Why Invest in Grain-Producing Farmland?

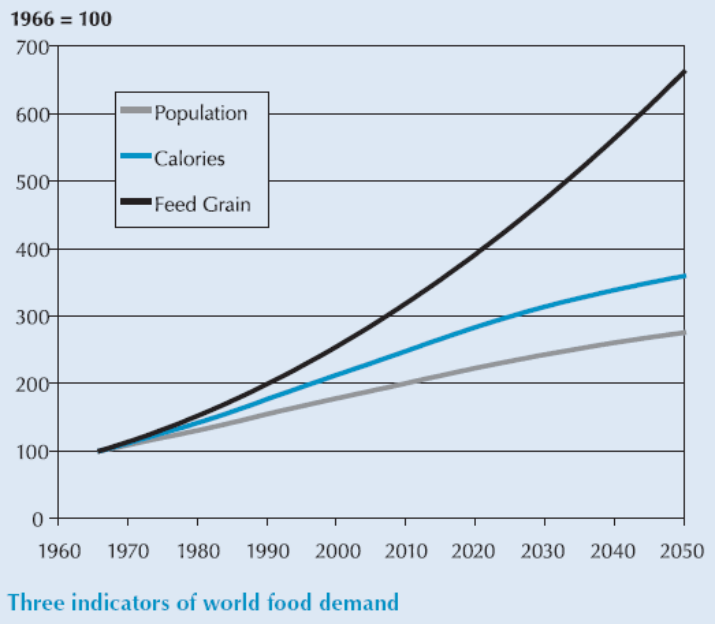
"Buy land. They stopped making it." – Attributed to the famous 19th century American author and humorist, Mark Twain.

A very true statement but why should we be interested in farmland and particularly, grain-producing farmland? First, increased population growth and worldwide food demand creates an ever increasing demand for grain production. Second, droughts such as recently experienced in the U.S., food shortages that have been experienced in Russia and the continued development of countries such as China and India continue to make national food security a critical issue. Third, the supply of farmland throughout the world and in the U.S. continues to decline and this should continue to create upward pressure on the value of productive farmland. Fourth, farmland dedicated to feed grain production has had both a relatively stable return from crop revenue as well as land price appreciation. Fifth, income-producing farmland has been a hedge against inflation. Finally, farmland has stability features that distinguish it from other types of real estate, such as the property consists mostly of land and not buildings and it is less susceptible to fires and other natural disasters; farmland has historically had low vacancy rates compared to other types of rental real estate; and most farmland is lease pursuant to short-term leases which allows renegotiation of increased rental rates when leases are renewed, to the extent market rates have increased.

World Demand and Supply of Farmland

Domestic and global population growth is the major driver behind increased demand for farmland. According to the World Bank, the global population is growing at 1.1% per year. However, food demand grows by more than the population. As large nations such as China and India modernize, per capita caloric intake increases, and this trend is most notable in relation to the consumption of meat protein. It takes over four times the amount of grain to produce an equivalent amount of calories in some meat protein, so as the demand for meat protein increases, the demand for feed grains, such as corn and soybeans, also increases. Chart 1 entitled "Growth of Protein Demand" below shows the historical growth and projected future growth in protein demand.

Chart 1
Growth of Protein Demand



Source: Iowa State University Center for Agricultural and Rural Development, 2008

The following two paragraphs, also from the Iowa State University Center for Agricultural and Rural Development, 2008, describe the graph in detail:

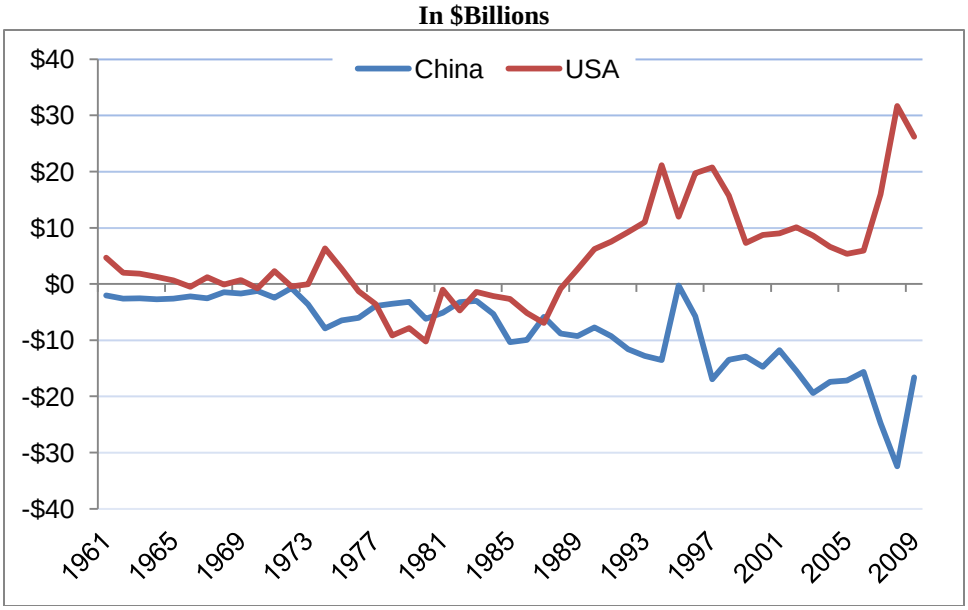
> "As income grows, people move away from a diet consisting largely of staple food crops (such as rice, wheat, corn, vegetable oil, and legumes) into a diet that includes more fish, meat, dairy products, and eggs. This higher-income diet requires the feeding of livestock. Cattle and sheep can be fed grass or grain. Hogs, poultry, and fish must be fed grains and protein meal. Thus, it is likely that the next 40 years will require increasing amounts of grazing land and much higher production of feed grains and oilseeds to meet increasing demands for a higher-protein diet. The chart shown above entitled "Growth of Protein Demand" indicates the implications of this increased demand by the three measures of the past and likely future growth in food demand. All three measures are calibrated to have a value of 100 in 1966. The bottom line simply measures the increase in food demand from a growing population. This is an accurate measure for food demand if the world's diet remains constant at its 1966 level. It is projected to increase another 39% by 2050.
>
> However, food demand will grow by more than population growth. Many people did not consume an adequate amount of calories in 1966. Per capita calorie consumption increased by 23% from 1966 to the present because of higher incomes and lower food prices. This increase in per capita caloric consumption, despite a doubling of the world's population, is a major success story. Because much of the world consumes an adequate number of calories today, the next 40 years should see only a modest growth in per capita caloric consumption. But a greater proportion of calories will be consumed in the form of animal protein. Because it takes many calories of feed to make a caloric of animal protein, the demand for food as measured in terms of feed grain equivalents will grow much more rapidly than either growth in population or caloric consumption."

Food Security and Demand

Ancient writings, such as story of Joseph in the Book of Genesis, reveal the timeless importance of access to stores of food during times of scarcity. Despite advances in technology, trade and transportation through the ages, national food security continues to be a critical issue. Recent history is filled with examples of national governments taking bold action to alleviate critical food shortages. Consider, for example, Soviet Russia in 1963. Just one year after Soviet authorities put down a deadly 1962 insurrection over rising food prices, the 1963 Russian drought caused shortages and bread lines. The government of Nikita Khrushchev spent the nation's foreign exchange reserves and a portion of its supply of gold to purchase large quantities of wheat and wheat flour through private grain dealers. Despite continued efforts to increase Soviet agricultural production, the subsequent Brezhnev regime was forced to continue to buy grain in the open markets in order to meet their goals of improving food supplies and diets. Soviet grain buying continued, culminating in the "Great Grain Robbery" of 1972. Otherwise known as the Russian Wheat Deal, this one-sided transaction probably reflected President Nixon's priority of Détente with Russia. In the transaction, the US agreed to sell large quantities of wheat and corn over the next 3 years to the Soviets at subsidized prices. (This subsidy cost US taxpayers about $300M.) The US also agreed to provide financing for a majority of the grain sales. Large US stockpiles of grain quickly disappeared, and grain prices soared by multiples, causing worldwide food inflation to rise by as much as 50% in 1973.

Fast forward to 2012, and China is now the 800-ton gorilla of the global grain markets. For China to continue its economic transformation, it must find a way to efficiently and economically feed its rapidly rising middle class. However, China faces the difficult task of trying to feed 20% of the world population while only having 7% of the world's arable land. Clearly, China has to use its substantial foreign exchange reserves to buy grain on the open markets. Chart 2 below summarizes recent trends in agricultural trade of the world's largest importer and exporter of agricultural products.

Chart 2
Agricultural Trade Balance
In $Billions

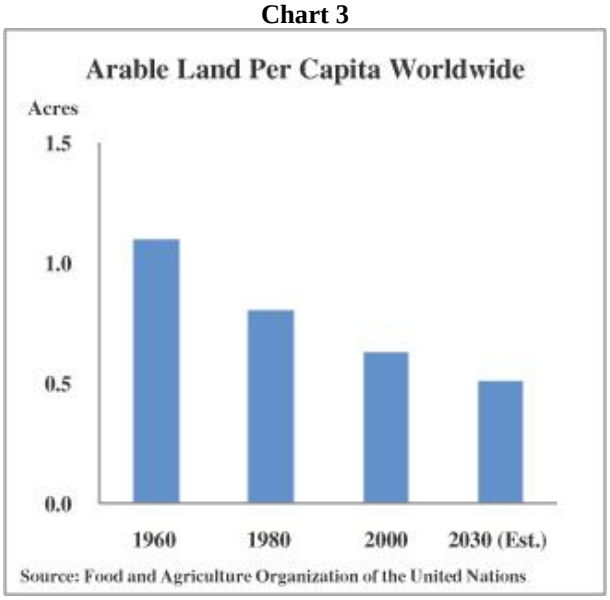


Source: FOA of the United Nations

Global Supply of Farmland

As the combined effects of population growth and growing prosperity cause food demand to surge, the supply of arable land is also shrinking. Economic developments and population growth are also sources of demand for land, causing arable land to increasingly be diverted to industrial, urban, and suburban uses. According to the Food and Agriculture Organization of the United Nations (FAO), the global supply of Arable Land per person has already shrunk from 0.38 hectares per person in 1970 to 0.23 hectares per person in 2000, and it is forecast to drop to 0.15 hectares per person by 2050. The increased demand for food due to population growth and changing consumption patterns, coupled with the development of agricultural land for urban and industrial purposes, could result in significant upward pressure on farmland prices. Chart 3 shows the historical and projected decline of arable land, per capita, as illustrated in the chart from 2000 below from the Food and Agricultural Organization of the United Nations:

Chart 3



United States Farmland

Arable land continues to decrease in the U.S. at a significant rate as detailed in the USDA's NRI report dated December 2009. According to the report, cropland, which is land specifically dedicated to crops as opposed to livestock or other purposes, makes up 18% of all U.S. farmland, but has declined from 420 million acres in 1982 to 357 million acres in 2007, a 15% decrease. There were 325 million acres of prime farmland, which is the highest quality farmland, in 2007, compared to 339 million acres in 1982, a decline of 4%. The acreage of prime farmland converted to other uses during this period is greater than half of the area of the state of Virginia. While domestic demand for food increases with population growth, the supply of cropland decreases as it is converted to other uses. This should create positive pressure on farmland prices for the foreseeable future.

Farmland Investment Performance History

In the analysis to follow, Illinois farmland is used for illustrative purposes because of its high productivity in grains versus other types of crops. Understandably, Illinois farmland values are highly correlated to the revenues earned from corn farming (the dominant cash crop in the state). Chart 4 shows how crop yields and crop prices have risen over time. It also shows a meaningful connection between crop revenue and farmland prices, with both data series rising at a compound annual rate of more than 5% over the past 50 years. The correlation between the two data series is not perfect, as other factors probably compounded the economic impact of revenue on land prices. The Land Price boom of the 1970s and the corresponding bust during the 1980s were most likely also fueled, in part, by the unprecedented, massive swings in interest rates, which encouraged farmers to borrow in the 1970s and forced them to liquidate in the 1980s. While the changes in land prices have been somewhat variable, land appreciation has averaged 5.64% per year over the past 50 years.

Chart 4

Illinois Average Corn Revenue and Land Price History, Per Acre

	Avg. Corn Yield (Bu / Acre)	Avg. Annual Corn Price	Avg. Corn Revenue / Acre	Prior Decade Avg. Annual % Change	Farmland Value / Acre	Prior Decade Avg. Annual % Change
1960	68	$1.00	$68.00		316	
1970	74	$1.37	$101.38	4.07%	490	4.48%
1980	94	$3.14	$295.16	11.28%	2041	15.34%
1990	130	$2.36	$306.80	0.39%	1405	-3.67%
2000	155	$1.91	$296.05	-0.36%	2260	4.87%
2010	157	$5.24	$822.68	10.76%	4900	8.05%
Compound Annual Growth Rate 1960-2010:				**5.11%**		**5.64%**

Source USDA

In addition to land price gains, farmland owners also earn an annual cash yield in the form of either Cash Rent payments or Crop Share earnings. Rent payments have typically increased over time, generally keeping pace with crop earnings (and land prices). See Chart 5 for a summary of the most recent 15-year history of Cash Rents for Illinois Cropland.

Chart 5

Illinois Average Cropland Cash Rents		
	Average Cash Rent/Acre	
1997	$109	
2002	$122	
2007	$141	
2012	$212	
Compound Annual Growth Rate:		**4.53%**
Source: USDA		

Farmland and Inflation

Most real estate is considered to be a hedge against inflation by investors. One factor affecting changes in real estate prices is the income that can be generated from using that real estate. For grain-producing farmland, revenue can be simply measured by multiplying the average grain price times the average output. Chart 6 shows that general CPI inflation has been reasonably correlated with farmland performance.

However, there is one notable difference. Farmland responds only to the inflation for the crops grown on that land. Therefore, Farmland will outperform CPI if the crop prices and output levels (combined) exceed CPI. Otherwise, farmland could underperform CPI, as was the case during the 1980s. Currently, the fundamentals of global supply and demand for grain-producing land would indicate that farmland is well positioned to perform in future years.

Chart 6

Agricultural Land vs. CPI		
Year	Average Revenue / Acre Illinois Corn Land	Value Of $68 of 1960 CPI Basket
1960	$68.00	$68.00
1970	$101.38	$89.14
1980	$295.16	$189.30
1990	$306.80	$300.26
2000	$296.05	$395.59
2010	$822.68	$500.94
	Sources: USDA, Bureau of Labor Statistics	

Investment Stability and Farmland

As demonstrated in Chart 4, the value of farm property is linked directly to the long-term crop value. This feature distinguishes farmland from other types of real estate whose value depends primarily and various other commercial and development risk. For example, the value of a commercial property location is highly impacted by the business and development activities of its tenants, neighbors, and government entities. Farmland has none of these risks: no functional obsolescence, no development competition, no location risk, and minimal, if any vacancy or tenant credit risk. Additionally, the risks associated with natural disaster are typically limited to a single crop on the field, a risk that is often mitigated through cash rent lease agreements or crop insurance. Natural disasters do not affect the long-term value of cropland.

One external factor has, on rare occasion, substantially harmed farmland values: Government Trade Policy. In the past century, there have been two cases where government trade policy reduced the export markets for American farmers, which in turn reduced the long term value of the crops they produced. The trade war ignited by the Smoot Hawley tariff probably contributed to distress in agriculture in the 1930s, eventually leading to the establishment of a farm subsidy program. Then, in 1980, President Carter's Russian Trade Embargo cut American farmers off from their biggest export market. Again, the long term expected value of American Farm production declined, and so did the value of farmland. At that time, farm subsidies were temporarily expanded. In both cases, the Federal Government tried to mitigate the cost to farmers of a disastrous trade policy by artificially restricting supply and providing new subsidies.

The Federal Budget for agricultural subsidies has diminished in recent years, with only 13% of the $145 Billion USDA Budget for 2012 going toward subsidies. Most (74%) of the USDA budget is now directed at nutrition-oriented entitlement programs such as Food Stamps and School Lunches. Out of the Subsidy portion of the budget, modest Direct Subsidies are paid only to small farmers on a few selected crops, so the majority of farmland does not benefit from Direct Subsidy payments. However, a majority of cropland does benefit from crop insurance, and the purchase of crop insurance is partially subsidized for a majority of farmers. The government insurance subsidy has led to the development of a large, competitive and deep private marketplace for crop insurance. Crop insurance now provides most farmers with income security that is far greater than ever seen before, and the development of a private crop insurance marketplace should be viewed as a great policy success for the USDA. The 2012 Drought is a great example of this success. Despite very severe crop losses in 2012, there has not even been a discussion in Washington about expanding disaster assistance to farmers; most farmers who suffered substantial losses were sufficiently compensated through insurance payments.

Summary

Grain producing farmland can be viewed as a relatively stable inflation-hedge investment that pays an annual cash yield and has a tendency to generate capital gains. Currently, cropland benefits from strong demand fundamentals for protein and feed grain production as well a diminishing global supply of arable land.

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