**Capitalization Rate**

A basic capitalization rate is the sum of a property tax component and an interest rate component. In some jurisdictions, the capitalization rate can include a risk of flood component. Capitalization rate components are listed in Table 3 (Appendix C, Section 2).  

**Interest-rate component**

The interest-rate component of the capitalization rate is a weighted average of the long-term interest rates charged by Agricultural Credit Associations (ACA) serving Virginia. These data lag the tax year by 2 years. To reduce the variability of the annual use-value estimates, SLEAC elected to take a straight moving average of the weighted long-term interest rates over the 10-year period prior to a given tax year. For example, for TY2008 data for long-term interest rates are from 1997 to 2006. Therefore, the moving straight 10-year average of the long-term rate is 7.61 percent (Appendix C, Table 3 – line 2a). The same rate is used for all jurisdictions. This long-term interest rate average reflects an alternative return to owning agricultural land over an extended period of time. The same long-term interest-rate component used for agricultural land is also used for horticultural land.

**Property-tax component**

The property-tax component, also a moving straight 10-year average, is an average of the effective true real property tax rate published annually by the Virginia Department of Taxation. Property tax data lags the interest rate and net income data by three years. Therefore, the estimated property tax component applicable to TY2008 relies on data from the years 1996 to 2005. The property tax component used for agricultural land is also used for horticultural land. The sum of the interest rate and property tax rate equals the basic capitalization rate. For example, Prince Edward County’s property-tax component is 0.0043 which, when added to the long-term interest rate component, results in a capitalization rate of 0.0895 (Appendix C, Table 3 – line 2e).

**Risk component**

Agricultural enterprises are subject to numerous risks. However, the risks associated with input costs, crop yields, and prices received are adequately accounted for by the net return component since these risks occur on an across-the-board basis and do not reflect individual land risk situations. The two primary types of risks explicitly considered in the use-value methodology are related to rainfall, either a shortage or an excessive amount. An important difference between the two is that the risk associated with drought is not land-related while the risk associated with excessive rainfall is land-related. The risk of drought is assumed to be distributed uniformly within a jurisdiction and, therefore, does not warrant special attention.

Because the risk associated with an excessive rainfall is land-related, it can vary within a jurisdiction. The risk associated with excessive rainfall is lower crop yields caused by flooding. This situation mainly occurs in the southeastern part of the state but also occurs in other regions, usually to a lesser extent. Because this risk is borne by specific areas of land within a jurisdiction, a special use-value estimate based on a capitalization rate reflecting the risk of flooding is calculated.

The size of the risk component will vary depending on the period over which a total crop loss is expected on lands subject to the effects of flooding. Use-value methodology assumes that a total crop loss will occur on land at risk of flooding once every 20 years. Therefore, the land’s capitalization rate is increased by 5%. For example in Prince Edward County, the risk component is calculated to be 0.0040 (Appendix C, Table 3 – line 2d). Adding this component to the without-risk capitalization rate results in a with-risk capitalization rate of 0.0845 (Appendix C, Table 3 – line 2e).

The estimated use values of agricultural land are provided in Table 1a. The with-risk estimates should only be used when an individual land tract is known to have poor drainage which cannot be remedied by tiling or drainage ditches. Land devoted to horticultural use will rarely be subject to these conditions. For this reason, SLEAC elected not to consider the risk of flooding in the use-value estimates for horticultural crops.

**Calculating Use values**

Once a per-acre net return and capitalization rate for a jurisdiction have been estimated, calculating its use value is straightforward. The basic formula is

\[
\text{Use value} = \frac{\text{Net Return}}{\text{Capitalization Rate}}
\]

From this formula, changes in a use-value estimate are obvious. An increase in a jurisdiction’s use value is caused either by an increase in net return and/or a decrease in the capitalization rate. A decrease in use value is caused either by a decrease in the net return and/or an increase in the capitalization rate.
For example in Prince Edward County, the without-risk capitalization rate is 0.0805 (Appendix C, Table 3 – line 2c). Therefore, the initial use value for without-risk cropland harvested is:

\[
\text{Use value} = \frac{\$18.20}{0.0805} = \$226.17
\]

This calculation is referred to as an unadjusted without-risk value because it has not yet been adjusted for variations in soil capability (Appendix C, Table 3 – line 3). The unadjusted with-risk value is simply a jurisdiction’s net return divided by its with-risk capitalization rate.

**Adjusting for Variations in Capability**

The initial unadjusted use-value estimate does not reflect different land characteristics within a jurisdiction. Section 58.1–3239 of the Code directs that SLEAC annually publish use-value estimates for each of the eight Natural Resources Conservation Service (NRCS) land capability classifications.**22**

Agricultural professionals generally agree that Land Capability Classes I through III are most capable of producing cultivated annual crops. Land Capability Class IV is also capable of producing cultivated annual crops, but intensive conservation treatment is required. Land Capability Classes V through VII are generally suited for pasture and in some instances orchard. Land Capability Class VIII has practically no agricultural value. Therefore, land Capability Classes I through IV are designated as suitable for harvested crops (i.e. cropland harvested). Land Capability Classes V through VII are designated as suitable for other agricultural uses, primarily pasture.

The most direct way to adjust for differences in land capability would be to develop a set of enterprise budgets for each land class. Unfortunately, much of the data is not reported at this level. Therefore, SLEAC approved the use of an index to adjust use values for the various land capability classifications.

Class III land was chosen as the base class and assigned an index of 1.**23** The use value of agricultural land in other classes is adjusted based on its income generating potential relative to the base class. SLEAC approved the following indices for each Land Capability Class to adjust use-value estimates relative to the base class.

<table>
<thead>
<tr>
<th>Virginia Land Capability Class Index (Agricultural Land)</th>
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<tbody>
<tr>
<td>Class I</td>
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<td>Class II</td>
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<td>Class III</td>
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<td>Class VI</td>
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<td>Class VII</td>
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<td>Class VIII</td>
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</table>

**Statewide Land Capability Classifications**

- **Class I**: Soils have few limitations that restrict use.
- **Class II**: Soils have some limitations that reduce the choice of plants or require moderate conservation practices.
- **Class III**: Soils have severe limitations that reduce the choice of plants or require special conservation practices, or both.
- **Class IV**: Soils have very severe limitations that restrict the choice of plants, require very careful management, or both.
- **Class V**: Soils are subject to little or no erosion but have other limitations impractical to remove that limit their use largely to pasture, range, woodland, or wildlife food and cover.
- **Class VI**: Soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife food and cover.
- **Class VII**: Soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to grazing, woodland, or wildlife.
- **Class VIII**: Soils and landforms have limitations that preclude their use for commercial plant production and restrict their use to recreation, wildlife, or water supply or to aesthetic purposes.


**23**The decision to make Class III the base is arbitrary and has no impact on the final use-value estimates.
The scale implies that the expected net income from Class I is 1.5 times that of Class III; the expected net income from Class II is 1.35 times that of Class III land; the expected net income from Class IV is only .80 times that of Class III land; the expected net income from Class V is only 0.60 times that of Class III land, and so on.

**Soil index factor**

Since the mix of land classes differs among jurisdictions, it is not appropriate to simply use an unadjusted without-risk (or with-risk) use-value estimate (Appendix 3, Table 3 – Section 3) which would be used as the use-value estimate for Class III land. An adjustment is made by calculating a soil index factor. The factor which is the weighted average of the land capability (productivity) indices (Classes I – IV) in each jurisdiction where cropland acreage of classes I – IV in the jurisdiction provides the weights.

In Prince Edward County, the soil index factor is calculated as 1.149 (Appendix 3, Table 3 – Section 4). This value means that a typical acre of land in Prince Edward County is between Class II (1.35) and Class III (1.00). Since the unadjusted without-risk use value of cropland harvested for Prince Edward County was $226.17 (Appendix 3, Table 3 – line 3), that value is divided by the soil index factor of 1.149. This yields a without-risk use-value estimate for Class III land of $196.93 per acre. Multiplying this value by each of the other land class indices provides the remaining without-risk use-value estimates (Appendix C, Table 3 - Section 5). The same process is used in calculating a jurisdiction’s with-risk use-value estimates, by using the unadjusted with-risk use value. Note that the final estimated values are rounded to the nearest $10, e.g., the use-value estimate for Class III of $196.93 is reported as $200 (Appendix B – Table 1a).

**Using average use-value estimates**

When the soil capability classes of an individual real estate tract are known, using the adjusted use-value estimates could improve equity. However, in many jurisdictions, these data do not exist. Therefore, Appendix B Table 1a lists the weighted average use-value estimates for cropland harvested (land classes I through IV), pastureland (land classes V through VII), and total agricultural land (land classes I through VII). At the discretion of the assessing officer, the pastureland use value may be applied to land in any class that is strictly used for grazing.

**Transfer-in data**

The data used for estimating the use value of agricultural land are not published for all towns and for only a few of Virginia’s independent cities. When data do not exist for a town or city participating in the use-value taxation program, data from an adjacent county are used. The process is referred to as “transferring-in data.” For example, Chesterfield County uses transfer-in data from Amelia County (Appendix B, Table 1a).

**Split Counties: Census and Net Returns**

Transfer-in data are also used for jurisdictions that are split by the “Fall Line.” These split-counties are unique because their western side is comprised of Piedmont soils and crops and their eastern side is comprised of Coastal Plain soils and crops. Currently, Dinwiddie, Hanover, and Henrico counties are split counties and data are transferred in from adjacent counties with similar soil. For example, Dinwiddie County’s Coastal Plain region uses transfer-in data from Prince George County, while its Piedmont region uses transfer-in data from Nottaway County.

In a split-county, the county’s own census data is used in calculating composite farm acreage. As a result, there are identical composite farm acreages for both regions within a split-county. As with other transfer-in counties, a split-county’s crop net return budgets are transferred-in from an adjacent county. However, a split-county does not transfer-in federal payments. Rather, federal payments paid to the split-county are used for both regions. For example, both of Dinwiddie’s Coastal Plain and Piedmont regions use federal payments paid to Dinwiddie County.

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28Not adjusting use-value estimates in jurisdictions with high concentrations of land in classes I and II would overestimate Class III estimates while underestimating Class III estimates in jurisdictions with low concentrations of land in classes I and II.

29Data on land acreage in each land class is available in the *Virginia Conservation Needs Inventory* (1967).

30These data can be generated by using soil surveys and tax map overlays or through self-reporting but the process is costly and difficult to verify.

31See the following URL for a definition of the Fall Line: [http://www.virginiaplaces.org/regions/fallshape.html](http://www.virginiaplaces.org/regions/fallshape.html)

32When a transfer-in county designation changes, a jurisdiction’s historical annual budget data for the previous 7 years must be adjusted to include annual budgets from all transfer-in counties within the previous 7 years. Calculations are performed outside the use-value system with all jurisdictional reporting updated (i.e., Brochure, Table 1a, Table 1b, Table 2, Table 3, and Table 5).
Transfer-in Jurisdictions: Effective Tax Rates

When a jurisdiction is not split and uses transfer-in data, the transfer-in county’s composite farm and average net returns are identical to the receiving jurisdiction. But, the final use-value estimates for a receiving county and its transfer-in county will differ because each jurisdiction uses its own effective tax rate to arrive at the capitalization rate.

For example, Buena Vista City transfers-in data from Rockbridge County. Therefore, both Buena Vista and Rockbridge County have identical census data, composite farm acreages, crop net returns, and final Estimated Net Return. Thus, Buena Vista’s unadjusted use-value estimates will differ from Rockbridge only because the moving straight 10-year average effective property tax rates are different (An explanation of these rates is provided in Section I – Capitalization Rate).

Transfer-in Jurisdictions: Soil Index

When a county uses transfer-in data (including split-counties), its unadjusted use-value estimates are divided by the transfer-in county’s soil index factor to calculate its adjusted use-value estimates. For example, Buena Vista transfers-in data from Rockbridge County and uses Rockbridge County’s soil index factor in calculating its adjusted use-value estimates.