

Members Only



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Current Agricultural Use Value

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In Ohio, farmland that is devoted to commercial agriculture may be valued according to its "current agricultural use value" (CAUV) for property tax purposes. The CAUV formula is designed to provide an estimated value of a property considering *only* its use for agriculture, rather than its "best" potential use (e.g., for residential or commercial development). The CAUV method usually results in a lower tax bill for farm owners because the land is often valued below its actual market value, particularly in areas where farmland is in demand for development purposes. The goal of the law is to encourage landowners to continue using their land in agriculture in the face of economic pressure to convert the land to more lucrative uses.

The use of CAUV is available to farms having at least ten acres or an average annual gross income of at least \$2,500. In 2015, a total of 16.1 million acres – around 60% of the state's total agricultural land acreage – was valued according to its CAUV.¹ This means about 40% of land that is classified as agricultural for tax purposes is, like other real property, valued according to its highest and best use (i.e., appraised fair market value) because it does not qualify, or the difference between CAUV and market value is nominal, or the owner did not apply for some other reason.

The purpose of the CAUV law is to encourage landowners to continue using their land in agriculture in the face of economic pressure to convert the land to more lucrative uses.

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A 1973 constitutional amendment permits agricultural land to be taxed solely on the basis of its value for agricultural use, instead of its fair market value.

The CAUV valuation formula is prescribed by the Tax Commissioner with advice from a panel of interested parties and experts. Statutes and administrative rules provide general guidance.

The formula's objective is to estimate the value farmland has when viewed strictly as an investment that generates income from farming; land's speculative value for other uses is disregarded.

Historical roots of CAUV

Before a series of landmark Ohio Supreme Court cases in the 1960s and 1970s, the method used to value real property for property tax purposes was not uniform, and some county auditors, in practice, valued farmland according to its ability to produce crops rather than its fair market value (the price that a willing buyer would pay to a willing seller). Beginning in 1964, the Court rendered a series of decisions, collectively known as the "*Park Investment* cases," that required all property to be valued according to its fair market value. These cases relied on the constitutional "uniform rule," which states that "land and improvements thereon shall be taxed by uniform rule according to value."² Interpreting this language, the Court held that the Constitution does not permit "a classification of real property according to use, rather the rule is that all real property must be taxed according to its value."³

In 1973, partly in response to the *Park Investment* cases, Ohio voters approved an exception to the uniform rule for agricultural land. The constitutional amendment allowed such land to be valued at its CAUV rather than its fair market value.⁴ One year later, the General Assembly enacted Ohio's CAUV property tax law.⁵

Statutory and administrative law

The statutes adopted in 1974 do not prescribe the specific method for determining CAUV

values. Instead, the law requires that the Tax Commissioner adopt a method by administrative rule that "reflect[s] standard and modern appraisal techniques that take into consideration: the productivity of the soil under normal management practices; the average price patterns of the crops and products produced to determine the income potential to be capitalized; the market value of the land for agricultural use; and other pertinent factors."⁶

The administrative rules provide guidance and objectives for the valuation method, but the actual method is devised each year by the Tax Commissioner after consultation with an Agricultural Advisory Committee. The Committee is appointed by the Commissioner and composed of representatives of farming-related organizations and public agencies.⁷ The method adopted by the Commissioner is published annually in CAUV "land tables," which apply to CAUV land in counties undergoing reappraisal or assessment update that year and continue to apply in those counties for the following two years until the next reappraisal or update year.

The CAUV formula's objective is to derive a taxable value for farmland based on the price a hypothetical purchaser would pay for farmland in Ohio when viewed strictly as an investment that generates income from farming. Other factors that might influence the potential purchase price – such as speculation on the land's conversion to commercial or residential development – are disregarded. Because the formula is based largely on typical quantities,



it also does not account for every peculiarity that might influence the net income actually derived from a given farm, such as the actual crops grown or the financing terms of a particular loan. Instead, the formula is intended to calculate the value of CAUV land based on representative factors, with variations accounting only for local soil productivity and a few other land features peculiar to specific parcels, such as slope and erosion.⁸

CAUV formula

Generally, the CAUV formula involves (1) determining a farm's projected gross income, (2) subtracting costs of production, and (3) dividing the resulting net income by a capitalization rate to arrive at the farm's value for agricultural use.⁹

(1) Projected gross income

The factors that influence projected gross income are:

(a) **Soil type.** There are about 3,500 soil types, each with an associated productivity, plotted on a soil map of Ohio. A given farm's soil type is determined by where the farm appears on the map.

(b) **Crop yields.** This factor considers the average yield per acre of each major field crop (corn, wheat, and soybeans) harvested from each specific soil type in the state. The factor is derived from statistical data on yields.

(c) **Crop prices.** Crop prices are calculated using a five-year weighted

average. The Tax Commissioner collects data for the previous seven years, eliminates the highest and lowest prices, and averages the crop prices of the remaining five years. The prices are weighted based on statewide production of each crop for each year.

(d) Management costs.

In determining a farm's projected gross income, the Tax Commissioner determines the average yield per acre of each major field crop for the farm's specific soil type(s). These average yields are multiplied by the average price for each crop (which has been adjusted for management costs).

As an example, assume that, given a farm's soil type, the average yield per acre of corn is 200 bushels, of wheat is 50 bushels, and of soybeans is 100 bushels. Also, assume that the five-year average price of corn was \$2.00 per bushel, wheat was \$4.00 per bushel, and soybeans was \$3.00 per bushel. Finally, assume that the Tax Commissioner has determined that these prices should be decreased by 10% to adjust for management costs. On that farm, the projected gross income of an acre of corn would be \$360 ($\1.80×200 bushels), an acre of wheat would be \$180 ($\3.60×50 bushels), and an acre of soybeans would be \$270 ($\2.70×100 bushels).

(2) Net income

To determine projected net income per acre, the Tax Commissioner calculates the average per-acre "non-land production costs" and subtracts these costs from projected per-acre gross income. The result is

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an initial net income figure. Non-land production costs include items such as seed, fertilizer, machinery, repairs, fuel, interest, and wages. Similar to crop prices, these costs are calculated using a five-year average of data. Since the costs vary with crop type, a different cost figure is calculated for each crop type.

Next, the Commissioner determines the average "cropping pattern" for the parcel, given its "land capability." The land capability of a parcel depends upon its soil type and potential hazards, such as slope, erosion, and drainage. There are eight land capability classes; the lower the class number, the fewer hazards are present and the more suitable the land is for growing crops. Only Classes I through IV are considered suitable for growing crops, while Classes V through VIII are considered to be most profitably used as permanent pasture or woodland.

A cropping pattern is the average percentage of each of the three major field crops harvested in Ohio over the preceding five years; these percentages are adjusted depending on a parcel's land capability. The adjusted percentages are multiplied by the initial per-acre net income figure calculated for each crop, as determined above. Then, the results are added together to produce the total per-acre net income of the farm.

For example, continuing the scenario above, assume the Tax Commissioner determines that the average nonland production costs of an acre of corn or soybeans are \$200 and such costs for an acre of wheat are \$100. For our sample farm, the initial net income would be: \$160

(\$360-\$200) from an acre of corn, \$80 (\$180-\$100) from an acre of wheat, and \$70 (\$270-\$200) from an acre of soybeans.

Now, assume the average cropping pattern for such a farm, given its soil type and land capability, is 50% corn, 25% wheat, and 25% soybeans. The total per-acre net income of the farm would be calculated to be \$117.50 (\$80 + \$20 + \$17.50).

Although each particular farm is likely to have a different crop rotation than the average pattern and have costs that are above or below average, the formula abstracts from such variations because it is intended to approximate the value that a hypothetical investor might place on a farm with a given soil type and land capability. An investor might select a different rotation or be more or less cost efficient than the current owner, so averages serve as proxies for the hypothetical investor's crop choices and efficiency.

(3) Capitalization of net income

Finally, to determine the value of a parcel, the Tax Commissioner will divide the parcel's total estimated net income by a capitalization rate. According to the administrative rules, the capitalization rate is intended to represent the combined, after-tax rate of return a prudent investor and lender would expect to earn from operating an Ohio farm considering only agricultural factors (i.e., the farm's income-producing potential).¹⁰

The computation of the capitalization rate employed in the current formula adopts a real estate valuation formulation known

The capitalization rate represents a combined after-tax rate of return a prudent land investor and lender are presumed to expect from farming.



as the "Akerson mortgage-equity method." This method, as applied to the CAUV formula, stipulates supposedly typical farm mortgage terms, average return on equity for investors, expected depreciation or appreciation of agricultural land values over the next five years, and average property tax rates.¹¹ The Commissioner calculates the capitalization rate annually.

To continue the scenario described above, assume that the capitalization rate is 5%. The value of the example farm would be $\$117.50/.05 = \$2,350.00$ per acre.¹²

Woodland and conservation areas

The CAUV formula also applies to certain land devoted to conservation and to certain woodlands.¹³ Land used for conservation is valued in the same manner as land used to produce crops. The value of woodlands equals the value the land would have if it produced crops, less the clearing and drainage costs that would be required to convert the woodland to cropland.¹⁴

Recent formula adjustments

The Commissioner, in consultation with the Agricultural Advisory Committee, periodically makes adjustments to the CAUV formula. For example, in 2015, the Commissioner made changes that decreased the lag time between the collection of data used in the formula and the publication of the land tables, adjusted the calculation of the capitalization rate, and increased the clearing and drainage costs used in determining the value of woodlands.¹⁵

Determination of CAUV landowner's tax liability

County auditors apply the CAUV formula to individual parcels within their counties accounting for each parcel's soil type and land capability (e.g., its slope, drainage, and erosion features). As with other real property, these parcels are assessed at 35% of their determined value. The assessed value is then multiplied by the tax rate, which is the same that applies to residential property. The resulting gross tax charged is then adjusted by the tax reduction factors and further reduced by the 10% rollback to yield the net tax due on the parcel.

Tax reduction factor

Recently, the tax reduction factor has played an important role in mitigating the impact of significant increases in CAUV values. The factor is a state tax policy designed to prevent increasing real estate values from resulting in a corresponding increase in property taxes. Generally, if the proceeds from the taxes levied on real property in one year will exceed the proceeds from those taxes in the preceding year, then the taxes charged for the current year must be reduced to account for the difference. Without the tax reduction factor, a 10% increase in a local government's real property values would result in a 10% increase in property tax revenue for that local government. With the tax reduction factor, however, a 10% increase in property values generally leads to a much smaller increase (2%, for example) in tax revenue, unless voters approve new levies.¹⁶

County auditors apply the CAUV formula to individual parcels within their counties accounting for each parcel's soil type and land capability.

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One consequence of the tax reduction factor is that, if agricultural land values decrease at a faster rate than residential values, taxes will shift toward residential property, and vice-versa.



The same factors that cause fluctuations in CAUV values for farmland – chiefly changes in crop prices and interest rates – prompt tax shifting between CAUV property and residential and non-CAUV agricultural property.

Farmland that is converted to a nonfarm use is no longer eligible for the CAUV program and is subject to a recoupment charge.

The average value per acre of enrolled CAUV farmland, and the percentage that average value is of the land's average "highest and best use" value, have increased over the past several years.

As a result of the tax reduction factor, a sharp increase in agricultural property values may result in higher tax bills for farm owners, but those tax bills will not increase in the same proportion as the property values.

Another consequence of the tax reduction factor is that the total tax burden in a community may shift between agricultural and residential property. Generally, a greater share of the taxes will shift toward properties that experience relatively greater increases in value. So, for example, if agricultural land values decrease at a faster rate than residential values, taxes will shift toward residential property because its value represents a greater share of the total property value in the community. The converse is also true. Accordingly, the same factors that cause fluctuations in CAUV values for farmland – chiefly changes in crop prices and interest rates – prompt tax shifting between CAUV property and residential and non-CAUV agricultural property.

Recoupment

Farmland that is converted to a nonfarm use is no longer eligible for the CAUV program and is subject to a recoupment charge. The charge is equal to the property tax savings during the three years preceding the conversion.¹⁷ The purpose of the charge is to discourage converting farmland to developed uses, in keeping with the farmland preservation motive of the CAUV law.

CAUV values over the years

The following table details the average value per acre of enrolled CAUV farmland, and the percentage that average value is of the land's average "highest and best use" value, over various intervals since 1986. The values in the second column have not been adjusted for inflation; regardless, the table shows increases in average CAUV value, and percentage of highest and best value, over the past several years.¹⁸

| Tax Year | Average CAUV Value per Acre | CAUV as Percentage of "Highest and Best Use" Value |
|----------|-----------------------------|--|
| 1986 | \$296 | 35.0% |
| 1990 | \$142 | 26.0% |
| 1995 | \$189 | 31.9% |
| 2000 | \$242 | 26.6% |
| 2005 | \$123 | 14.1% |
| 2010 | \$505 | 22.9% |
| 2011 | \$700 | 31.0% |
| 2012 | \$719 | 32.6% |
| 2013 | \$1,205 | 37.6% |
| 2014 | \$1,668 | 51.6% |
| 2015 | \$1,388 | 54.3% |
| 2016 | \$1,310 | 53.0% |

The values and percentages are statewide averages. In areas where development pressure is more acute or farming is not economically favored, the discrepancy between

CAUV and highest and best use value would be expected to be greater than average (i.e., a lower percentage); conversely, in more rural areas where development is less likely and conditions favor farming, the discrepancy would be expected to be less than average. The 2016 percentages range from 20% for Cuyahoga County to 89% for Perry County.

Explanation of recent increases

As shown above, agricultural land values increased significantly over the past ten years. This trend was largely due to two factors: an increase in crop prices (which makes farmland potentially more valuable to buyers) and low interest rates (which lower production costs by making the cost of borrowing cheaper).

High crop prices

In the early 2010s, the prices of all three of the crops used in the CAUV formula surged. For example, the average price of corn increased from \$3.70 per bushel in 2009 to its peak of \$7.09 per bushel in 2012. Because the formula uses five-year averages, these price increases had a protracted effect on farmland values. Between 2010 and 2015, the five-year weighted average crop price for corn increased from \$2.66 to \$4.55 per bushel.

Crop prices have since returned to pre-2010 levels. In the next few years, if crop prices remain stable, the

formula's five-year averages should also return to pre-2010 levels, as the higher prices of the early 2010s are dropped from the formula.

Low interest rates

Beginning in 2008, the United States also began a period of historically low interest rates. This has had the effect of lowering the capitalization rate used in the CAUV formula. The capitalization rate incorporates current market data on interest rates, specifically the Farm Credit Service interest rate and *Wall Street Journal* survey prime rate. As those rates declined, the capitalization rate also fell, from a base rate of 8.4% in 2007,¹⁹ to 7.5% in 2012, and to 6.2%-6.6% in 2014-2016.

As discussed above, CAUV land value is computed by dividing net income by the capitalization rate. Accordingly, a decrease in the capitalization rate will increase taxable land value, and vice versa. Consequently, the reductions in the capitalization rate in the late 2000s and early 2010s resulted in an increase in land values.²⁰

The following charts illustrate the movement of crop prices and the capitalization rate since 2001 and the trends of average per-acre CAUV and farmland market values over that period. The crop prices shown are the five-year averages used in the CAUV formula; they are not adjusted for general price inflation. The capitalization rate does not include the tax additur, in order to isolate only the nontax factors.

CAUV values have increased significantly over the past decade, owing primarily to a combination of high crop prices and low interest rates.

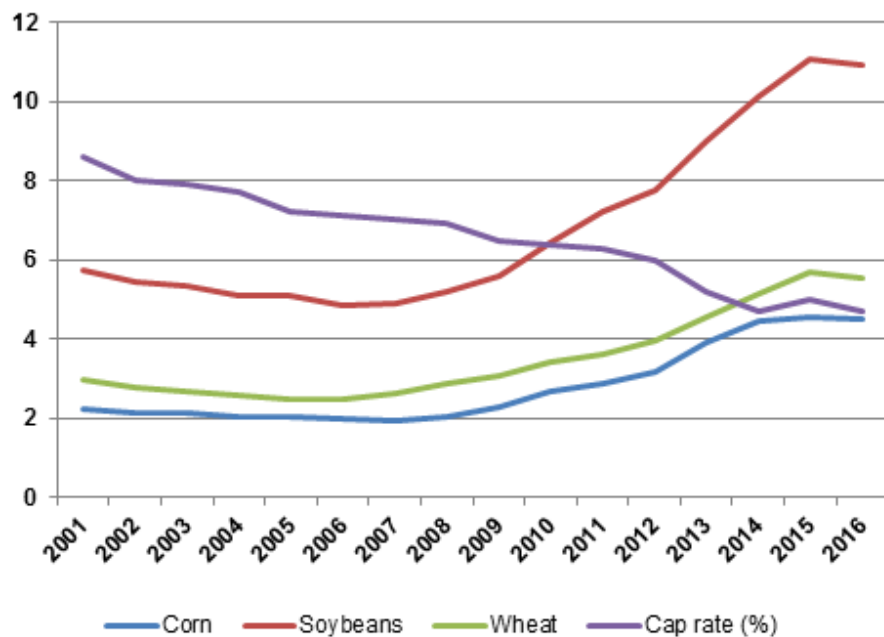
The chart of land values shows the difference between CAUV and appraised fair market value of CAUV land. Market valuation has consistently appreciated in nominal dollar terms (i.e., not adjusted

for general price inflation), while calculated CAUV values, although generally increasing in nominal terms, also reflect fluctuations in formula factors.²¹



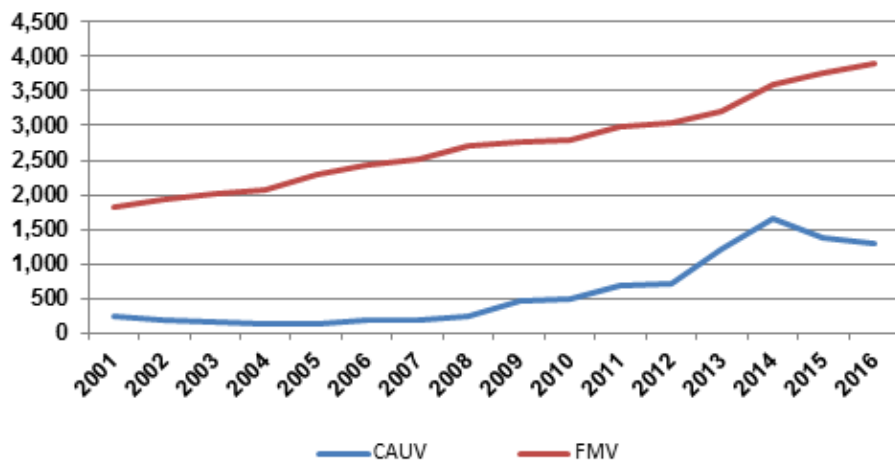
As the five-year average of crop prices has increased and interest rates have decreased . . .

Crop Prices (\$/bushel, five-year avg.) and Capitalization Rate (2001-2016)



. . . both the observed market value and calculated CAUV value of CAUV land has appreciated.

CAUV and Fair Market Value Per-Acre (2001-2016)



Endnotes

¹ The number of CAUV acres ranged from 2,215 in Cuyahoga County to 344,568 in Darke County. See Ohio Department of Taxation, Summary of Tax Data Series PD32, at http://www.tax.ohio.gov/tax_analysis/tax_data_series/publications_tds_property/PD32CY15.aspx.

² Ohio Constitution, Article XII, Section 2.

³ *State ex rel. Park Inv. Co. v. Bd. of Tax Appeals*, 175 Ohio St. 410, 412 (1964).

⁴ H.J.R. 13 of the 110th General Assembly (amending Ohio Const., art. II, sec. 36).

⁵ S.B. 423 of the 110th General Assembly.

⁶ R.C. 5715.01(A).

⁷ Ohio Administrative Code (O.A.C.) § 5703-25-32.

⁸ O.A.C. §§ 5703-25-30(B)(11) and 5703-25-33(B) and (C).

⁹ Ohio Department of Taxation, "Explanation of the Calculation of Values for Various Soil Mapping Units," available for the 2009-2016 tax years at http://www.tax.ohio.gov/real_property/cauv.aspx.

¹⁰ O.A.C. § 5703-25-33(M).

¹¹ The formula for determining the capitalization rate is as follows. The amounts provided in the explanatory section are based on 2016 values.

$$\begin{array}{r}
 \text{Debt-to-equity ratio} \times \text{Annual debt service} \\
 \text{plus} \\
 \text{Equity-to-debt ratio} \times \text{Equity yield rate} \\
 \text{minus} \\
 \text{Equity build-up over five years} \times \text{Sinking fund factor} \\
 \text{minus} \\
 \text{Land value appreciation over five years} \times \text{Sinking fund factor} \\
 \text{plus} \\
 \text{Tax Additur}
 \end{array}$$

Debt-to-equity ratio = the percentage of a farmland's purchase price that is financed by borrowed funds, stipulated to be 80%.

Annual debt service = the annual loan payment that would be due on a stipulated loan amount, expressed as a percentage of the loan, currently 7.6452%, based on a 5.76% interest rate for a 25-year loan.

Equity-to-debt ratio = 20%.

Equity yield rate = the annual rate of return a prospective landowner expects to receive from farming the land, currently 5.25%.

Equity build-up: the equity the landowner gains as the loan principal is paid off, assuming that the land is held for five years.

Land value appreciation: the rate at which farmland is assumed to appreciate in value during the period of ownership, assuming the land is held for five years, currently stipulated to be 5% per year.

Sinking fund factor: the rate at which loan principal payments contribute to equity build-up, and the rate at which land value appreciation contributes to the sale value of the land, based on a stipulated equity yield rate and holding period.

Tax additur: the statewide average tax rate applicable to agricultural land computed as a percentage of the market value of such land, for 2016, 1.6%.

¹² The formula also assigns minimum values per parcel. In 2016, the minimum at which a parcel of cropland could be valued was \$350. The minimum value for woodlands was \$230.

¹³ Land enrolled in a federal land retirement or conservation program is eligible for CAUV. Land not enrolled in a qualifying program, but used for conservation practices, is eligible for CAUV only if the land comprises 25% or less of the landowner's total CAUV land. Conservation practices are farm management practices to abate soil erosion including the installation, construction, development, planting, or use of grass waterways, terraces, diversions, filter strips, field borders, windbreaks, riparian buffers, wetlands, ponds, and cover crops. R.C. 5713.30.

¹⁴ For 2016, the stipulated cost of clearing woodland was \$1,000 per acre. The drainage cost was \$0 for well and moderately well-drained soils, \$770 for poorly drained and saturated soils, and an additional \$380 for certain soils. Ohio Department of Taxation, "Explanation of the Calculation of Values."

¹⁵ The changes to the capitalization rate included a shift from a 60-40 debt-to-equity ratio to an 80-20 ratio and a switch in the type of loan used to calculate the "annual debt service" factor (from a 15-year to 25-year loan). The deductions for valuing woodland increased from \$500 to \$1,000 for clearing costs, from \$500 to \$770 for drainage costs, and from \$250 to \$380 for the additional drainage costs for certain soils. Ohio Department of Taxation, "Explanation of the Calculation of Values" for 2014 and 2015.

¹⁶ The tax reduction factor does not prevent all increases in property taxes, because it does not apply to (1) new construction, (2) levies that are designed to raise a fixed amount of revenue each year (fixed-sum levies), and (3) inside millage (millage that does not require voter approval).

¹⁷ R.C. 5713.34.

¹⁸ Ohio Department of Taxation, "Explanation of the Calculation of Values" and Tax Data Series PD32, available at http://www.tax.ohio.gov/tax_analysis/tax_data_series/publications_tds_property.aspx#Realpropertyonly.

¹⁹ Through 2008, the computation of the capitalization rate also included a "risk management factor," which was multiplied by the base capitalization rate. Each class of land was assigned a risk management factor, designed to reflect the risk of investment in that type of land. For example, in 2007, after multiplying the base 8.4% rate by the risk management factor, the actual capitalization rate ranged between 7.98% and 12.35%, depending on land class.

²⁰ Ohio Department of Taxation, "Explanation of the Calculation of Values."

²¹ Crop price, capitalization rate, and CAUV value data drawn from Ohio Department of Taxation, "Explanation of the Calculation of Values"; fair market value data is derived from Tax Data Series PD32.

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