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Updated Farmland Values and Returns Tools – 2014

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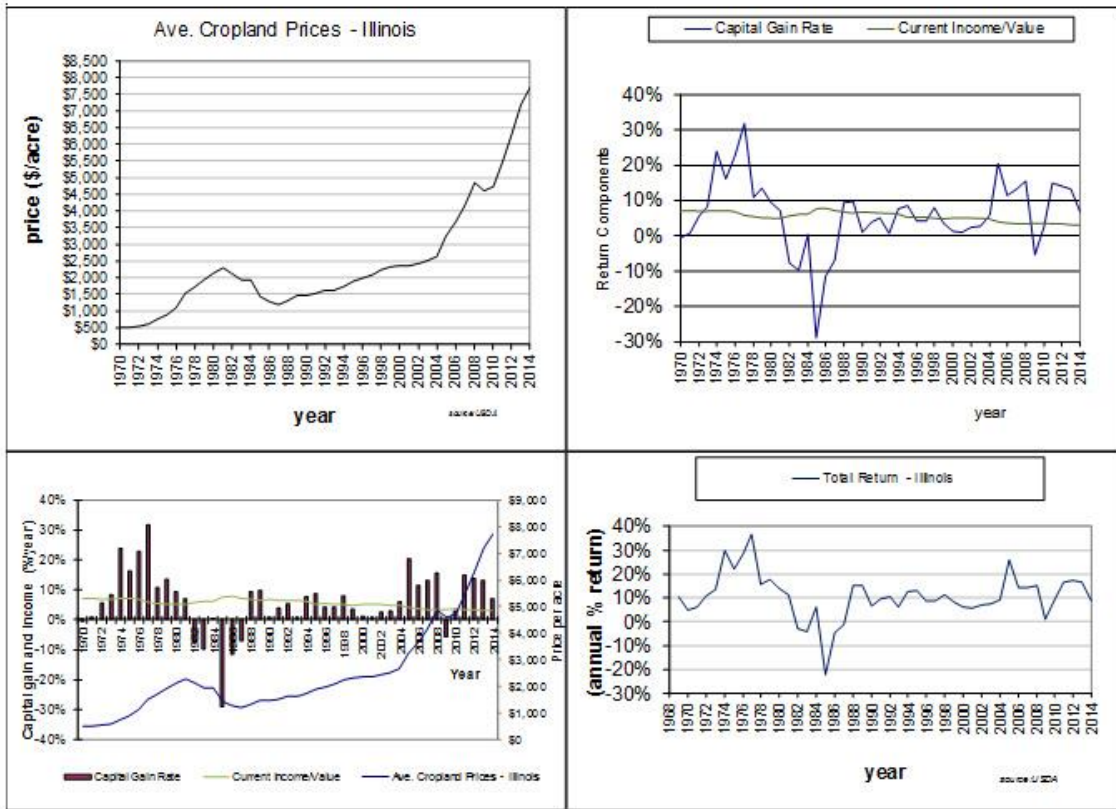
Permalink URL <http://farmdocdaily.illinois.edu/2014/08/updated-farmland-values-and-returns-tools-2014.html>

Each year, the USDA provides extensive data related to farmland values, rental rates, and other indicators of economic performance by county, state, type of agriculture and other meaningful categorizations of agricultural activity. These data are among the most heavily utilized series for providing information about the changing asset values, costs of land rental, and the general health of the agricultural sector. Yesterday's [farmdoc daily article](#) provided updated Illinois farmland values along with revisions to the indexing series that resulted from revisions following the most recent five-year Census of agriculture. This article continues that thread, and demonstrates the usage of two of the farmland-related tools available for download from *farmdoc* at the TIAA-CREF Center for Farmland Research with updated data from this year's USDA release. The tools used to generate the graphs below, and related items are available at <http://farmland.illinois.edu/content/tools-and-data>.

In addition to total farm real estate including land and buildings, USDA also releases cropland along with rental rates for farmland by type and usage. One measure of the return to cropland is the rental income available to that land, less property taxes, divided by the value of that land. There are of course many specific additional features that determine the actual return realized, but that definition provides a useful benchmark that can be compared through time and across locations. For most of the period from 1960 to the present, there are data available for both cropland and total farm real estate values for up to 42 of the states, along with estimates of the rental income and reasonable proxies for the property tax load (it is noted that taxes can and do vary widely within a state or region). The **Farmland Values and Returns by State** spreadsheet provides four related graphical tabulations, and associated valuation for each of the available states, and allows the user to tabulate either cropland returns or total farm real estate measures. The user simply selects the **State** and the type of data tabulation (**Cropland** or **Farm Real Estate**) and is provided the following set of graphs along with the underlying valuation data from USDA formatted in a convenient tabular form.

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Figure 1. Illinois Cropland Values and Returns Components



All states for which data are available also are provided along with their values through time from 1968 through 2014 for convenience. It is interesting to compare the patterns by region and to note the strong consistency in valuation and returns by region. Figure 2 compares Illinois, Indiana, Iowa, along with Minnesota, Missouri, and Nebraska through time. The main differences are that the productivity differences effectively “scale” the values, resulting in rates of returns sequences that are far more similar as shown in figure 3.

The second utility also available at the *farmdoc* TIAA-CREF Center for Farmland Research is titled **Land Value Indexing utility**. The spreadsheet ([available here](http://farmdoc.illinois.edu/manage/pdfs/index_numbers.pdf)) automates the process demonstrated in the indexes at http://farmdoc.illinois.edu/manage/pdfs/index_numbers.pdf and allows a user to find a relative value of farmland at one date based on known information at a different date. This can be useful, for example, in establishing an estimate of tax basis, or in comparing values of different quality parcels through time.

Figure 2. Cropland Values Through Time, Selected States

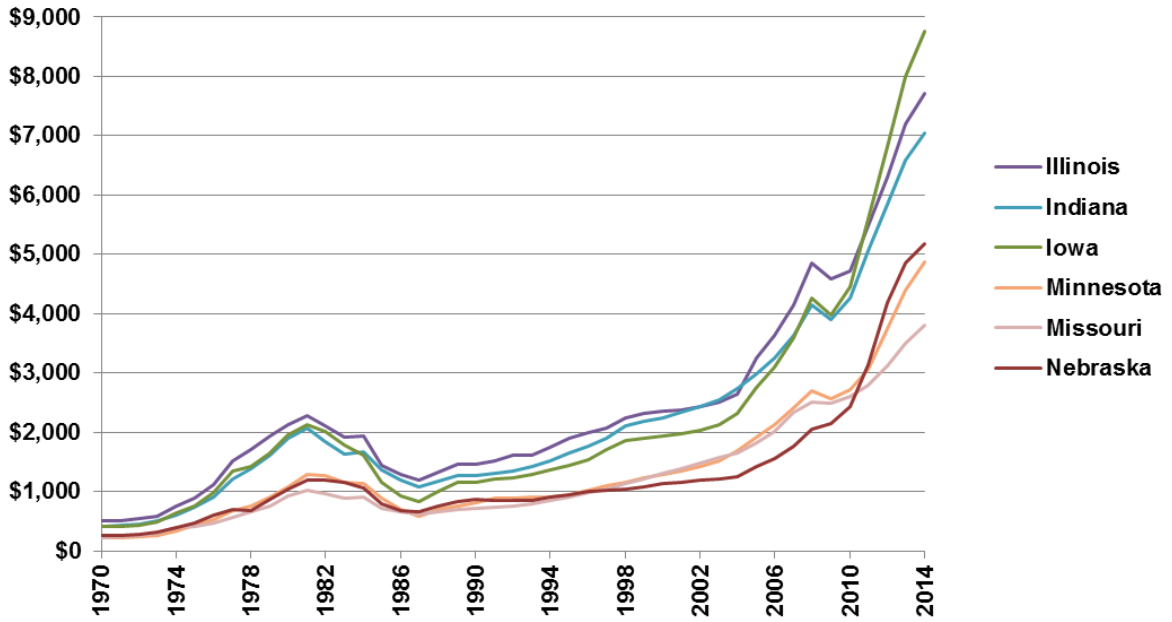
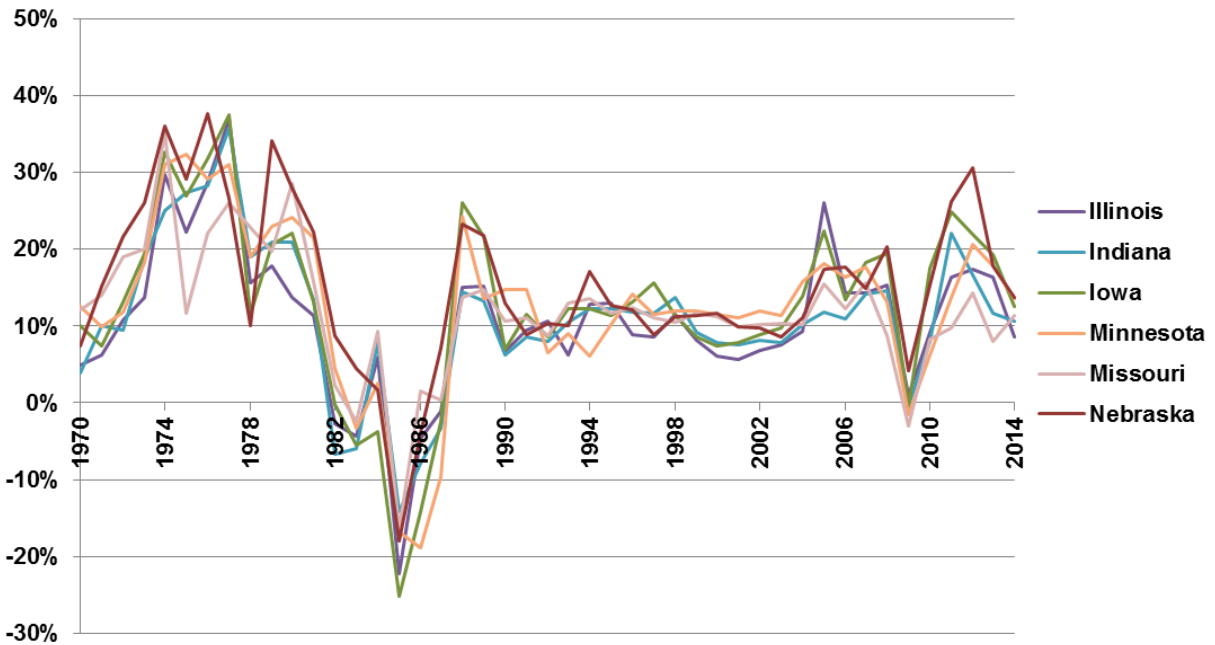
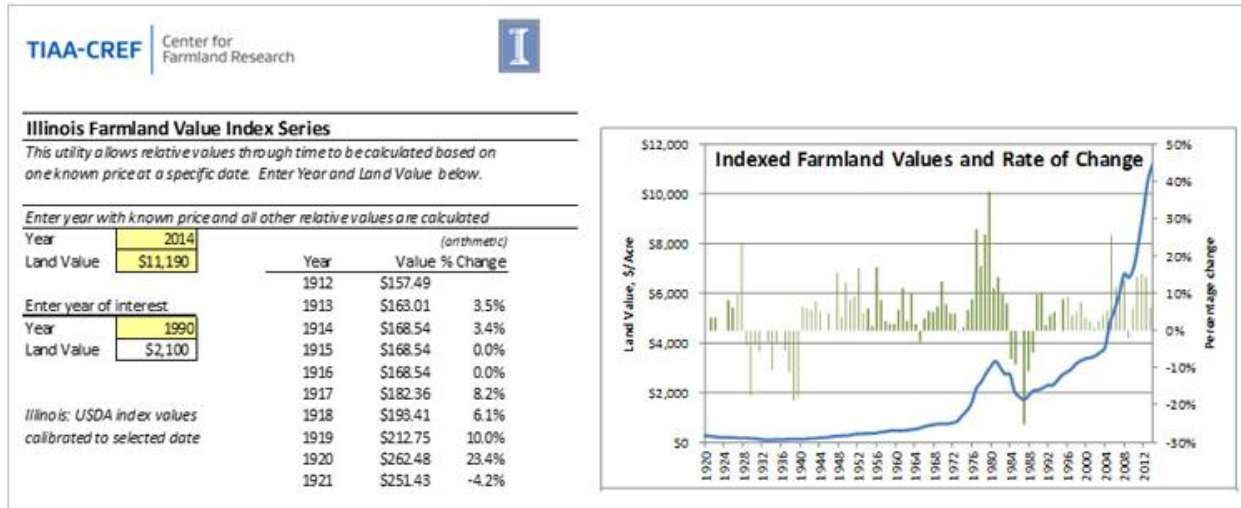


Figure 3. Cropland Rates of Return Through Time, Selected States



In the example shown, suppose the user was interested in determining an approximate basis or historic value of farmland acquired in 1990 that was sold in 2014 for \$11,190/acre. In this case, the user simply enters the information as of the known date, and all relative values are calculated using the USDA index relatives for all other dates from 1912 to the present. In the case identified in this example, the utility shows that farmland that was valued at \$2,100/acre in 1990 would have appreciated to \$11,190 as of 2014 at appreciation rates reported in the USDA series. The utility also provides a convenient means to determine the average rate of return by comparing any two points in time¹. The screenshot below shows the results of entering the example from above into the Utility.



USDA provides an incredibly valuable service through their work to provide accurate and meaningful data related to farmland values and returns. These utilities are intended to improve the ease of access to, and usability of the information at those sources.

References

Zwilling, B. "[Illinois Farm Real Estate Continues Increases for 2014](#)." *farmdoc daily* (4):152, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, August 14, 2014.

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Note: The views expressed herein are solely the author's opinions and do not necessarily reflect those of others or entities with whom professionally affiliated. All errors and omissions are the author's alone.

¹ One approach that is commonly used to calculate the continuously compounded rate of return by taking the natural logarithm of the ratio of prices, divided by the number of periods of growth. In the present example that would result in $\ln(11,190/2,100)/(2014-1990) = 6.97\%$ or a 6.97% continuously compounded capital gain rate.