

## Webinar 2: Agriculture & Forestry Assessments

*Hosted by Wayne Miller, Professor at the University of Arkansas System Division of Agriculture and presented by Robert McGee, Division Administrator-Agriculture, Minerals and Mapping at the Arkansas Assessment Coordination Department on June 29, 2018*

**[Wayne Miller]** Good Morning! Welcome to the Agriculture and Forestry Property Assessment Webinar.

I am Wayne Miller, Professor with the Community & Economic Development Program of the University of Arkansas System – Division of Agriculture. This series of six webinars on Property Assessments in Arkansas is part of our Local Government program and in collaboration with the Arkansas Assessment Coordination Department and the Tax Division of the Arkansas Public Service Commission.

As we discussed in our first webinar, we all have a vested interest in the property tax and, therefore, proper assessments for two reasons:

First, most everyone pays the property tax – either directly or indirectly.

Second, we all benefit from the services funded in part by the property tax. All the money generated from the property tax goes to support our K-12 schools, county and city roads and bridges, our police and fire departments, libraries and many other local services such as health care and recreation programs and facilities. The property tax is truly a local tax supporting local services.

Before proceeding to our presentation today, I would like to provide some context to our discussion of agriculture and forestry property assessments. Agriculture & forestry make important contributions to both the economy and state and local governments. In a publication

published by the University of Arkansas System – Division of Agriculture, we estimate that Arkansas agriculture added \$21.4 Billion in value added to the state economy in 2016. This is approximately 17% of the state economy as measured by value added, which is similar to what is better known as Gross State Product.

In this study, Agriculture is defined to include agriculture and forestry production, processing and related industries. These agriculture industries have multiplier effects, which add to agriculture's contribution. As you see from this pie chart, agriculture production accounts for only about 16% of Agriculture's total value added to the state economy. Agriculture processing accounts for about one-third and agriculture related businesses 2% of the economic contribution of agriculture to the state economy. Combined, the indirect and induced (or multiplier) effects account for nearly one-half of agriculture's contribution.

Indirect effects are generated when agriculture production and processing firms purchase goods and services that are required in the production of their products. Induced effects are generated when employees in the agricultural industries purchase consumer goods and services.

Agriculture also contributes to local governments through property and local sales taxes. I presented this graph to show that today's presentation on agriculture and forestry property assessments only focuses on agriculture and forestry production – a small share of agriculture's contribution. Thus, Agriculture's contribution to the property tax is much larger than the revenue generated by the property tax on agriculture and forest land.

**[Robert McGee]** Once again, my name's Robert McGee, I work for the Assessment Coordination Department and my primary job there is as the agricultural specialist.

Wayne pointed out many things that we're going to talk about it with a little bit more detail during the presentation, one of the parts of that.

I get a lot of phone calls and the topic comes up a lot about agricultural land. There's, there's two main reasons for that over the past decade. One of that would be that the amount of agricultural land that we have here in the state.

So, considering the entire state of Arkansas is approximately 34 million acres, you can see from the graph on the screen that agricultural land accounts for over three-quarters of the land area in the state.

So, it's everywhere. We all see it. We all pass some this morning, driving into work. Be it crop, pasture or timber, so it's always, always around us. And, so, people are interested in how we value.

But when you start talking about the actual agricultural value and how that land value fits into the bigger piece of the puzzle, you can see from the chart on the screen right now, that looking at just the land value—so, this is not the improvements, like your house or business, just the land that is under all those things—agricultural land value actually is a much smaller piece of the pie right around a fifth of the pie.

And so, we went from having the biggest land area to a very small piece of the land value and then when you look at it compared to other property types,

You can see that it really does end up being a much smaller sliver of the overall property tax valuation for the state.

And there's some good reasons behind that, that we're going to touch on in just a minute.

The other part of that would be the history over the past decade since approximately 2008 for the taxpayers, 2007 for those of us in the business.

Agricultural values have been a lot more prominent when counties are finishing your reappraisal cycles. So why 2008?

The Lakeview school case that came about in 2004 and 2005, the legislature was looking for funding to help equalize the funding for all the students statewide, and in doing that, that came across some anomalies with how agricultural land was being valued both by the state and how those counties were applying those values.

They found that, as of 2004 and 2005, the last time the values have been calculated by the state was during the 1996 overhaul of the formulas.

And they also found that in many cases, a lot of the counties had not actually put on those values or they had put them on at different times, as they finish different reappraisal cycles, which again goes to fairness and equity state wide.

A little more history. Prior to the '96 overhaul was the 1981 overhaul to the formula, at which time the agency was tasked though developing 75 individual county based valuation methods.

Which was very cumbersome and difficult for the agency and the counties to handle. And then prior to that our history gets really murky with agriculture evaluation. It was being done various state agencies that are still around, and not around, played a role in that. It was very much based upon when counties asked for help doing values on different types of agricultural land and there was not a lot of uniformity or fairness or equity across the state during that time period.

So, now we'll get into a little bit more of the law behind it. It starts with the Constitution and even at the beginning, the importance of agricultural in in the state was recognized by the founders.

Again, agricultural land houses us clothes us and feeds us. And that's a very important thing for all of us. And so, while for fairness purposes it was understood that there was going to have to be property taxes paid on agricultural land, the founders of the Constitution and the legislature in the years since have recognized that it needs to be at an appropriate rate, so to encourage that kind of activity because how important it is to all of us as a state.

So the Constitution points out in Article 16, which covers financing taxation, that we're to do it on productivity or use. And as you see, we do not value agricultural land at market value.

So then the law, 26-26-407 starts to get into a little bit more detail, and this is everything that was passed in that 2007 legislative session, that went into effect in 2008. And that law states specifically that we're to do it based on the productivity of the soil.

So what we're actually valuing is the productivity potential of the soil. What the individual soils, out there on the given piece of property, what they could produce--not necessarily what they are producing in any given year, but what they could. So again, it's on the productivity potential of the soil.

The law goes on to say that we have to do a typical, or most probably use, of the soil. So, a good example for this is for crop, I can't use the valuation of pineapples and for timber, I can't use evaluation palm trees, because those are not typical or most probable use of the soils here in Arkansas.

It goes on to state that, starting in 2008, and every year thereafter, a department is required to update the valuation tables.

It also says that we are required annually to calculate values--so all this is now getting set out in law. And then it also went that extra step further and said, starting in 2008, the county shell

apply the values at the end of their reappraisal cycle that the state produces. So, no more ambiguity for any of us.

A few smaller details that are also contained in the law. We have to use appropriate financial rates when we are calculating the formulas. That covers everything from trying to use Arkansas numbers for the bushels of soybeans and timber pricing, etc. And then there's also some oversight, it's included in law, and that states that by October 15, that we shall report to legislative council any changes in the formula. Obviously, the formula is meant to be calculated every year, and so it's going to produce new values every year.

But we are required to report to Legislative Council if there's been any changes to the actual formula itself calculating used in calculating those values.

So let's get down to how we do value that productivity potential soil. And the first part of that is, we've got to find that soil.

So, we divide the state up into four agricultural regions: the Delta, Ozark, Ouachita and Southwest. Those groupings makes sense both economically and for agricultural purposes.

We get all of our soil data about the soil maps and the scientific data from the USDA NRCS. That's the Natural Resources Conservation Service portion of the USDA.

On the screen you'll see a example of one of the old soil survey books that many of you may be familiar with or that many of you may have used at some point in your careers.

This is the interior of one of those soil surveyed books with a soil map over a printed version of an orthophotograph.

We've now moved on to the digital age in almost every area every aspect of how we're doing this. This is that soil map that I just showed you. Now with the orthophotography laid up under it, which allows us to readily identify which soils are where

And then we also adopted from the RCS their scientific classification of all the soils. So, our classification system is just a complete adoption of theirs. We have 1 through 18 soil classifications, just like their classifications do.

Eighteen is consider miscellaneous, it encompasses water, dams, levies, etc. And that classification system, like most scientific classification systems, breaks down all the soils by family and subfamily. And so we have just adopted that.

In those families, you can see from the small portion of the chart on the screen, you have the ACD 1 soils that have few limitations. Those soils are considered some of the best soils in the state. Those are really, really good soils over in the Delta. And then as the families breakdown, you're starting to see the different limitations from the example on the screen.

Soil 2 has some moderate water limitations and soil four on this chart has severe water limitation. So those limitations and that categorization, for every soil, for any piece of property, in any county will fit somewhere in that chart.

This is the larger chart, for the Delta region, of all the soils in the region. You can see the map symbol up on the chart that you would find when you work on the Web Soil Survey getting soils. You can see the soil name, and it has some of the descriptive restrictions that may or may not be on the soil. You see the land class that NRCS provides and then you see the ACD number.

So, the key thing take away from this portion is, when we're getting that scientific classification from the NRCS, it is built into where they rank those soils.

So, in the case of a given piece of property that would be a Bosket fine sandy loam, it would have 0% to 1% slopes. It would be classified as an LCU 1, and then we classify that as an ACD 1. So this would be a soil that would have very few restrictions on it. One of the better soils in the state.

Then you may also find on a property record card in part of the state a Hontas soil. These soils are frequently flooded, they're classified by the NRCS as an LCU 4W, and they are an ACD 7 for our purposes. So you can see right there, this soil is a frequently flooded soil, it's going to be ranked in the classification system lower than a better soil and our evaluation system will apply to it, it is going to give it a lower value than it would [SEP] those better, less restricted soils.

And then finally, the Ventris-rock outcrop complex, very much like it sounds, has a lot of rock outcrops jutting about out of the soil, 12-30% slopes--that is very steep--that is [SEP] classified as an LCU new 7E and an ACD 16. So, that's where we get our soil information

Now, we're going to talk about use. So, for the purposes of property taxes in the state, we have three uses: crop, timber and pasture. All agricultural land is classified as such. The appraiser, visiting a site for a site visit, would determine the use and then now as we've moved into the digital era, would return to the office and you use computer assisted mapping technology to help him determine exactly where those use areas are on the given parcel.

So in the case of the example that you see on your screen, this parcel is the one he is going to be evaluating today. He determines the boundary of that parcel and verifies the acreage of it. And then he looks at each corresponding soil area in that parcel.

After he cuts out the residential portion of the parcel, he determines its use and soil.

So, in the case of the part that just filled in right now, you have 10 acres of ACD 2 crop and then a little area of eight acres of ACD 2 crop. The largest portion of this particular parcel, 100 acres



ACD 4 crop. He has identified 8 acres of ACD 8 timber, 26 acres of ACD 4 timber, and then up in the corner a little bit more of that number four soil, three acres of ACD 4 timber.

So, this is the level of detail that the appraiser working for the county, or the contractor that works for the county, goes into on each piece of property. They need to know each use and its soil, to do the evaluation process that we're doing.

So, now let's talk about the values that we're going to put on that data that the appraiser just found. So, going back to Arkansas code 26-26-407, the use valuation of land should be used for agricultural lands. And in the property tax world, we're supposed to use the income approached.

The basic formula for the income approach is income minus cost equals net income, and then we take that net income and divide it by the capitalization rate, and that gives us our final land value.

So, for the income portion for crop, pasture and timber, we use bushels of soybeans that any given soil will produce--and again, we get that data from NRCS. The animal unit per month for pasture land. Animal unit per month as defined in Arkansas for property tax purposes, is how many mama cow baby cow combinations each soil will support. So, each soil has a number a number for how many mama cow baby cow combinations it will support. And then for timber we use board feet.

For the cost portion, again we go back to those particular areas and we use the rental rate on agricultural land in the state. We use the rental rate on pasture land in the state. Those two rental rates provide a very easy and measurable way of pulling out the cost from the income. And then for timber we use planting and thinning.

One thing that I'm going to point out as we move forward in the valuation section, timber is a little bit more complicated. It is a 30- to 50-year crop. So, after that initial planting, they'll have periods of time, anywhere in the 10 to 15 range, where they'll go in and you a thinning.

In a lot of cases on some of the pine plantations in the southern part of the state, there'll be some secondary thinnings that are getting even later than that, and then a final harvest. It has a lot more complicated process because it is not an annual crop.

So, then the final portion of that formula was the capitalization rate. The capitalization rate is the rate at which you discount future income of the property to its present value.

And another way of saying that it expresses what percentage rate a properties net income is to its value. It's about

In Arkansas, the capitalization rate that I use is a combination of a long term safe rate. Currently, that's 30-year T-bonds from the federal treasury.

And then we factor in a management fee and a risk rate to come up with our final capitalization rate.

We calculated capitalization rate for each of the three types: currently the crop capitalization rate is 9.15, the pasture capitalization rate is 8.15 and then finally the timber capitalization rate is currently at 8.

So let's get into how about each one of them using that information. So again, we take the average soybean bushel per acre of each soil type, times the 10 years average of state prices, which is \$10.88, times 25% to adjust for the costs using that rental rate split, divided by the capitalization rate.

So now we'll look at that on a spreadsheet. So again, we take that ACD 1 soil, which, according to the NRCS has the capability producing 39 bushels per acre. We multiply that by the ten year average price received by farmers here in Arkansas.

That gives us a sum of \$424.32. We apply the 25/75 percent split for costs, and then we divide it by the capitalization rate. That gives us \$1,159.34 and then you can see the round that to the nearest 5 for better data entry.

Pasture land value, very similar. Pasture land value, very similar.

One of the things you'll see on the next slide is that the costs aren't in the spreadsheet. They go into actually calculating that AUM per acre value to \$2.86, so they've already been deducted. Times the soil's AUM amount, divided by the capitalization rate.

So now we'll look at that on a spreadsheet. Again that ACD 1 soil, the AMU is 9.9 mama baby cow combinations that that soil can support for one year.

Multiplied by the average dollar per AUM of \$2.86 it gives us a total of \$28.31, divided by the capitalization rate gives us \$347.41 and then again we round that to the nearest \$5.

Timberland Value. State averages of pricing on board and pulp, multiplied by the harvest volumes by soil type, species and board and pulp.

So let me pause here for just a second. In the spreadsheet that we use, the data from the NRCS, each soil type actually has different factors for hardwoods and soft woods and the amount of board feet and pulp tonnage that it will produce. Some soils are really good at producing board timber, some soils are much more preferred for producing pulp tonnage. Some soils are much more preferred for hardwoods some soils are much more preferred for species. So for each soil listening, there's multiple inputs that go into that we have to factor. It makes a very large spreadsheet that we use for the calculations.

Then that equals income from thinning and final harvest, minus expenses from the planting and thinning that takes place over that 30- to 50-year period. And then we divide it by the capitalization rate.

As I pointed out, it is a very large and very complicated spreadsheet and I actually don't, I can't condense it down for version beyond this general formula. If you'd like more information or would actually like to see more of that information, contact me, my contact information will be at the end of the slide show.

So, this is what a value chart for one region of the state would look like. This is 2018 for the Delta. You can see on the left side of the chart all the numbers 1 through 18, again 18 is miscellaneous.

You can see then the crop value per acre, and you can kind of--if you go down the pricing, you can see the scientific classifications of the families, because the pricing will be a little bit higher for better soils and then it will drop down lower in a given family. So in this case, 123 is a family, and then you can see 4 is the start of a new family at \$950.

And then, etc, etc, all the way down to the chart. And then you'll also notice on the right side of the chart with the timber value per acre, it's kind of reversed.

And if you think about that, the soils that are really good for growing crops and pasture land are not typically the soils where you find a lot of timber growing naturally or being grown.

And so it shows, even in the scientific classification, different soils kind of seek out their own highest and best use.

This would be a given soil valuation chart for one county, this is Arkansas County. If you notice on the left side of the chart for Arkansas County, they actually do not have a soil for each one of scientific classifications in their county, and that is very typical of most of the counties in the state.

So in this case you can see they have ACD 1 soils, 2 soils, they don't have any 3 or any 5 or any 8, 9 or 10. Statewide the highest and lowest on a per acre full value basis currently in 2018, for crop, it's \$1,160, the lowest is \$125. For pasture, it's \$345 and the lowest is \$75, and for timber it's \$175 and lowest is \$55.

One of the main jobs that I do outside of calculating the values every year for the counties that are finishing the reappraisal cycle, is watch the market. Now again, I remind you, all way back at the beginning of the presentation where I stated that we do not value agricultural land at market value.

We value your house, your business and your car at market value using sales, but we do not do that with agricultural land in the state.

But one of the things that we want, is to know that our formula is writing similar curves that market value is. So we're going to take a moment to look at this chart.

The green bars on the chart, are the valuation numbers for ACD. So this is what we use valuation formula has produced.

And those are the highest values for each of the given years. So that's the highest value that came out of our formula for each one of those years. The blue bars are the average market value for cropland in the state produced by the USDA NASS which statistical service branch of the USDA. And those are also for the state. But again, be careful, looking at this chart because you're looking at something that is the maximum versus something that is the average.

So right there is a great snapshot of how our formula is designed to produce values, but at a much lower rate than the market would say they should be.

So how do we do this like you see it on your tax bill? Well, for crop, again we're going to use those maximum values. The full value of the \$1,160 per acre. The Arkansas assessment rate is 20%. That brings it to an assessed value of \$232. I am, for the purposes of the presentation, using an average rural millage rate for the state and that is 46 mills expressed in its decimal format. And that takes this price down to \$10.67 estimated tax per acre.

Then for pasture, the full value is \$345 per acre. The assessment right again is 20%, the assessed value takes it down to \$69, the average rural millage rate again at 46 mills, and that takes it down to \$3.17 estimated tax per acre.

Full value, \$175 per acre, Arkansas assessment rate of 20%, assessed value of \$35, the average rural millage rate again at 46 mills, and that takes it down to \$1.61 estimated tax per acre.

One of the jobs of the agency is to do audits of the counties and the contractors all of the portions of the work that they're doing in the state in regards to property taxes.

We do have an agri-audit portion of that, and this slide is just up there to let you know that we use the same methodologies.

Audit them using the same methods and add the word soil map evaluation table site visits, etc. To make sure the counties in the contractors that have been hired by the counties are doing work properly on the state web basis.

So I know we have some questions, possibly coming in, but these are the five or six questions that I get when I go out and do this presentation across the state.

Does agricultural land qualify for the homestead credit? No, by definition the homestead credit only is applicable to your primary residence and the immediate yard around your primary residence.

Does agricultural land qualify for the over 65 or disable freeze? And the answer on that is no. The very first requirement to get either one of those freeze is that they can only be applied to your homestead see FAQ, number one, your agricultural land can't be your homestead.

Number three. Does agricultural land qualify for the Amendment 79 capped increase? And that is yes and it's at 10% a year. Your home via Amendment 79 capped increases at 5%, but for your agricultural land it's capped at 10%. And what this means is, as your value has increased in any given reappraisal cycle, the amount of taxes that you will pay towards that value only increased 10% per year until you actually get to the amount of taxes, you should be paying for that increased value.

What is the forest fire protection tax? It is actually a fee that is applied to your property tax bill, it is currently 20 cents per acre.

It only applies to timber acreage in the state and those monies go to the Arkansas Forestry Commission, which is a state agency, and it just supplements their budget, and allows them to continue doing the great work that they do. They come out, obviously, when we have forest fires, they also come out for ice storms, tornados, when there's floods, they'll have their equipment on the levees helping all the taxpayers out during times of disaster. So this is just a small fee that goes to help supplement their budget and they also do great work drawing great, healthy forests for the state of Arkansas.

How do we value WRP and CRP land? So these are Wetland Reserve Program and Conservation Reserve Program lands. These are lands that the federal government has, started programs of various kinds, to allow the farmer to take various portions of his property that are not being very productive in growing a crop or a timber type of situation, and take them out of production and actually get a reimbursement for taking them out of production and just cycling through.

So, there's certain restrictions, they have to apply, they have to successfully be able to change that use, but there's actually no difference in the valuation. It is actually just a change of use from crop to a pasture situation or from a crop to a timber situation, and so since they're already getting such a break by design with the way we do property taxes for agricultural land, there's no different price discount for WRP and CRP lands.

Finally, what jurisdiction does the Board of Equalization, the BEO, and the county court have to hear appeals of taxpayers who disagree with the county assessor to the assessment on their agricultural land, pasture land and timber land? None. The county equalization board does not have jurisdiction over and may not accept or consider a petition or letter under sub-division (a)(1), towards the adjustment of agricultural land, pasture land or timber land derived by the guidelines and methods set forth by the Assessment Coordination Department.

Because it's not a market value situation, and because the law specifically states that we have to calculate the values for all the agricultural land, and the assessors have to use those values in doing that, there's really no room for the equalization board, by law to step in on those issues.

There may come some discussion at the end of a reappraisal that you disagree with what the assessor or the contractor is said is the use of the property. They said pasture and you say timber and occasionally, there actually maybe a little bit of a disagreement on the soil map, but those matters are best handled by directly contacting your county assessor, the contractor that



works for your county assessor and dealing with it that way, the equalization board can't really help you in any way.

And so, that's it. I guess that we are ready for questions if we have any.

**[Wayne Miller]** Thank you Robert for your clear and concise explanation of how agriculture, pasture and forest lands are valued.

When timber is cut and harvested from timberland or cropland goes fallow, is there a change in the value of the land?

**[Robert McGee]** Just cutting timber off of a timber parcel or pulling the crop out of the ground or harvesting the crop out of the ground, does not make a difference in the use classification for property tax purposes. Timberland even though it's been cut, the assumption is being made that that timberland is going to be growing new timber and starting that 30 to 50 year cycle all over. And so there's no use change with that.

Same with crop, the assumption is that this crop is going to continue to be cropland. Even fallow cropland is still considered crop—fallow is a natural part of the growing process. So, it is still considered cropland.

For a timberland property to be classified over as a pasture land property, the assessor or the contractor that works for the assessor, would need to see signs that you're actually changing the use. The rule of thumb on that is, the stumps have all been bulldozed away and disposed of in one fashion or another, the ground has been graded in one fashion or another. Fencing may or may not have been put up--it's not a requirement for pasture land classification. That kind of a change would indicate an actual change of use, and the assessor or contractor would either pick that up on your next site visit during reappraisal process, or you could actually go in and ask the assessor and notify them that change.

And that brings about another note back to the WRP and CRP lands. If you do change the use of your property by taking cropland and putting it in the Wetlands Reserve Program, planting trees on it, and you've got your success letter from the federal government.

Take that letter into your county assessor and let them know so they can change that use because it will change the valuation level of your property.

**[Wayne Miller]** One final question for Robert. As you have shown us, agriculture, pasture and forest lands are assessed differently than other real estate – based on “use value” as compared to “market value.” How does Arkansas’s method of assessing agriculture land compare with other states?

**[Robert McGee]** Again, that's a very good question. The largest majority of heavy agriculture states--so imagine everything from Texas to North Dakota, from the Rockies, all the way even further east--those heavy ag states that we all know of, almost all of them have some sort of cousin to the way Arkansas does it. We all have a very similar use evaluation system. We may classify fewer soils in the families, we may require different sort of requirements, a Schedule F from the IRS, but everybody kind of has some sort of a break for their agricultural land users because they recognize again the importance of agricultural land to feed, clothe and house us.

**[Wayne Miller]** Before leaving, I would like to provide you with information on how to obtain copies of the publication I referred to in my introduction. The publication is the 2017 Arkansas Agriculture Profile, and is available online at [www.division.uaex.edu](http://www.division.uaex.edu), as shown on the screen. You can also receive a hard copy of the publication from your local county extension agent.

I would like to thank Robert McGee for his presentation today, and for the support of the Arkansas Assessment Coordination Department for collaborating on this project. I would especially like to thank Bear Chaney, Director, and Angela Hill, Deputy Director, for their support and assistance.

Also providing assistance and in the studio today are Mark Wyers, Billy Smothermon and Stephanie Sams.

Also thanks to Vonda Nutt for providing technical assistance for today's webinar, and Tyler Knapp, who will be editing and uploading this webinar to the website:  
[www.uaex.edu/assessments](http://www.uaex.edu/assessments).

Our next webinar will be on personal property assessments, which be on July 20th and the presenter will be Steve Sutterfield, who is the business and personal property manager at the Arkansas Assessment Coordination Department.

Thank you for joining the webinar today, and we hope that you will join us on July 20th.