

## North Carolina Farm Land Prices

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Farm land prices have been on rise in recent years. Fears are surfacing that a price bubble in crop land prices could result in a painful bust. What do economic fundamentals have to say about the future of farm land prices? In its simplest form, the price of pure farm land, that is land for which its value only reflects its agricultural use, is expected annual agricultural income per acre divided by a discount rate that reflects the opportunity cost of money to invest. The annual rental value is essentially the income expected to accrue to a piece of land for the year in question. For example, if investors expect farm land, in today's dollars, to rent for \$200 per acre for the foreseeable future and the opportunity cost of their investment funds is 2.5%, then the price of the farm land is likely to be \$8,000 per acre ( $200/0.025$ ). Over the last five years farm returns per acre on most crops, in particular corn and soybeans, have increased substantially as commodity prices have increased. At the same time, the rate of return on investments for most of the economy has declined dramatically. So corn land in central Illinois that might have rented for \$150 per acre in 2007 when we might have used a discount rate for farm land ("safe, low risk, investments") of 5% would have sold for \$3,000 per acre. In 2012, that same farm land might have rented for \$250 per acre and sold for over \$10,000 per acre (implying a discount rate of about 2.5%).

The same logic applies to cropland in eastern North Carolina. Farm land in the mountains and piedmont can be excluded since even with the recession land values in these regions are still determined by factors outside of agriculture. Eastern North Carolina crop land returns per acre are lower than the Midwest and the land is not as uniform in productivity. Table 1 shows cash rent per acre of non-irrigated crop land as reported by USDA for the central, northern and southern coastal regions for 2008-2012. The cash rent data is an average of the counties in the district and is taken from annual surveys by USDA. The Black Lands area, in the northern coastal region, contains large tracts of cropland for which the predominate value is crop production. The region average is probably lower than typical for productive cropland of the Black Lands. Five years ago good cropland in this area might have rented for \$100 per acre and could be purchased for \$2,000. In 2012, that same land would have rented for at least \$150 per acre and (if you could find tracts for sale) would sell for over \$6,000 per acre.

Prior to the recession, most land values in the coastal plain, the Black Lands being the possible exception, were affected by urban development pressure as well as agricultural use. Since the recession, development pressure has eased or ceased in much of the coastal plain. Pre-recession farm land that sold for \$2,500 per acre may only have been worth \$1,500 per acre based on agricultural use alone. For example, farm land that had a rental value of \$75 per acre five years ago with a 5% discount rate was perhaps worth only \$1,500 based on its agricultural use ( $75/0.05$ ). Post-recession the agricultural value of the land has become greater than its use for development. If the land now has an

expected rental value of \$125 then with a 2.5% discount rate it is worth \$5,000 per acre ( $125/0.025$ ) for agricultural use; more than its development value even pre-recession.

Based on these two simple principles, earning power per acre (essentially the expected rental value) and the discount rate that reflects the opportunity cost of investments, what can we say about future farm land values? Will farm land prices continue to rise or have they reached dangerous levels or even a price bubble? First consider earning power. Large acreage commodity crops such as corn, soybeans and wheat are important drivers of rental rates for cropland. In the south, cotton is a strong driver as well. In North Carolina, the coastal plain grows many specialty crops such as tobacco, sweet potatoes, peanuts and fresh produce, but for the most part these crops occupy relatively small acreages. If a tract of land is particularly well suited for one of the specialty crops (e.g. "good" tobacco land) then the outlook for a particular specialty crop may become an important driver. Otherwise, the outlook for the large acreage crops is most insightful for crop land values. In recent years corn is undoubtedly the most important of these. Higher corn prices have been driven by increasing demand for livestock feeds and especially increased use of corn for ethanol. Lower energy prices, in part caused by the increasing availability and declining price of natural gas, are putting downward pressure on ethanol prices. So even with a federal mandate in place for ethanol use in fuels, energy use is no longer pushing up the price of corn. Barring another weather disaster (e.g. the 2012 drought), the market fundamentals do not seem to point to increased corn prices. Futures prices for corn for 2013 are down substantially. Cotton prices have returned to "normal" levels after weather induced market highs in 2010 and 2011. Global demand for food and in particular meat is growing, so demand for feed crops, like corn and soybeans, should remain strong, but downward pressure on prices seems more likely in the near term than upward movement. Bottom line, barring some unforeseen disaster, crop returns for large acreage crops like corn and soybeans may remain strong but may have more downside potential than upside.

As the economy recovers, non-farm investments are becoming more attractive. The stock market has broken several records this spring. Even though interest rates are still low, as the economy recovers the opportunity cost of investments rises and the discount rate we use to value farm land rises. When net farm income is high, as it has been in recent years, farmers traditionally invest in land. Because of poor investment opportunities in the general economy and good crop returns, outside investors also have been investing in farm land. As farm income levels out or even declines and non-farm investments recover, investment interest in farm land will likely decline as well. Consider the case where farm income levels stay the same, but the discount rate rises to, say, 3 percent. Rental value of \$150 per acre with a 3% discount rate indicates a cropland value of \$5,000 per acre down from \$6,000 with a 2.5% discount rate.

Is there a farm land price bubble that could burst sending land prices into a tailspin as we saw in the 1980s? Real interest rates have been close to zero with the Federal Reserve's "quantitative easing" efforts, but when investors make long term investments they are forming some sort of expectation of future rates of returns. So the implicit discount rate they have been using in buying farm land is certainly higher than the current real interest rate (e.g. to get a value of \$6,000 per acre I used a discount rate of 2.5%). Even if real interest rates rise over the next few years, it doesn't necessarily mean that farm land prices will fall dramatically. A gradual rise in the opportunity cost of investments

could mean downward pressure on farm land prices, particularly if farm income levels out or declines, but probably not a “bust.”

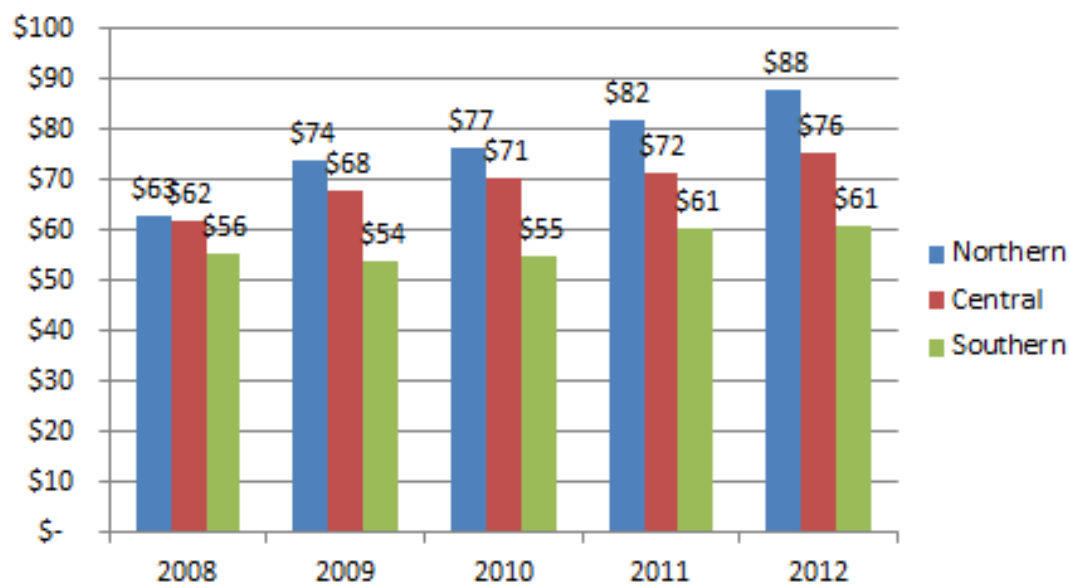
Of course there is always the unforeseen. What kind of scenarios could cause crop land prices to fall dramatically? In the early 1980s it was a combination of a substantial drop in crop returns, due in large part to the U.S. embargo of grain exports to Russia and rising energy prices, and sharp rises in interest rates. Could something like this happen again? Government policy (e.g. trade, interest rates, farm bill) is always a wildcard and most often unpredictable. Unexpectedly large increases in interest rates would slow the whole economy including agriculture. This scenario doesn't appear likely, but it probably did not seem likely in 1977 either. An unexpectedly large decline in energy prices could put downward pressure on corn prices, but would also lower the cost of production for crops with the net effect difficult to gauge. Similarly, a large increase in energy prices would increase demand for ethanol putting upward pressure on corn prices, but would also increase the cost of production with the net effect on farm income uncertain. An unexpectedly large increase in interest rates would throttle prices. Weather is perhaps the biggest unknown for future crop returns. Weather disasters can send crop prices into the stratosphere, but the region where the disaster occurs can experience substantial losses while other regions see incomes rise.

Bottom line, barring some unforeseen dramatic event, crop land prices don't appear to have much upside potential. In general, fundamentals seem to indicate a leveling out and possibly some decline in crop land prices, but probably not a bust. This conclusion is based on expectations for agricultural returns on cropland. In North Carolina other factors are also very important. As the economy recovers, development pressure will return. For eastern North Carolina this will be primarily along the U.S. 64 and 264 corridors and the I-40 corridor. Upward pressure on land prices along these corridors and in growth areas like western Johnston County, Greenville, Jacksonville and Fayetteville will return even as the agricultural market cools. In addition, much land in eastern North Carolina is not agricultural land but instead has its highest value use in timber or hunting/recreational use. Economic recovery means strength in land prices for timber and hunting.

Specialty crops and livestock production in North Carolina also mean that land prices are not as susceptible to fluctuations in commodity production as, say, corn land in Illinois. In fact, if corn prices decline, the poultry and hog sectors are strengthened. Farm land in the mid-west is very susceptible changes in expected returns to large commodity crops such as corn and soybeans. Farm land prices in North Carolina are affected by so many different factors that they are buffered from volatility in crop commodity markets. An unexpected large increase in interest rates would be the one factor that in slowing both the non-farm and farm economy could cause a substantial decline in North Carolina land values in general.

Currently, eastern North Carolina farm land prices may have more downside than upside potential. But barring some catastrophic event (like a big interest rate spike) a bust does not appear eminent.

Figure 1. Cash Rent for Cropland in the Northern, Central, and Southern Coastal Agricultural Districts of North Carolina



Source: USDA-NASS