

## HOW LOW INTEREST RATES



**Editor's note:** Kent Vickre and Dwight Raab write a tax and finance column for each issue of Pioneer GrowingPoint® magazine. Vickre is state coordinator of the Iowa Farm Business Association. Raab is state coordinator of Illinois Farm Business Farm Management. They address issues that influence agribusiness success.



If you follow some of the national and local media outlets, it's easy to find articles about how farmland is attracting interest from farm and nonfarm investors. These articles note land is commanding record prices as producers look to expand their operations and investors seek a safe return on their investment.

This interest from farm and nonfarm buyers — along with rising land prices — reminds us of similar activity in the 1980s. But a critical difference seems to be in play now: A large share of the land purchases are made with cash, and the lending industry is requiring a larger down payment before extending credit. Also, interest rates are at low levels not seen in years.

Back in the 1980s, falling prices, record high interest rates and an increased percentage of land purchased on credit created financial trouble for many producers. The cause? Producers were relying on year-over-year increases in the value of land to sustain the financial feasibility of a land purchase. Returns on land did *not* support those values.

Fast forward to today, where the current low interest rate environment pushes up land values for some very basic economic and financial reasons that *are* supported by earnings. In fact, it would be difficult to see a decrease in real estate values until farmland earnings show a decrease.

### The interest rate effect

To understand what influences land value changes, you

need to understand how interest rates impact land values. Remember the basic principle of any asset: Its value is the capitalized earnings of that asset over time.

The concept is called the time value of money. Here's how it works. If you invest \$1,000 at a 5 percent interest rate for a year (using simple interest), the future value of that \$1,000 is \$1,050. We often use this concept to evaluate investment choices where we're seeking maximum returns.

Another element of the time value of money concept is "present value." This is the current worth of a future sum of money or stream of cash flows at a specified rate of return. For farmland, that future stream of cash flows is the earnings from the land. Since farmland has an indefinite life, the stream of cash flow earnings goes on forever. We can estimate value by dividing those earnings by the interest rate. (For a simple way to view this, see "The rule of 72.")

### Figuring land value

For an asset with an infinite life such as farmland, it works something like this: If an acre of land returns \$250 via a crop share or a cash-rent lease annually and the interest (capitalization) rate is 5 percent, our formula would show \$250 in annual earnings divided by 5 percent, indicating the value of the land is \$5,000.

Change the interest rate to 4.75 percent and recalculate. The estimated value is now \$5,263 per acre. So, a 0.25 percent change in the interest rate changed the value of the asset by

# BOOST LAND PRICES

## Changes in interest rates and per-acre returns quickly alter land values.

more than \$250! If the interest rate is 5.25 percent, the estimated value is \$4,762, a decrease of \$238.

### The earnings effect

Let's go a bit further and see how the earnings from that acre of land can affect land values. If our returns of \$250 drop to \$225 with the interest rate at 5 percent, our estimated land value falls from \$5,000 to \$4,500. A \$25 reduction in earnings results in a decrease in value of \$500.

With our mid-fall 2010 commodity price increase, the value of the gross income from an acre of farmland has increased. While input costs have increased, they're still below the level seen in the fall of 2008. We've generally experienced a period where the earnings from an acre of land have increased.

Again, let's go back to our original formula and increase our returns from \$250 per acre to \$275, keeping the interest rate at 5 percent. This increase in earnings of \$25 will result in an increase in the underlying asset by \$500. So, at a 5 percent interest rate, an increase (decrease) in earnings of \$25 will increase (decrease) the value of the asset by \$500.

### The effect on land value

Our easy-to-use (but very simplified) formula of how asset values can change addresses only two factors:


earnings and the interest rate. We've seen that a relatively small change in the interest rate or the earnings can make a significant impact on the value of the underlying asset — land.

This concept applies in general to any income-producing asset. In fact, this concept is used in the rural appraisal discipline as one of the three dominant methods to determine land values.

Nominal interest rates generally have been declining since the early 1980s. Declining interest rates make it easier to finance the purchase of farmland. Using the "time value of money" concepts, we can see that when interest rates decrease, loan repayment amounts decrease. This makes it easier to "cash flow" the purchase of land. This in turn increases the demand for land and tends to push up the price of farmland.

### Nothing lasts forever

Remember the high interest rates of the 1980s? It seemed they would last forever ... and that thinking led to some of the problems of that era. Keep in mind, the current low interest rates likewise won't last forever.

History shows that when interest rates do move, they can move quickly, leaving little time to react. We're not predicting any movement up or down in interest rates, but we do suggest that when managing your business you always keep the long term in mind. 

## The rule of 72

The Rule of 72 simplifies the time value of money concept, using simple math to estimate the time it will take an investment to double in value. Divide the original investment by the interest percentage to obtain the approximate number of years required for the investment to double in value.

For instance, if you invest \$100 at an interest at a rate of 9 percent, the rule of 72 means you divide 72 by 9 to get 8; that's eight years for the investment to be worth \$200. If you invest that same \$100 at 5 percent interest (72 divided by 5), it would take 14.4 years for the investment to double. 