Guidelines For The Mass Appraisal Of Agricultural Lands In The State Of Arkansas

In compliance with Arkansas Code 26-26-407

Developed By
The State Of Arkansas
Assessment Coordination
Department
1996

Revised 2009

These guidelines were developed by the Assessment Coordination Department in compliance with Arkansas Code 26-26-407 which states:

(b)(1) (A) Agricultural land, pasture land, and timber land valuation shall be based on the productivity of the agricultural land, pasture land, or timber land soil.

(B) Agricultural land, pasture land, and timber land guidelines shall be developed based on the typical or most probable use of the soils for agricultural land, pasture land, and timber land in the region.

(f)(1) In devising and developing methods of assessing and levying the ad valorem property tax on real property, the Assessment Coordination Department shall annually develop and publish valuation tables and other data which shall be used by county assessors for assessing lands qualifying under the provisions of this subchapter.

(2) (A) Effective for assessment years beginning January 1, 2008, and every year thereafter, the Assessment Coordination Department shall update the valuation tables for assessing lands qualifying as agricultural land, pasture land, and timber land in time for counties to use the updated tables when they finish their countywide appraisals.

(B) Beginning January 1, 2008, when there is a countywide reappraisal, a county shall assess agricultural land, pasture land, and timber land based upon the updated land values in the valuation tables issued for the assessment year.

(3) (A) Effective for assessment years beginning January 1, 2008, the Assessment Coordination Department by rule shall develop appropriate formulas reflecting the productivity valuation of the land based upon income capability attributable to agricultural land, pasture land, and timber land soils.

(B) Beginning January 1, 2008, and every year thereafter, the Assessment Coordination Department shall develop and calculate capitalization rates by using appropriate long-term federal security rates, risk rates, management rates, and other appropriate financial rates.

(C) However, the capitalization rate developed under subdivision (f) (3) (B) of this section shall not be less than eight percent (8%) nor more than twelve percent (12%).

(4) By October 15 of each year, the Assessment Coordination Department shall report to the Legislative Council any changes to any part of the formula used to determine the value or the capitalization rate.

The Big Picture

The Agricultural Land mass appraisal program launched in 1981 developed seventy-five individual county land values based on published information by the Arkansas Agricultural Statistics Service and the Natural Resource and Conservation Service. In an effort to eliminate some of the variables and inconsistencies, in 1996 the introduction of Regional Land Values for the state of Arkansas was implemented.

REGIONS

The land regions are based on those set by the U.S. Forest Service. There are four regions, a brief description, and the counties within that region are listed below:

Delta Region- An alluvial plain reaching from Louisiana to Missouri.

Counties include: Arkansas, Chicot, Clay, Craighead, Crittenden, Cross, Desha, Greene, Jackson, Jefferson, Lawrence, Lee, Lincoln, Lonoke, Mississippi, Monroe, Phillips, Poinsett, Prairie, St. Francis, and Woodruff.

Ouachita Region- Extends northward from the coastal plain up to the Arkansas River.

Counties include: Garland, Logan, Montgomery, Perry, Polk, Pulaski, Saline, Scott, Sebastian, and Yell.

Ozark Region- Is the largest region and is contained in the northern third of the State west of the Delta and north of the Arkansas River.

Counties include: Baxter, Benton, Boone, Carroll, Cleburne, Conway, Crawford, Faulkner, Franklin, Fulton, Independence, Izard, Johnson, Madison, Marion, Newton, Pope, Randolph, Searcy, Sharp, Stone, Van Buren, Washington, and White.

Southwest Region- Southern part of the state west of the Delta. Also known as the Coastal Plains.

Counties include: Ashley, Bradley, Calhoun, Clark, Cleveland, Columbia, Dallas, Drew, Grant, Hempstead, Hot Spring, Howard, Lafayette, Little River, Miller, Nevada, Ouachita, Pike, Sevier, and Union.

REGIONAL MAP NEXT PAGE

SOIL GROUPINGS

The soil groupings are based on the NRCS Land Capability Classification System. This system measures the limitations of soils using eight classes. Class I being the least limited and VIII being the most restrictive. The sub class describes the type of limitation be it W-water, E-erosion, and S-shallow or unstable soils. NRCS has published, or is in the process of publishing, a soil survey for each county in Arkansas. Within these surveys each soil is described and is designated a capability class and a subclass. The surveys also contain aerial photographs which depicts where soils are located within the county.

The descriptions are as follows:
(See next page)

ACD Numbers and Interpretations

ACD#	LAND CAPABILITY CLASSIFICATION
1	**I -** Soils have few limitations that restrict use.
2	**IIw -** Soils have moderate **water** limitations that reduce the choice of plants or require moderate conservation practices.
3	**IIIs-** Soils are very **swallow** and suffer from severe limitations that reduce the choice of plants or that require special conservation practices, or both.
4	**IIIw-** Soils have severe **water** limitations that reduce the choice of plants or that require special conservation practices, or both.
5	**IIs -** Soils are **shallow** and have moderate limitations that reduce the choice of plants or require moderate conservation practices.
6	**IVs -** Soils are **shallow** and have severe limitations that reduce the choice of plants or that require careful management, or both.
7	**IVw-** Soils have severe **water** limitations that reduce the choice of plants or that require very careful management, or both.
8	**Vw -** Soils are not likely to erode, but have **water** limitations, impractical to remove and limits the use.
9	**VIs** - Soils have severe **shallow** limitations that make them generally unsuitable for cultivation.
10	**VIw-** Soils have severe **water** limitations that make them generally unsuitable for cultivation.
11	**VIIs-** Soils are **shallow** and have very severe limitations that make them unsuitable for cultivation.
12	**IIe -** Soils have moderate limitations to **erosion** that reduces the choice of plants or that require moderate conservation practices.
13	**IIIe-** Soils have severe limitations to **erosion** that reduces the choice of plants or that require special conservation practices, or both.
14	**IVe -** Soils have very severe limitations to **erosion** that reduces the choice of plants or that require very careful management, or both.
15	**VIe -** Soils have very severe limitations to **erosion** that make them generally unsuitable for cultivation.
16	**VIIe-** Soils have very severe limitations to **erosion** that make them unsuitable for cultivation.
17	**VIII-** (ROCK OUTCROPS ECT) - Soils and miscellaneous areas that have limitations that nearly preclude their use for commercial crop production.
18	**NO CLASS OR MISC. LAND**

LETTERS INDICATE LIMITATIONS (PROBLEMS) ASSOCIATED WITH THOSE SOILS.

w = WATER PROBLEMS (flooding), **e** = EROSION PROBLEMS, **s** = SHALLOW SOILS (limited root zone, or stony soils)

Formulas for Land Values

According to code 26-26-407 there has been a land value developed for each land capability class providing that there is data to support values. In some cases values have been filled into some classes where there has been cropping activity but data is non-documented.

Code 26-26-407 clearly indicates that the use valuation of land should be used for agricultural lands. This method is otherwise known as the income approach to value. The basic formula for this is:

Income - Cost = Net Income / Capitalization Rate = Land Value

Yields

Data for each soil class was averaged and that yield was used to determine the average productivity for each category.

Crops

Crop Income is based on a ten year market price average for soybeans. To adjust for operating costs a 25/75 rental rate split is assumed with the 25 percent applied as net income.

Pasture

Pasture Income is based on AUM. Animal Unit Months are a measure of forage productivity in the soil surveys.
The value of one animal unit month was developed by:

State Average AUM 6.5

10 yr Pasture Rent Average $16.22

Example ($16.23/ 6.5 = $2.52 per AUM Statewide)

The average AUM for each soil class is multiplied by price per AUM and then divided by the capitalization rate.

Timber

Because of the thirty to forty year growth cycle of marketable timber and the variable growth volumes for each year a discount cash flow model was used to best represent the use value. This model takes into consideration the start up capital for tree planting, herbicidal and fire treatments, as well as income produced through various thinnings of the growth cycle. This results in culmination of information brought back to the present worth of the site.

The timber productivity of each soil is measured by the soils indicator species and site index, as assigned by The Natural Resource and Conservation Service (NRCS). The soils value is then determined by multiplying total acres to determine total value. An example of each is below:

Utilizing the indicator species and the site index as the determining factor for productivity, a discount cash flow determines value for:

Site index greater than 90 is Very Productive	= Pine High Site
Site index of 89 to 70 is Productive	= Medium Pine Site
Site index of 69 to 50 is Marginal	= Low Pine Site
Site index 49 and below is Unproductive	= Min. Land Value $100
All Hardwood lands	= Hardwood Site Value

Example of weighted value below:

ADC #3 Ozark Region

Total Value		*Acres*		*Species/Index Value*
1,455,245		13,200		110.25
134,889		2,766		48.77
273,410		2,480		110.25
142,399		2,920		48.77
2,030,177		18,415		110.25
101,888		621		164.07
153,793		1,395		110.25
161,418		3,310		48.77
137,279		2,815		48.77
2,195,546		19,915		110.25
102,752		2,107		48.77
232,288		2,107		110.25
61,983		1,271		48.77
631,988		3,056		206.80
3,616,726		32,806		110.25
30,281,336	/	278,199	=	**110** rounded

Capitalization Rate for Cropland

Safe Rate	(10 year average on 30 Year T-Bonds)	5.27%
Industry Risk Rate		3.5%
Management Rate		2.00%
Capitalization Rate		**10.64%**

Capitalization Rate for Pasture

Safe Rate	(10 year average on 30 Year T-Bonds)	5.27%
Industry Risk Rate		3.5%
Management Rate		1.00%
Capitalization Rate		**9.64%**

Capitalization Rate for Timber

Safe Rate	(10 year average on 30 Year T-Bonds)	5.45%
Industry Risk Rate		2.75%
Management Rate		0.00%
Capitalization Rate		**8.14%**

Each respective market and the soil data supplied by NRCS has been utilized in the formulation of these values and each region has been treated equally.

OZARK REGION:

ACD#	Crop Value/Acre		Pasture Value/Acre		Timber Value/Acre	
1	$530		$255		$46	
2	$430		$205		$160	
3	$320		$155		$140	
4	$405		$160		$120	
5	$320		$170		$70	
6	$210		$115		$140	
7	$390		$170		$65	
8	$390		$170		$105	
9	$210		$110		$135	
10	$390		$170		$70	
11	$210		$80		$130	
12	$390		$200		$165	
13	$280		$170		$160	
14	$280		$135		$140	
15	$164		$115		$140	
16	$133		$95		$135	
17	$101		$95		$74	
18	$70		$70		$70	

Agricultural Values for 2009
Assessment Coordination Department

DELTA REGION:

ACD#	Crop Value/Acre		Pasture Value/Acre		Timber Value/Acre	
1	$545		$255		$55	
2	$490		$215		$105	
3	$250		$135		$90	
4	$445		$190		$100	
5	$420		$185		$50	
6	$195		$105		$125	
7	$405		$175		$75	
8	$405		$140		$80	
9	$195		$105		$145	
10	$405		$140		$110	
11	$195		$90		$155	
12	$430		$225		$155	
13	$335		$200		$195	
14	$305		$160		$195	
15	$156		$120		$200	
16	$128		$120		$235	
17	$99		$120		$110	
18	$70		$70		$70	

Agricultural Values for 2009
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OUACHITA REGION:

ACD#	Crop Value/Acre		Pasture Value/Acre		Timber Value/Acre	
1	$545		$215		$50	
2	$430		$200		$210	
3	$250		$130		$50	
4	$390		$160		$140	
5	$250		$130		$100	
6	$250		$110		$140	
7	$390		$175		$135	
8	$390		$155		$100	
9	$250		$100		$165	
10	$390		$175		$100	
11	$210		$110		$165	
12	$390		$180		$205	
13	$280		$165		$205	
14	$280		$130		$195	
15	$164		$110		$175	
16	$133		$110		$190	
17	$101		$110		$100	
18	$70		$70		$70	

Agricultural Values for 2009
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SOUTHWEST REGION:

ACD#	Crop Value/Acre		Pasture Value/Acre		Timber Value/Acre	
1	$500		$235		$85	
2	$430		$210		$205	
3	$280		$155		$235	
4	$375		$185		$235	
5	$280		$135		$100	
6	$210		$135		$235	
7	$405		$175		$250	
8	$405		$140		$50	
9	$210		$105		$175	
10	$405		$130		$50	
11	$210		$115		$165	
12	$375		$205		$235	
13	$295		$185		$240	
14	$295		$155		$230	
15	$164		$125		$205	
16	$133		$75		$200	
17	$101		$75		$100	
18	$70		$70		$70	

Agricultural Values for 2009
Assessment Coordination Department