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Procedures Used to Calculate Property Taxes for Agricultural Land in Mississippi

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Introduction

Agricultural land may be appraised differently from other types of land in Mississippi. In particular, if a parcel of land is used in the commercial production of an agricultural commodity, then the landowner may request to have the parcel classified as agricultural land. Upon the approval of the county tax assessor/collector, the parcel's **use value** rather than its **market value** is used for appraisal purposes. Landowners and others need to understand the procedures used to determine use values and property taxes for agricultural land. This report first illustrates how land taxes are computed and then presents a brief overview of the methods Mississippi State University (MSU) economists use to estimate use values of agricultural land annually.

How Land Taxes Are Computed

A landowner's tax bill on a parcel of agricultural land depends on three factors: (1) its appraised value, (2) the assessment rate set by state law, and (3) the millage rate set by the county. Once the appraised value of a parcel of land is determined, its assessed value is set at 15 percent of its appraised value, and then the county's millage rate is applied to the assessed value to compute the tax bill. An example is provided in the righthand column.

A change in a landowner's tax bill is caused by either a change in (1) the property's appraised value or (2) the county's millage rate. Landowners concerned about changes in their tax bill should first determine whether one or both of these factors caused the change. This report describes how appraised values for agricultural lands are determined and will help answer many of the questions that landowners of agricultural land may have.

Item	Value
Size of parcel	55 acres
Appraised value per acre	× $645/acre
Appraised value of parcel	$35,475
Assessment rate (15%)	× 0.15
Assessed value of parcel	$5,321.25
County millage rate (98 mills)	× 0.098
Tax bill for parcel	$521.48
Tax bill per acre	$9.48/acre

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AGRICULTURAL USE VALUE

The use value of a tract of agricultural land represents its market value under the assumption that it will always remain in its current use (that is, producing agricultural commodities, including timber). The use value of agricultural land reflects only those net returns that are derived from the production of agricultural commodities. Any nonagricultural factors affecting an agricultural parcel's market value are excluded from the estimation of its agricultural use value. While nonagricultural market forces may cause the market value for a particular tract to be higher than its use value, for taxation purposes the appraised value is based on the tract's agricultural use value only. Any speculative value that may be attributed to taking the parcel out of agricultural production at some future time is ignored when its use value is computed. For example, a parcel of cropland located near a growing urban area may have a much higher market value than similar cropland located in more remote rural areas because of its potential for conversion into commercial or residential units. However, any added market value attributed to its location or alternative uses should not be included in the estimation of its use value. Furthermore, even if the tract is capable of supporting nonagricultural activities along with agricultural production, only the value derived from the production of agricultural products is used to derive its agricultural use value. For example, in addition to supporting agricultural enterprises, a tract of land may generate income from hunting activities. But again, the use value of agricultural land reflects only those net returns that are derived from the production of agricultural commodities; any value derived from hunting is not included.

Just as an appraisal procedure is needed to estimate a property's market value, it is necessary to use an appraisal technique to estimate agricultural use values. The income capitalization approach is an appropriate and accepted method for appraising the value of income-generating real estate properties. Income capitalization is a method that may be used to determine the value of an income-generating asset. The concepts involved in this method require knowledge of the asset's value, the owner's required rate of return, and the annual return generated by the asset. The following example will illustrate this valuation method. Suppose you deposited $1,000 into an interest-bearing account today. The account accumulates interest over time, and by the end of the year, it has earned $60. The $60 return is equivalent to a rate of return of 6% per year (6% = 0.06 = 60/1,000). If you withdraw the $60 and leave the initial $1,000 deposit intact, the account will generate another $60 the next year. If you repeat this every year, the account will generate $60 per year indefinitely. Now, instead of starting with a deposit and computing the annual interest, suppose you were offered a bond that promised to pay $60 per year forever, and that you desired to achieve a return on your investment capital of 6% per year. How much would you be willing to pay for the bond? You should be willing to pay $1,000, which you calculate by dividing $60 by 0.06. The process of dividing the annual return by the required rate of return is called capitalization. Holding the annual return constant, an increase in the required rate of return will decrease the asset's value, while a decrease in the rate of return will increase the asset's value.

The first step in the income capitalization calculation is to estimate the average annual net return to land expected to occur into the future (actually into perpetuity). The net return to land may be defined as the income generated by the enterprise less all payments to other (nonland) factors of production. The idea is that land, as a factor of production, is entitled to "claim" a share of the total income generated by the enterprise. The problem is to estimate the land's share of income. In MSU's procedures, the land's share of income is defined as the residual income after paying all other factors of production their "fair" market values. Alternative definitions of net return to land exist (for example, cash rent minus property tax payment), but these are not used by MSU for purposes of estimating agricultural use values. Instead, an estimate of an enterprise's total income is made, and then its estimated nonland costs of production are deducted.

However, it is very difficult to make accurate long-term economic predictions about agricultural prices and other agricultural production data. Due to the inherent variation in biological production and agricultural markets, agricultural enterprises typically generate returns that are quite variable over time. MSU economists use a 3-year average of actual historical net returns to help smooth out this variability and estimate the long-run expected net return.

Next, the average net return is divided by an interest rate equivalent to the required rate of return on a comparably risky investment. The interest rate is more properly called a discount rate since the future return is actually being discounted back to the present. Discounting a future return to obtain a present value is the inverse of compounding a current investment to obtain a future value. The current interest rate is 10 percent — the lowest rate allowed by Mississippi law. For example, if a parcel of land generates an average net return of $45 per acre per year, its use value is $450 per acre ($45/0.10). A higher (or lower) interest rate would necessarily decrease (or increase) the computed use value.

Agricultural use values are developed for two broad land use categories: cultivatable and uncultivatable. In general, land currently in agricultural production is considered

cultivatable, whereas land currently in forestry is considered uncultivatable. Within each of these categories, MSU economists compute a range of values based on the soil's productive capability. Timing of computations, legal limits on the amount of annual change, and other considerations may also influence the use values developed annually.

Land Use Categories

The mass appraisal process is used to appraise agricultural land in Mississippi. This means that, at the outset, all parcels of land are assumed to be identical and are assigned the same appraised value. Since it is known that differences in land quality, and thus use value, actually exist, it is desirable to incorporate this knowledge into the mass appraisal process. To appraise individual parcels of agricultural land more accurately, two broad categories of land use are provided. If a parcel of land has a tree-stocking rate of at least 17 percent, it is classified as uncultivatable. Otherwise, it is classified as cultivatable. Once the parcel is categorized as either uncultivatable or cultivatable, another level of classification is used to reflect differences in the productive capacity of the many soils across the state.

All cultivatable land is assigned to one of the following five categories, which are based on a soil's land capability class (as defined by the Natural Resources Conservation Service):

Land Capability Class	Description
Class 1	Few limitations on management practices
Class 2	Requires moderate conservation practices
Class 3	Requires special conservation practices
Class 4	Requires very careful management
Classes 5-8 (Other)	Generally unsuitable for crop production

Land capability class refers to the general suitability of soils for most kinds of field crops. The numbers indicate progressively greater limitations and narrower choices for practical use. Even though classes 5–8 are unsuitable for crop production, a landowner may use this type of land for grazing instead of timber production. Soils in classes 5–8 are not assigned to four separate groups; instead, they are placed in one group and given the name "Other." Soil scientists developed these land capability classes according to the limitations of the soil when used to produce field crops, the risk of erosion damage when used for crop production, and the way soils respond to soil conservation practices. Soil scientists have also developed capability subclasses and capability units that further categorize a soil within a given land capability class, but these more refined distinctions are not used in MSU's use value estimation procedures.

If the parcel of land is determined to belong in the uncultivatable category, it is assigned to one of the following five site classes based on its expected capability to produce timber:

Site Class	Description (cubic feet of wood per acre per year)
A	120 or more
B	80 to 119
C	50 to 79
D	Less than 50
E	Nonproductive wasteland

Site classes for uncultivatable land are not necessarily related to land capability classes for cultivatable land because soil requirements for tree growth and crop growth differ.

Timing of Use Value Computations

The Mississippi State Tax Commission delivers agricultural use values per acre for the upcoming tax year to each county early in the year. Members of the Department of Agricultural Economics and the Department of Forestry at MSU are responsible for estimating new use values every year. Their procedures involve estimating the per-acre net return to agricultural land for the most recent year and then computing an average of these net returns over the most recent 3-year period. Thus, for each year, the most recently estimated net return replaces a 3-year old net return in the computation of a new 3-year average. This produces what is termed a 3-year moving average. An example of these computations using hypothetical data is provided in Table 1.

The column labeled "Average Return to Land" represents the estimated annual per-acre net return for a particular productivity category from either the cultivatable or uncultivatable category. The first three values in this column are used to compute a 3-year average of $259 per acre over the period 2003–2005. The concept of a moving average is demonstrated by the next average of $251 per acre for years 2004–2006. It included the new value of $233 per acre in 2006 and excluded the old value of $256 per acre in 2003. Thus, the net loss of $23 per acre to the total of the three values leads to a decrease of $8 per acre in the new 3-year average value. The next 3-year moving average, $261 per acre, is comprised of the values from 2005 to 2007. In

Table 1. Example of 3-year moving averages.

Year	Average return to land	3-Year moving average, 2003–2005	3-Year moving average, 2004–2006	3-Year moving average, 2005–2007
	$/A	*$/A*	*$/A*	*$/A*
2003	256	—	—	—
2004	240	—	—	—
2005	280	259	—	—
2006	233	—	251	—
2007	270	—	—	261

this case, $270 per acre replaced $240 per acre, and the 3-year average increased by $10 per acre. As can be seen, the 3-year moving average values exhibit much smaller variation from year to year than the individual annual values.

An important feature of the use value calculation procedure is the time required to collect and process the economic data that is generated in a given year. That is, economic outcomes in a given year are not made available through publications and/or other data collection procedures until the following year. Thus, a lag exists between the times that use value data are actually generated and new use value estimates are provided to the counties. For instance, use values for the year 2008 are based on data generated over the 3-year period 2004 to 2006. Actual economic outcomes occurred during 2006, but data collection and processing efforts for 2006 data could take place only during 2007, the year after the actual outcomes. Thus, new use values that cannot be finalized until 2007 are delivered to counties at the beginning of 2008.

One consequence of this time lag is that economic events (good or bad) occurring in 2008 will have no impact on property taxes that are due for owning agricultural land in 2008. For instance, net returns to land may be lower in 2008 than in 2007, but the tax bill for 2008 could be higher than the tax bill for 2007. This would be true only if (1) the net return to land in 2006 was higher than in 2004, since 2006 data replace 2004 data in the new 3-year average; and (2) the county's millage rate for 2008 did not decline enough to offset any increases in use values.

Conversely, net returns to land may be higher in 2008 than in 2007, but the tax bill for 2008 could be lower than the tax bill for 2007. Economic outcomes that occur in 2008 will eventually be used in the computations of use values for 2010 through 2012. The net return in 2008 will be used in each 3-year moving average that is used to compute use values through 2012. After the use value for 2012 is computed, the net return in 2008 will be dropped from the computation of the 3-year moving average.

Limitation on Year-to-Year Changes in Use Values

Another important factor in the procedures is the limit on how much a use value is allowed to change from one year to the next, regardless of its computed value for the new tax year. The range that a new use value is allowed to change is plus or minus 4 percent of last year's use value. Thus, in addition to the smoothing effect of the 3-year moving average net return, the 4 percent limit helps minimize unanticipated changes in a landowner's tax bill. The imposed limitation in year-to-year changes also helps a county government to make more accurate estimates of its potential tax revenues for budgeting purposes.

Other Considerations

Some use values are not easily estimated by current methods due to a lack of data, among other reasons. A legislated use value is set in these cases. The lowest use value for cultivatable land in any land capability class is set at $125 per acre. The use value for the category "Other" (Classes 5-8) is set at one-half of the use value for Class 4 land. The use value for uncultivatable Site Class D and E land is set at $65 and $20 per acre, respectively.

CONCLUSIONS

Owners of agricultural land may request their land to be appraised at its use value instead of its market value as long as the land is used to produce agricultural commodities (including timber). Instead of appraising the use value of individual parcels of agricultural land, a mass appraisal approach is used in Mississippi. This means that all parcels of land are grouped together and an appraisal for the "average" tract of land in the group is made. Thus, a particular parcel's actual use value, if appraised for that parcel alone, could be above or below the use value of the "average" tract of land. However, the difference between the actual use value for an individual tract of land and the "average" tract of land is not expected to be very large for two reasons: (1) the acreage in a parcel is placed into one of two land use categories — cultivatable or uncultivatable; and (2) within each of these land use categories, soil types with similar productive capacities are grouped together into one of five categories. The use value is estimated for the "average" parcel in each of the five productivity groups for both cultivatable and uncultivatable categories. These 10 groups, which are based on productivity and land use, should help promote a more accurate appraisal of individual parcels of land in Mississippi. That is, the use value for an individual parcel is based only on other parcels that have similar productivity and land use characteristics.

Use values for agricultural parcels of land are updated annually. The landowner's tax bill depends on three factors: (1) the number of acres assigned to each of the 10 productivity and land use groups, (2) the appraised use values for each group, and (3) the millage rate that is applied to each parcel. Both use values and millage rates could change every year. Use values estimated by MSU economists represent the capitalized return to land using the most recent economic data available. However, the actual net return to land in a given year does not enter into the computations until the next year. Thus, economic outcomes in a particular year are not immediately captured in the use value appraisal system. Therefore, a landowner's tax bill could increase in a year with poor economic returns. Conversely, a tax bill could decline in a year with good returns. Also, a change in the millage rate could either partially offset or enhance any change in a tax bill stemming from a change in use values.

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