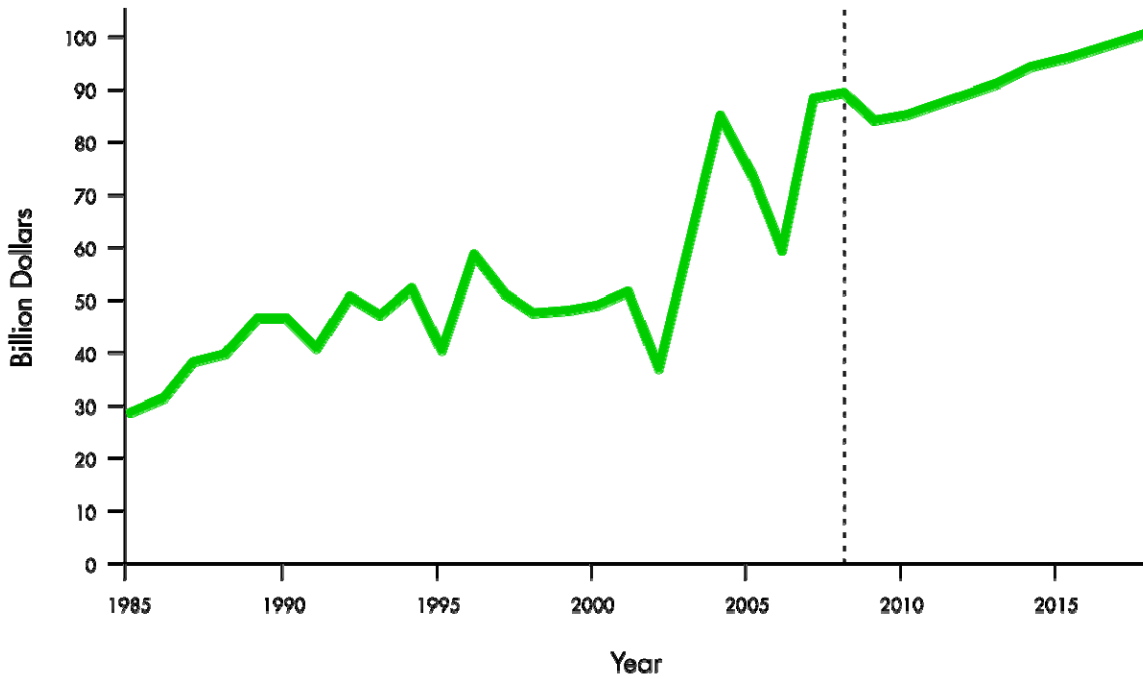
Historically there have been three principal drivers in farmland prices: farm income, demand for agricultural produce, and projected/anticipated structural changes in the farm economy.

High farm income is an indicator that farmland is profitable, and that farms are making money. Like any form of capital stock, it is possible for “bubbles” to form when investor enthusiasm outpaces the real profitability of the underlying capital asset. In the case of farmland, analysis shows that there has been no bubble – land values and net farm income have kept pace with one another since at least the early 1970s. The USDA projects that net farm income will continue its current expansion for at least the next ten years, going from about \$90 billion in 2008 to around \$100 billion in 2017.



Source: Economic Research Service, USDA

Figure 2 - Nominal Farm Income, 1970 – 2008



Source: USDA Long-term Projections, February 2008

Figure 3 - Nominal Farm Income Projection

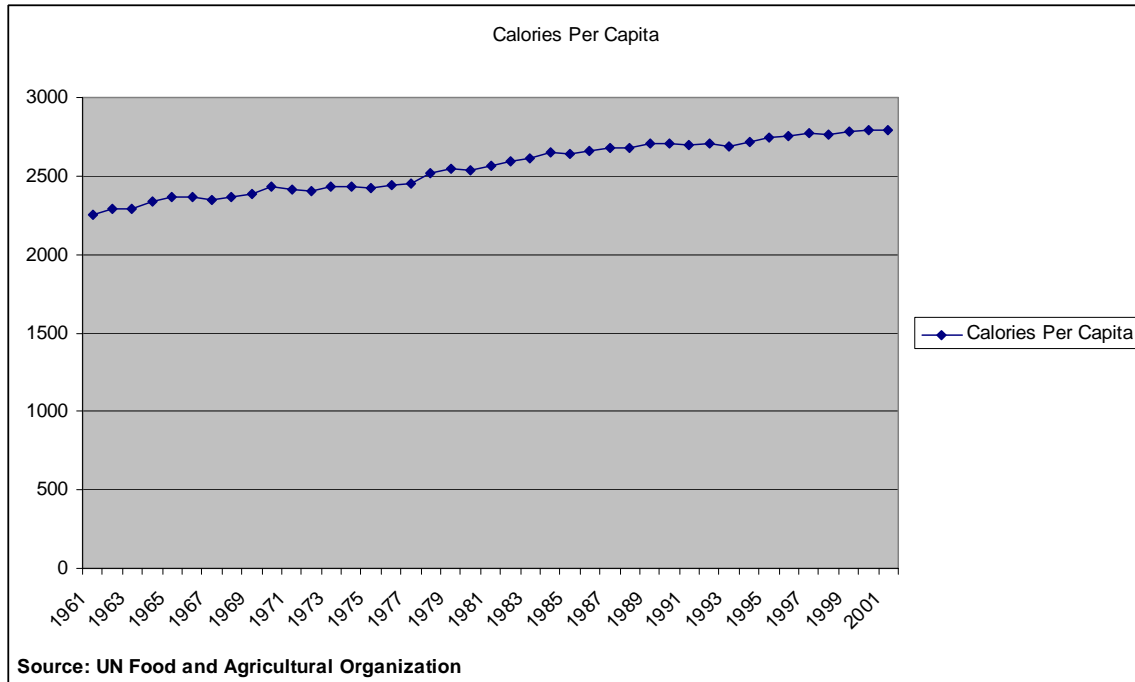
The second factor in farmland price is the demand for agricultural commodities – a demand characterized by farm analysts as “food, feed, fuel”. Farm produce is used directly for human consumption, as feed for animals, and increasingly, to produce fuel for vehicles. Strong demand for agricultural products drives land prices upward, as it becomes clear that there is a market for what the farm can produce. USDA projections show strong demand for farm products, with an accelerating trend in the demand curve caused principally by the new demand for biofuels, which require crop-based feedstock as the raw material for making the fuel. Total agricultural demand grew about 1.5% per year during the 1980s, about 1.6% a year through the 1990s, and 1.9% a year from 1997 to 2006. The USDA projects a 2.6% annual increase in demand for the 2006 – 2015 period – a rate of increase unprecedented in modern US agricultural history. Of these three elements, food and feed are the chief drivers of long-term growth, while fuel will be an important driver in the short and medium terms.

### **Global Population Growth and Dietary Changes**

Both population growth and calories consumed per capita continue to rise, and this is putting a permanent upward pressure on demand for food and feed. In addition, the populations of countries such as China are showing increased demand for dietary protein, which requires greater agricultural inputs than a vegetable-based diet.

Population growth has slowed from its peak in the early 1960s, when the annual growth rate exceeded two percent. In 2007, world population increased by 1.19%, adding 79.4 million people to the human population. Projections of demographic trends such as population growth have proven notoriously unreliable, but the best estimates are that population will continue to increase by around 80 million people per year at least through 2011. Each of these new additions, of course, requires food (and fuel, in order to contribute to the global economy) and will continue to produce a strong demand pressure on farmland.

Another factor in demand pressure is the improving nutritional level of people around the world, and changing dietary tastes. This is a two-fold process. As individuals and nations become wealthier, they improve their nutritional quality and quantity. Nutritional quality is difficult to quantify, but quantity is relatively straightforward; over the 40-year period from 1961 to 2001, average caloric intake worldwide rose from 2253.9 to 2789.4, an increase of almost 25%.



**Figure 4 - Calories Consumed Per Capita, 1961-2001**

In addition, rising wealth leads to changing tastes; families that ate meat once per month, or even less frequently, switch to meat consumption on a daily or near-daily basis, and supplement grain and legume consumption with a wider variety of fruits and vegetables. Meat consumption, in particular, requires a much larger land base to support the equivalent caloric intake; approximately ten times as many agricultural inputs (plant matter and water) are required per calorie for a meat-based diet as for a vegetarian diet. Cultural issues – in particular, the prevalence of vegetarian-oriented religious systems in Asia – are likely to prevent these countries from making a wholesale shift to a Western-style meat-oriented diet, but increasing secularization will undermine that social barrier and over time meat consumption seems certain to continue rising worldwide.

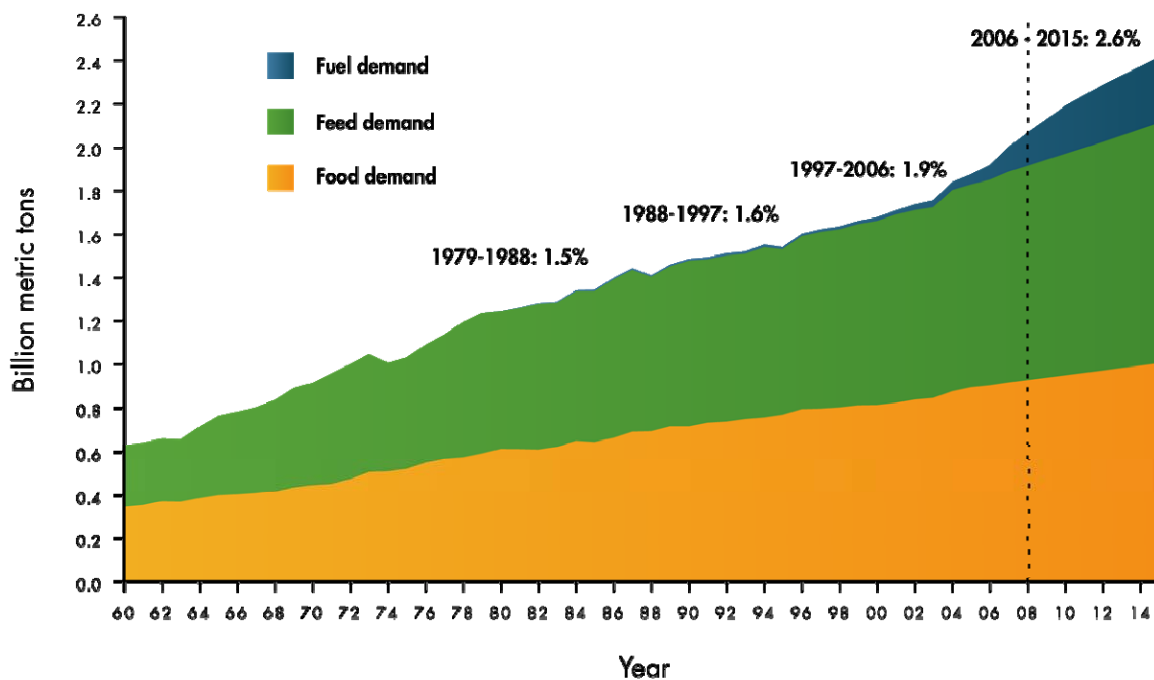
These increasing demands are unlikely to be adequately met by indigenous and local farming systems in the short term. In particular, China and India, the drivers of much of the world's population growth, are already operating at or near their maximum agricultural output levels. The United States, by contrast, has actually taken arable land out of production over the last fifty years in response to the astounding levels of productivity of a modern agronomic system. In time, increasing capitalization in China and India may increase those nations' ability to produce their own food supply, but there are limits to that process. There is no additional arable land to be had in those countries, and what is there has been intensively farmed in many cases for, literally, thousands of years. In addition, the human infrastructure of farming is underdeveloped in those nations; the typical farmer is a skilled but educationally-limited individual farmer with no access to capital and bound by archaic legal structures that limit genuine agricultural productivity explosions. American farmers, by contrast, are the most highly-

trained and best-educated agricultural professionals in the world, and the American market capitalist system means that massive capitalization for productive farms is almost trivial to acquire. American agricultural exports are likely to be the market of first resort for nations needing to feed their people for the foreseeable future.

In short, a growing global population and a growing global economy combine to put significant demand pressure on farmland, and these trends seem unlikely to slow in the next decade or two.

## Fuel Production

Fuel production from agriculture sources is also strong and growing, but the use of agricultural crops for fuel production, while desirable, is not necessarily a permanent or irrevocable allocation of resources. However, in the short and medium terms, biofuel production should be expected to expand rapidly. There is an increasingly strong consensus in the United States that reducing American dependence on imported oil is a critical question of national security. That popular view acts in harmony with the equally popular view that American long-term economic health relies on the creation of environmentally sustainable renewable fuel sources. Those sources may not always be corn-derived biofuels, but for at least the next decade, corn-based biofuels are likely to be a primary avenue of renewable energy development. Thus, it is clear that for the medium term, both natural and artificial demand for renewable fuels will be strong and growing.

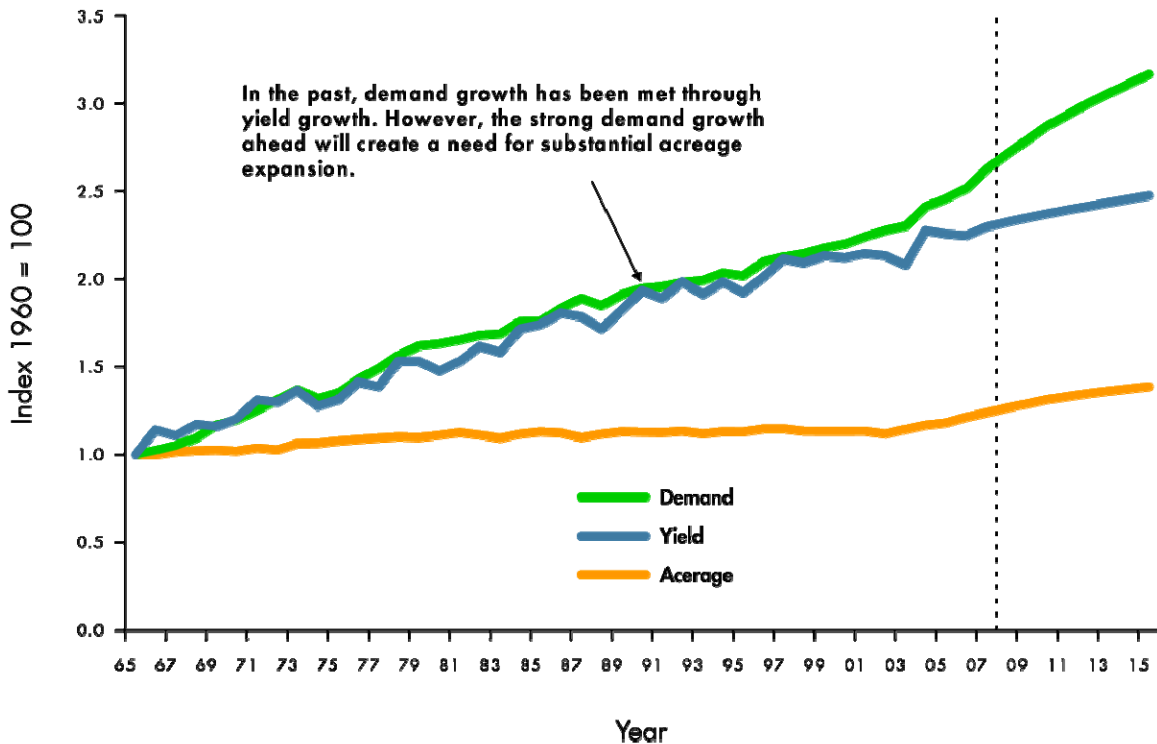


Source: USDA and Goldman Sachs Commodities Research.

Figure 5 - Feed, Food and Fuel Demand, 1960 – 2014 (projected)

## Structural Changes

The final factor is the foreseeable changes in the farm economy in the years ahead. Over the long term, food and feed requirements will continue to rise without interruption. Markets are, of course, imperfect predictors of the future – but some changes are known in advance, and markets are generally quite good at integrating that knowledge of the future into the price of goods. The structural change most likely to affect the farm economy (in fact, we already see the effects) is the global demand for biofuels, which is expected to more than double in the next few years. This is likely to increase the demand for land. Regulatory requirements such as the Renewable Fuel Standards passed by Congress in 2007 are further fueling this demand, as well as setting a floor on the market size likely to be involved. The Renewable Fuel Standards program, administered by the federal EPA, is scheduled to require production of 9 billion barrels of ethanol fuel in 2009, rising steadily to 36 billion barrels in 2022. This tends to encourage investors as to the future value of farmland. Biofuels alone are likely to require another 7.4 million acres of production land in 2008 alone according to USDA projections.



Source: FAO, USDA and Goldman Sachs Commodities Research.

Figure 6 - Farm Product Demand, Yield, and Acreage Base, 1965-2015 (projected)

Those three factors (farm income, farm product demand, and structural shifts) are the underlying bedrock of increasing farm valuation over time. However, there are a number of other factors which are contributing to short and medium-term asset value growth as well. While these factors are not as important over

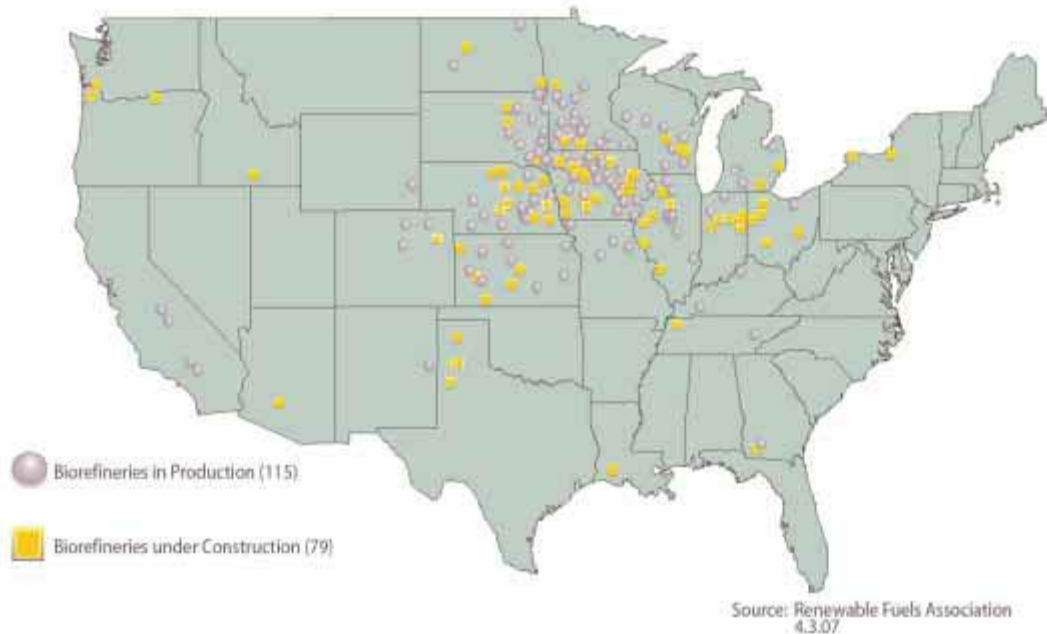
the long term as the fundamentals, they nonetheless will make significant contributions to farm asset value over the next five to fifteen years.

### **Housing Demand for Land**

The steady development of prime farmland for residential purposes has continued unabated since the 1950s – about 300 million acres of once-productive agricultural land now sits under housing developments, and as those communities continue to grow they will have continued demand for these often-pleasant acreages. By 2007, the US population was 300 million people, and by 2030 the number is expected to reach 380 million – and the US Census Department forecasts it to hit 458 million by 2050. That increase of almost 160 million people between now and 2050 will require the building of more homes than existed in the entire country before 1950.

### **Geographical Location of Biofuel Refineries**

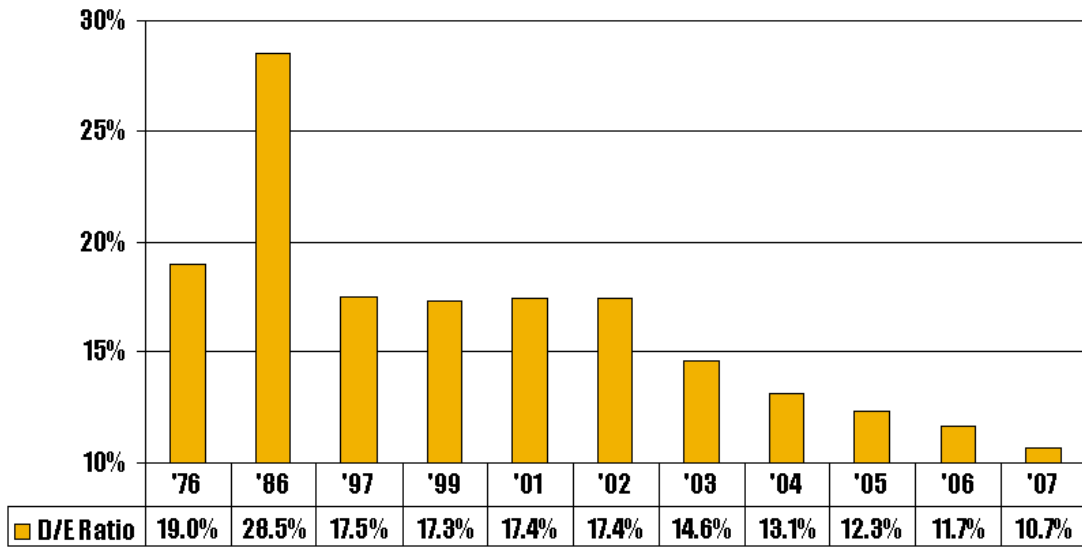
The increasing demand for agricultural feedstock for biofuel production is part of the “food, feed, fuel” equation discussed above. However, not only is biofuel production on a steady growth curve, the physical location of biofuel refineries in the heart of American farm country also adds value to that farmland, an appreciable fraction of the total American arable land base. The intensive concentration of biofuel refineries in the Corn Belt means that the transportation costs from farm to refinery will narrow, and that lowered expense will be bid into those farm values; farms located literally down the road from biofuel refineries that buy their products will become more valuable than those located in more remote areas. The overall impact of this bidding effect will likely be neutral across the sector, but will mean stronger price growth for the many affected farms. In addition, the industrialization of these formerly purely-agricultural areas through the development of refineries will make farm communities more prosperous overall, creating a general inflationary effect.



**Figure 7 - Biorefinery Locations in the USA**

### **Existing Farmers Have Low Debt-to-Equity Ratios**

As a sector, farmers are in a very strong financial position. The strong balance sheet and low levels of debt of existing landowners means that the number of properties entering the marketplace on “bargain” terms due to the owners’ financial distress is very low.



**Figure 8 - Farm Debt-to-Equity Ratios, 1976-2007**

## Risks of Farmland Ownership

Farmland ownership is an investment that requires specific, unusual expertise and a sophisticated management approach. Investing in individual farms, or in small quantities of farmland, poses very large risks for most investors because while the overall farm market is quite stable, individual farms undergo wide swings in valuation and output.

### Historical Factors

Owning operational US farmland is not a trivial undertaking and has considerable associated risk factors, such as the following:

- **The inherent risk of farm operation and ownership.**

Farm incomes are notoriously variable, making the amplitude of the range of possible return to the smallholder very high. Production costs are increasing for farms, particularly in the areas of fertilizer and fuel, and operating margins can be very tight. Commodity prices are notoriously variable, and even farmers and farm managers with many years of experience have great difficulty in projecting the net effects of price pressure in the global and domestic markets.

- **The danger of externally-imposed market changes that cannot be predicted or easily hedged against.**

Foreign production and competition is always a threat, and fickle consumer demand can mean a product or crop line that was once highly sought-after has become of lower value. Government involvement in export and import regulations – still a potential, even 20+ years after the grain embargo – can devastate sectors of the industry with little warning. In addition, farmland is highly illiquid – people do not buy farms on a whim, and attempting to cash out on an existing farm property is rarely a quick or easy project.

- **The ongoing requirement for the operational labor of high-skilled individuals.**

Farmland does not produce without farmers; even if owners are capable of making the managerial decisions that farm operations require, there is still daily work that must be done by expert workers, who cost money to hire – sometimes quite a lot of money, as qualified workers would often rather be farming for themselves. This operational cost – whether in terms of personal management and taking on the farming role directly, or hiring an expert farmer to manage the property, is a considerable risk and cost associated with ownership of farmland.

## **Current Fiscal Policy is Inflationary**

The federal bailout of the financial sector in late 2008 flooded the financial system with liquidity and took bad debt off the books for commercial lenders. The long-term effect of this is likely to be highly inflationary over the next several years until policymakers can stabilize the financial system to stop the inflation.

Other factors tend to reduce the future value of farmland. For example, there is some land available in conservation reserves, although this land tends to be of the lowest productivity and often has prohibitive capital requirements in order to be brought back into a productive status. Still, some acreage will come from these programs and that is likely to meet some of the unmet demand, lowering overall per-acre values.

## **Farmland Investment Strategies**

### **Expected Return**

As with all forms of investment, farmland provides a return on capital combined with a risk of loss. As discussed previously, the risk of loss with farmland is actually considerably less than with other forms of capital investment. Unlike equities, farmland has never gone to zero value; in fact, barring an economic catastrophe of unprecedented scope, farmland never will go to zero value. (And under the conditions of such a catastrophe, the use value of farmland would become very high, as markets would collapse and subsistence farming would be the primary way of acquiring food.)

Besides simple risk avoidance, however, farmland also provides considerable positive return on investment. Over the last few decades, farmland has appreciated in value approximately 10% per year. In addition, revenues from farm operation typically come in at around 4% to 5%. (That is, a Midwest row crop farm with \$1M in capitalization can be expected to produce an approximate net income of \$40,000 to \$50,000.) That combined rate of return of 14 to 15 percent makes farmland extremely attractive when compared to more traditional investment plays, particularly for buy and hold investors who will not need to pay taxes (capital gains) on the 10% annual appreciation until the land is sold.

### **Farmland as a Component of a Bond Strategy**

Many investors favor a bond-focused strategy because it virtually eliminates risk. Return is lower overall, but profit is nearly guaranteed in times of strong bond market performance and there is almost never a risk of losing asset value. In addition, many bonds provide tax-free income, which means that from year to year there is little taxable income following such a strategy.

However, bond-focused investments do not generally swing as far as the market does during up periods, and there is a definite upper bound to the return provided by bonds. Farmland, by contrast, can appreciate at much higher rates than even the highest-yielding bonds. Farmland can be a secondary asset class for a bond-heavy portfolio, providing stronger returns as well as cash income. Adding appropriately-selected farmland does not significantly increase the risk exposure of the portfolio, but provides a higher rate of return and superior cash flow. Farmland investments are taxable gains, however, and tax-avoiding investors should be aware of the potential for capital gains taxes on appreciation when they sell their land, as well as income tax on farm income streams.

### **Farmland as a Diversified Hedge Play**

Farmland makes an excellent hedge asset for investors concerned about wealth preservation. Although farmland does not produce returns at the same maximum

level as equity investments, it avoids the considerable risks of asset devaluation over the short term. For example, during the period from October 1, 2007 to October 1, 2008, the Dow Jones average dropped about 22% of its value, from an index of 13930.01 to an index of 10831.07, due to credit shocks and turmoil caused by political uncertainty. Farmland is not completely immune to those types of external forces, but they have a much smaller impact in the short term; quality farmland prices in the Midwest not only did not decline over the same period, they gained more than 13%. Even as stock prices continued to freefall after October 1, 2008, farm prices have continued to appreciate, albeit at slower rates.

Over the long term, farmland investments hold value exceptionally well. Farmland values increased in 50 of the last 54 years, and the only significant decrease (following the Soviet invasion of Afghanistan and the United States' decision to cut off wheat exports to the USSR) was made up when the export situation stabilized. This history of solid returns and value appreciation makes farmland a very safe play which provides an income stream even in the very worst years.

Because of this security, farmland makes a good secondary or primary asset in a mixed equity-farmland portfolio. The mixture of asset types can vary depending on the investor's requirements; younger investors seeking to build value rapidly might have a majority of assets in equities with only a small hedge position in farmland. Older investors expecting to cash out or seeking a stable income stream while still building value might seek a farmland-heavy portfolio with a modest equity position. Most investors would want to avoid a 100% equity or 100% farmland position. Unlike equities, however, it is possible for a highly knowledgeable farmland investor to have a relatively encyclopedic knowledge of farmland management across the board, and individuals with that level of specialized talent may find farmland investing sufficiently profitable to warrant a higher level of commitment than an ordinary investor would undertake.

For typical farmland investors, the ideal strategy is to take a long-term hold and diversify position. Like equities, farmland offers the opportunity to have substantial diversity even within the same asset class. There are a number of different types of farmland, varying by the geographical classification of the land, the crop types that are well-suited to a particular farm, the vulnerability to weather conditions, etc. A well-balanced farmland portfolio will include a number of small farms in widely varying areas of the country (to spread risk from natural disasters such as floods or climatic catastrophes), focusing on a variety of different crop types (to spread risk from public relations debacles such as the 2008 salmonella scare which badly damaged the tomato industry), and farms employing different management techniques such as irrigation, tilling practice, participation in government subsidy/insurance/conservation programs, etc.

## Farmland as a Non-Correlated Asset

Farmland, as an asset class, tends to be negatively correlated with traditional assets such as equities, and neutrally correlated with traditional commercial and residential real estate. Correlation is simply the tendency of an investment's value to move in tandem with that of another asset. Correlations can be positive (both rise and fall together), negative (when one rises, the other falls), or neutral (there is no particular connection between the values.)

For example, the value of Microsoft stock tends to be positively correlated with the value of Intel stock. This doesn't mean that Microsoft stock goes up every time Intel has a good quarter; correlation is not causation. Persistent and consistent correlation between asset values usually means that there is some underlying common factor driving both values. In the case of Intel and Microsoft, the number of people purchasing PCs tends to have a strong beneficial effect for both company's bottom lines, and thus, for their stock price. When people aren't buying PCs, both companies are hurt, and their stock prices decline.

A negative correlation is when one asset's value tends to go up when another asset's value goes down. In cases of negative correlation, the underlying common factor has a positive effect on one company, but a negative effect on another. An example of a negative correlation in asset value is the relationship between stock equity prices and the price of gold. When economic times are good and stock prices are rising, gold (which does not produce income) tends to have a lower price. When times are bad and equity markets are deflating, gold (which, like farmland, holds at least some value no matter the conditions) becomes more attractive to investors and its price goes up.

Obviously these scenarios are simple, and untangling the actual causes behind correlated asset values is extremely complex and involves substantial analysis. It is rare for the common factor to be something as simple as the number of PC buyers in the market, or the overall economic trend; in fact, it's rare for there to be only one common factor – usually the commonality is some very complex set of variables or conditions. Some analysts don't try to figure out why stock A always seems to go up when stock B goes down; it's a lot easier just to observe the correlations over time and identify the correlations that are persistent and reliable.

As part of creating a balanced investment portfolio, many sophisticated investors seek out assets which have particular sets of correlations. For example, it is common for investors in equities to choose some stocks which have negative correlations between them, in order to hedge their position against drastic events. (If my stock holdings go down in value because of a fiscal crisis, it is likely that my gold holdings will go up.)

Farmland is an investment class which has considerable utility in balancing the correlations between asset classes in a portfolio. Farmland is generally negatively correlated with the equity market, providing the ability to hedge against declines in traditional assets like stocks. Farmland is also largely uncoupled from the markets in commercial and residential real estate, meaning that farmland investments are insulated from the boom-bust cycle that often characterizes these more volatile investment vehicles – a real-estate bust in a particular area rarely has significant impact on farmland values in the same area. The underlying factors are simply too different. These correlational characteristics make farmland a useful hedge for risk-averse investors.

## **Liability-Driven Investing**

Liability-driven investing is a strategy often pursued by institutional investors like pension funds and foundations. In recent years, advocates of the Liability-Driven Investment (LDI) strategy have made great strides in winning acceptance for this philosophy of investment. Of particular interest to pension funds and similar investment plans with knowable future liabilities and obligation, LDI investment strategies involve focusing on ensuring that the underlying assets of a fund or plan are sufficient to meet the liability of the fund, both in the present and in the projectable future. When making asset allocations, LDI strategies are oriented towards reducing risk (specifically, the risk that a fund will not have sufficient resources to meet its obligations going forward) rather than simply on maximizing yield.

The simplest way for institutions to honor their ongoing liabilities is to build an asset pool that yields predictable cash flows of equal magnitude to their liabilities. A fund which must pay \$1 million in pensions each year may purchase bonds whose revenue stream equals \$1 million per year. This strategy is extremely simple and low risk, but of course it denies the institution the ability to earn higher returns than they need for their cash outlay. Instead of doing this, most institutional investors set a target rate of return that they must reach in order to meet their obligations, and then build a pool of mixed assets that will meet or exceed that target.

However, over time and for a wide variety of reasons, the management of this type of asset-driven investment could lose focus on the underlying income needs of the fund or plan. Because asset-driven investments are benchmarked against the market rate of return or the portfolio returns being generated by competitors, fund managers can find themselves trying to hit targets that are not directly related to their fiduciary obligations. Liability-driven investment reverses that trend by benchmarking the fund's performance against the future liability of the fund, rather than against an arbitrary benchmark with no direct connection.

Farmland makes an excellent asset selection for investors pursuing an LDI strategy for a fairly simple reason. The LDI approach shifts investment strategies

away from maximizing asset returns and towards minimizing risk. Although farmland has a history of very good returns, it is also one of the lowest-risk investments available to investors. Farmland values almost never go to zero, and in fact land values have shown overall steady and reliable growth in 50 of the last 54 years. In addition, LDI investors seek hedge investments which increase in value when interest rates decline, as lowered interest rates generally mean higher liabilities for pension funds. For this reason, LDI investors often invest in bonds, which increase in value when interest rates are low. Farm incomes (and thus land values) also tend to improve when interest rates are low, as the cost of operating capital is often a very large portion of a farm's operational budget. Farmland presents a similar operational profile as bond investments in terms of response to interest rates, while maintaining good asset return year in and year out.

In addition, assets that produce revenue flows can depreciate as well as appreciate. In our previous example of the pension fund, the investor might have a sum to invest that is enough to buy a bond that will meet cash outlay requirements. A ten-year bond might produce a return of 4%, enough to meet the outlay requirement of the fund – but at the end of the ten years, inflation has reduced the value of that bond significantly from its face value in real dollars. However, with farmland, the revenue stream produced is about the same as can be expected from the bond market, but the underlying asset usually appreciates over the time period in question. Ten years after you buy a bond, the bond is still worth something, but that something is almost always less than what you paid for it, in real dollar terms. Ten years after you buy farmland, the farmland is usually worth more than you paid for it, in real dollars. Land prices tend to outperform inflation, in both the short and long terms, usually by at least a few percentage points. While farmland is not as perfectly risk-free as a bond issue, it is very reliable and very safe – and both the return and the underlying asset value are comparable or better. For this reason, farmland is often an excellent component of an LDI asset strategy.

## Conclusion

American farmland has a lengthy history of productivity, appreciation in value, and income stability. The United States is and is likely to remain a global agricultural leader, driven by its natural advantages in geography and climate, extensive transportation infrastructure and central location, and unsurpassed investments in human capital. American farmers are the best-trained and most highly-educated agronomists in the world, and the American farm sector is a vibrant and critical player in the world economy.

US farm values have maintained a steady upward trend for a century, with only one period of significant loss (driven by a unique geopolitical event and a global financial crisis in a devastating one-time combination) and one period of price stagnation (driven by a crippling economic depression that shuttered most other industries as well). Booming global demand for food, fuel, and feed mean that the US farmer has a guaranteed market for everything he or she is able to produce, and demographic trends point to a continued expansion of demand with no end in sight. The fundamental valuation factors of US farmland almost universally point to continued growth, and even the prospect of significant dislocations to the global economy seems unlikely to do more than blunt an unstoppable growth trend.

The risks of farmland investment should not be ignored by the prudent investor. Farm management is much more complex than management of a conventional equity portfolio, and individual farms are susceptible to economic hardship and even disaster. Public policy has a large potential impact on farm revenues, and thus on underlying values. For that reason, the wise farmland investor creates a diversified portfolio of farm properties with a wide variety of crops and marketing plans. Farmland risk is not unmanageable but the prudent investor will find great value in having knowledgeable counsel with farming expertise available.

Farmland provides a high level of expected return, quite competitive with equity plays for most investors, while also maintaining a very high level of overall asset safety. A properly diversified investment portfolio that includes a variety of farm properties is very likely to hold value very well (compared to other asset classes) even in poor economic conditions and in most years will see considerable appreciation in the value of the underlying asset, along with reasonable net positive cash flows.

Farmland investment is not for the investor seeking immediate large-scale asset growth. Nor is farmland an ideal choice for fire-and-forget investors or those with only a casual interest in the management of the properties they are acquiring. Rather, farmland is an ideal investment for the long-term, conservative investor seeking a reasonable balance of income, asset appreciation, and wealth preservation that rivals that of bonds.

Farmland has proven to be, and seem poised to continue to be an ideal investment for certain investors:

- Farmland is a critical component (indeed, the largest component) of an agricultural market that is approaching \$100 billion per year in productivity in the domestic market alone
- US farmland is ideally situated geographically, climatically, and economically for continued prosperity and growth
- Farmland is an asset which never goes to zero, which even in very difficult times tends to depreciate only slightly, and even gains value
- Global demand for agricultural products, especially American products, is strong and does not show signs of being vulnerable to demand shocks like those which occurred in the 1980s; other sectors such as fuel production are eager to absorb any surpluses which may develop
- US farmers are now sophisticated in their handling of capital and farm financial pictures are extremely solid, particularly in comparison with the balance sheets of other industries

For some investors, farmland investment makes little sense. For many other investors, however, farmland is an ideal investment that combines the best aspects of other asset classes in one convenient vehicle which holds its value in even the worst of times, and which produces excellent revenue and appreciation year after year.