2022 Mid-South Land Values and Lease Trends Report

Arkansas

Louisiana

Mississippi

Tennessee

ASFMRA

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Serving the Mid South

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- State and national litigation experience
- Appraisals backed by over 30 years of Cooperative Extension Service in Yazoo County, Mississippi
- ASFMRA Accredited Rural Appraiser (ARA)

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- Forestry and recreational tract appraisals
- UASFLA (Yellow Book) Appraisals
- Ag litigation for estate settlements and divisions
- Expert witness at state and national levels
- Agricultural government program identification and application
- Land use consulting

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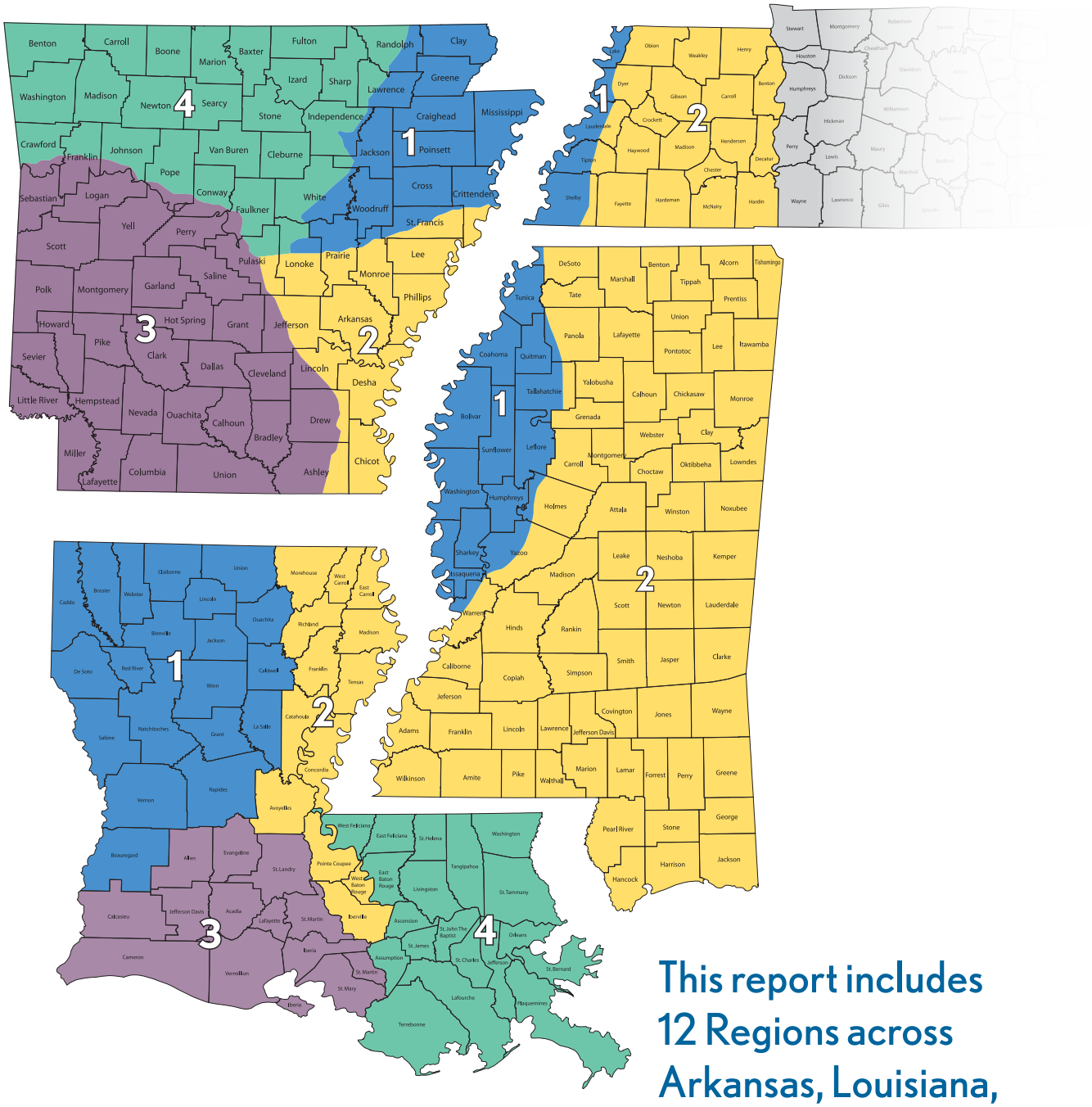

This report includes 12 Regions across Arkansas, Louisiana, Mississippi and Tennessee.

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President's Message

Welcome to our fifth edition of the ASFMRA Mid-South Land Values and Lease Trends Journal. We are very proud that this is our fifth publication and have worked very hard over the past years to continually improve upon our previous editions. Past publications have been very successful, and we hope to continue with our success in this edition. The Mid-South Chapter members have been a great help with these publications. The publication committee has done a wonderful job and worked tirelessly to get current and accurate information to members, clients, customers and other professional associates.

During the past year's farming season the crops in our area started strong. Many were saying that the crops were some of the best-looking they have seen in a long time. Commodity prices were exceptionally high. In June, however, record high rainfall in our area resulted in major flooding and thousands of acres were under water during the main growing period. This, ultimately, resulted in poor yields for many crops in the affected area. Many farmers that had grain booked at an elevator could not meet their bookings and had to opt out of their contracts due to zero production acres. What started out to be a great year turned disastrous.

It is important to note that this book is meant to be a guide and not a basis for making a significant farmland investment, sale, or lease negotiation. This journal will help guide in formulating realistic farmland values and farm lease options within our Mid-South market areas. These values are in no way intended to estimate an opinion of value for a respective agricultural property and only serves as a resource for information about the market area for the reader. We encourage you to contact the appropriate professionals when making such an important and lasting decision. Seeking good advice is never a bad decision. Whether it's professional farm managers (brokers), appraisers or consultants, you can find a qualified professional at www.ASFMRA.org.

Thanks again for being a loyal supporter and reader. The members of the ASFMRA are some of the most dependable and knowledgeable agricultural professionals with whom I've ever been associated. It is my sincere hope that you find the contents of this publication both informative and useful. Good reading and we thank you for your continued support.

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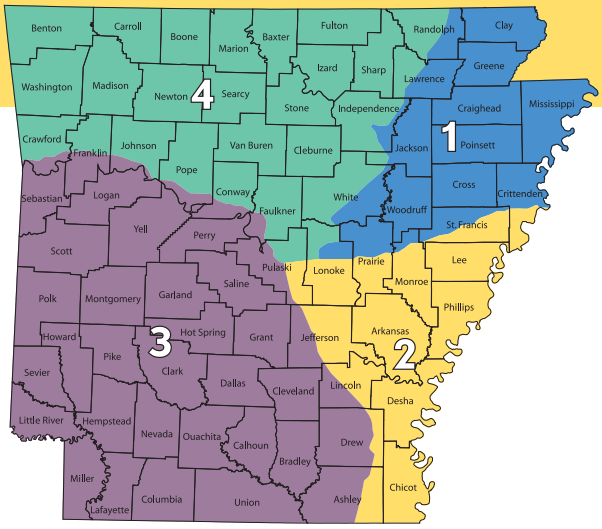
ARKANSAS

Arkansas Land Market –An Overivew



Introduction to Arkansas Section

Prior to our 2021 publication, the row crop areas of eastern Arkansas were divided into seven separate regions. While these divisions allowed for increased specificity about small, clearly-defined market areas, it also created the impression that the individual market areas in eastern Arkansas are static and clearly-definable; this, of course, is not always the case.

As has been stated elsewhere, the purpose of this publication is to provide a *general* guide to land values, not to drill-down into the nuance of each individual market area (for an accurate valuation of a specific piece of property the reader is encouraged to contact an Accredited Appraiser). Starting in the 2021 edition (and continued in this current edition), the seven eastern Arkansas regions were consolidated into two regions: Region 1 will be the eastern Arkansas cropland area situated north of Interstate 40; Region 2 will be the eastern Arkansas cropland area situated south of Interstate 40.

The notable disadvantage of consolidating the eastern Arkansas regions is that the range of values from each region (which will be discussed later) will be extremely wide. The advantage of consolidation deals with the amount of available data points: smaller regions typically offer very few data points over the previous 12-month period (generally speaking, transfers of agricultural property in the Delta occur less frequently than in many of the cropland areas of the Mid-West). The smaller the region, the fewer the data points; in some cases, this can mean only a handful of sales over a 12-month period. Having so few sales in a small region creates issues for a publication which is attempting to track value trends from year to year. In a small region with very few sales, even one or two transfers can have a significant impact on the range of value for that region; this makes it very difficult to spot realistic value trends when comparing one year to another.

Before beginning our discussion, it is important for the reader to realize that while the entirety of eastern Arkansas' cropland has been divided into only two regions, the reality is that there are many smaller submarkets within each region. This publication is meant to serve as a general guide and not a tool to apply values to a specific property.

Continued on next page

Eastern Arkansas (Regions 1 and 2) 2021 Overview

Before addressing each of the two eastern Arkansas regions, we will begin our discussion with a brief overview of the eastern Arkansas agricultural market over the last twelve months. This section will highlight a few of the key points we have noticed and that we believe are important enough to discuss briefly in this publication.

Appreciation

As many of our readers will remember, the last significant period of rapid value appreciation in the eastern Arkansas market began around 2008. In the years leading up to 2008, the ag land market in eastern Arkansas had typically been dominated primarily by buyers who were local owner/operators and local investors. In 2008, market characteristics changed significantly and ushered in a period of strong (and unprecedented) appreciation that would continue for the next six to seven years. Some of the market changes that led to this appreciation are as follows:

Commodity Prices – Government incentives were introduced that encouraged the development of ethanol as a renewable fuel additive. This created increased demand for corn and led to a period of strong commodity prices, particularly for corn.

New Buyers – 2008 also brought new land buyers to the eastern Arkansas market. Argentine investors, initially motivated by political pressures and the possibility of undesirable economic policies back home, began acquiring properties and – in many cases – offering prices that were, at least at that time, considered above-market by many landowners. Over the next several years, the number of Argentine investors grew and, no doubt, contributed to the overall increase in demand for properties in certain areas. At about this same time, institutional investment groups began exhibiting new (or increased) demand for larger agricultural tracts. Over a relatively short period of time, some local buyers in certain areas found themselves competing against these new (both foreign and domestic investors) market participants; increased demand always – at least in the short term – leads to higher prices.

Recession – The "great recession" (caused, in large part, by irresponsible lending practices in the US housing market) began in December 2007 and, by the time it was over, was the longest economic downturn in US history since World War II. This national period of economic uncertainty and negative GDP growth had implications in the Delta agricultural land market as well. For one, the recession motivated more individual buyers to consider agricultural property as a relatively safe investment possibility (further increasing demand). Another (and more significant) implication of the great recession was the response from the Federal Reserve. Hoping to stimulate growth (spending) and discourage saving, interest rates were lowered (the average 2020 rate on a 30 year mortgage is about half what the rate was in 2008). Lower rates (and, just as importantly, the expectation that rates would continue to be lowered) encouraged borrowing and contributed to the rapid appreciations in Delta ag land values between 2008 and 2014.

So how significant was the appreciation between 2008 and 2014? A quick overview of AgHeritage Farm Credit and Farm Credit Midsouth Benchmark data can help answer this question. In the Farm Credit system, benchmark properties are appraised annually in an attempt to track value trends; AgHeritage Farm Credit monitors six row crop benchmark properties, Farm Credit Midsouth has five row crop benchmark properties – between these two Farm Credit associations, all of Arkansas Regions 1 and 2 are represented.

Across all 11 row crop benchmark properties, the following average appreciations were indicated between 2008 and 2014 (these appreciations are calculated based on the twelve months prior; in other words, the appreciation percentage for 2008 represents the 12 months from mid-2007 to mid-2008):

2008: 13.09%	2012: 18.09%
2009: 10.28%	2013: 16.77%
2010: 8.55%	2014: 11.07%
2011: 9.58%	

After these seven years of strong appreciation in the eastern Arkansas rowcrop market, the average appreciation in the years that followed were markedly different:

2015: 3.91%	2018: -0.62%
2016: 2.03%	2019: 1.57%
2017: -0.40%	2020: 2.32%

In our opinion, it is appropriate to have included this discussion on eastern Arkansas land values over the past several years. Understanding the market of yesterday not only provides context for our observations of the market today, but it also allows us to make educated predictions about the markets of tomorrow.

Beginning in 2021, sales activity – compared to 2020 – increased over much of Arkansas' eastern row crop market (there are exceptions to this, of course; in certain areas – most notably in extreme northeastern Arkansas from where Arkansas' highest per acre values are typically reported – sales activity actually decreased). The exceptions notwithstanding, sales activity (particularly in southeastern Arkansas) has been robust since the beginning of 2021.

Between 2019 and 2020, AgHeritage's six row crop benchmark properties indicated an average increase of 0.52%; between 2020 and 2021, those same six properties indicated an average increase of 7.52%. It should be noted that this 7.52% indication was likely muted by the late 2020 sales that were utilized in the valuation; it could be (and the 2022 benchmarks will confirm or deny) that the actual average increase over the AgHeritage row crop territory, since the beginning of 2021, is higher than the benchmark analysis indicated.

It is important to note that only two of the 11 eastern Arkansas row crop benchmarks properties did not indicate an appreciation between 2020 and 2021; interestingly,

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Eastern Arkansas 2021 Overview
continued

these are – by far - the two highest per-acre benchmark properties in eastern Arkansas. Both of these properties are in areas with extremely strong demand from very capable buyers, and also in areas where very few properties were available for purchase between 2020 and 2021. One of these two benchmarks, in fact, indicated a *depreciation* of 2.78% between 2020 and 2021; this was partially because there were very few sales in that particular area coupled with the fact that the properties which did sell were average to slightly-below average quality farms, which leads us into our next market observation:

Scarcity and Discernment

One observation made during period of strong appreciation between 2008 to 2014 deals with the discernment of the buyer. As demand continued to increase over the first few years of that period, the supply of available cropland quickly began to tighten. When demand for a certain good increases quickly and outpaces the market's willingness/ability to either supply or produce more units of the thing demanded, buyers will look for substitutes (an example: if there is a shortage of orange juice which causes its price to increase substantially, the demand for alternatives – say, apple juice – will likewise increase, eventually causing an increase in the price of the substitute itself).

In an effort to satisfy growing demand throughout the 2008 to 2014 appreciation period, some buyers appeared to become less discriminating about what constitutes a good farm versus an average (or even below-average) farm. Consequently (and this trend became more noticeable as the appreciation period lengthened) many average to below-average properties in eastern Arkansas experienced appreciation rates greater than those of higher quality farms (simply due to the fact that the lower quality farms began the period with a lower price per acre relative to the higher quality farms).

However, as the market began to cool (around 2015) values reacted as some might have expected: while the good quality farms, for the most part, held onto the value appreciations realized through the 2008 to 2014 period, many below-average properties found themselves overpriced and, in many cases, lost value gained through the appreciation period. The takeaway is this: in a "normal" market (where supply and demand are closer to equilibrium) and where participants are behaving somewhat predictably, most buyers recognize the difference between a good farm and a below-average property. Over time, appreciations gained by higher quality farms are generally more resilient than rapid appreciations gained by lower quality farms.

After almost seven years of flat to nominal increases, the eastern Arkansas agricultural land market appears to have entered another appreciation period at the beginning of 2021 (only time will tell as to the length and intensity of this particular appreciation period). If demand continues to hold at current levels (or even increase), some buyers will, once again, become less discriminating about price vs quality. In fact, there have already been several examples of this (primarily in the second half of 2021) in the eastern Arkansas market. Not all agricultural properties are of equal quality, and we expect that – once again – below-average quality tracts will likely increase in price at a rate that outpaces the appreciation of many higher quality, more desirable properties. And, as before, these below-average properties will be setup to decrease in value once supply and demand begins to gravitate toward equilibrium.

Seller's Market

We all know someone who has sold their home or purchased one in 2021; we've all heard stories of homes selling for 10 or 15 or even 20% above the asking the price. There are many examples of homes being advertised for less than 24 hours prior to being placed under contract. Several market factors contributed to this housing environment: for one, (and unless you owned a business, particularly in the service industry) many people are in stronger financial positions than they were pre-pandemic; another reason is that interest rates remain low and financing is relatively easy. These and other factors led to an imbalance of supply and demand; in many markets, there simply have not been enough available units to satisfy the demand.

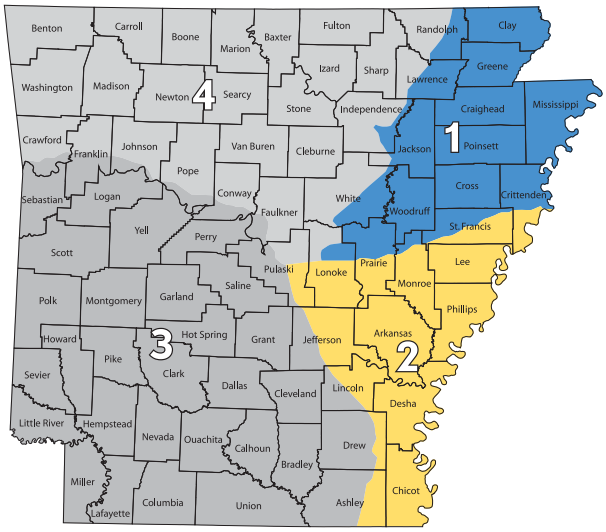
This imbalance is an inflationary pressure, and the exact same thing has been happening in the agricultural land market. Real estate brokers have often commented that "there simply isn't enough inventory available." Marketing times (the time needed to advertise an agricultural property before placing it under contract) shortened throughout the year, and many cropland and recreational tracts would sell as "pocket listings" (meaning that the broker never actually had to advertise the property publicly, but simply reached out to parties they knew would be potential buyers).

There have even been several instances of agricultural and recreational properties selling that were *not for sale*. To clarify, what we mean is that the owner was not looking to sell the property, no broker had been contacted about advertising the property, no rumors were circulating that the property might be available, etc. Regardless, the owner is approached by a potential buyer who makes an unsolicited offer on the property (as you might imagine, the unsolicited offer is oftentimes well-above the defendable market value for the property at the time of offer) and the owner, sometimes, decides to become a seller. Transactions generated in this way are often price outliers when compared to the rest of the data, and are indicative of a true seller's market.

Now that we have discussed some current, general market observations and have provided some context based on previous appreciation periods, we will now turn our attention to the actual land values in eastern Arkansas. Before we discuss Regions and 1 and 2 individually, we must first define the land categories utilized for this section *(the reader should note that the contributors from each state represented in this publication handle their sales data differently; therefore, the reader is encouraged to read through and understand how the land types are divided and defined in each section of this publication).*

Arkansas Regions 1 & 2

Land Classifications



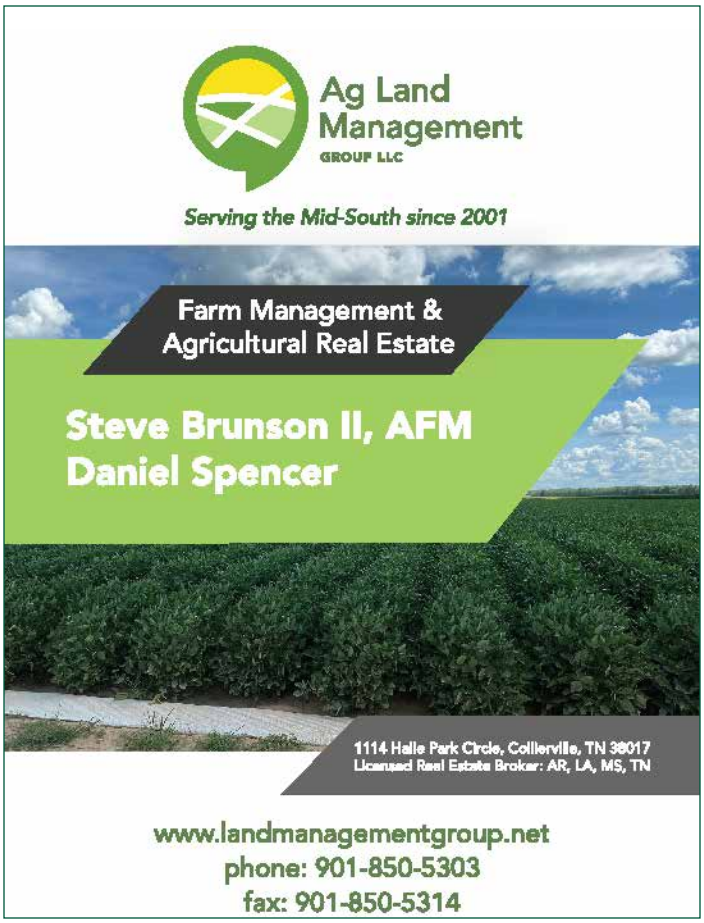
From heavy clay-based soils to sandy silt loams and everything in between, the quality of agricultural acreage in eastern Arkansas is as diverse as the commodities grown there. Availability of good ground and surface water, soil types, adequacy of drainage, topographical differences, ease of management, and local tenant pool are all important considerations when attempting to determine the relative quality of a particular agricultural tract. The differences found between one tract and another can, and oftentimes do, influence value. Although the purpose of this publication is to provide a range of values for the various qualities of agricultural acreage commonly found in the Delta, it should be understood that the *combinations* of value-influencing qualities are nearly infinite: for example, a tract with good soils (positive) could be in a weak groundwater area (negative), a precision leveled tract could be in an area that does not drain well, or a heavily undulating tract with very productive soils could be located in a weak tenant area. The challenge, then, is in understanding how to broadly, and yet properly, define *general* land categories which represent most of the agricultural acreage found in eastern Arkansas.

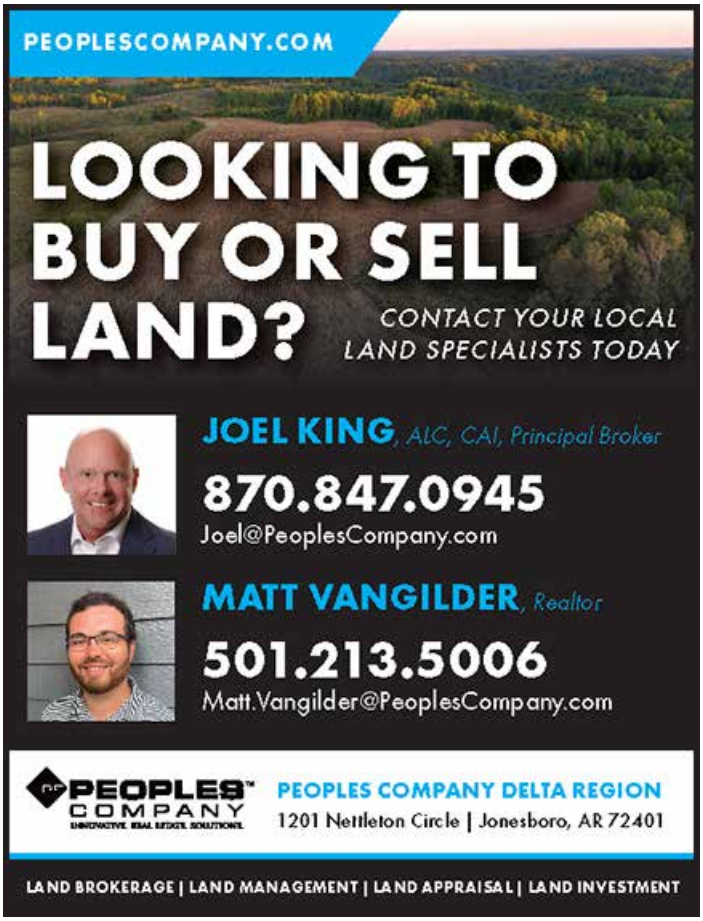
Understanding, then, that the only way to provide a concise, meaningful range for widely varied properties is by employing the use of broadly defined land categories; for eastern Arkansas, we have chosen to use three: Cropland A, Cropland B, and Cropland C.

Cropland A: In general terms, this category can most simply be defined as "the highest quality of cropland found in a given area." Although "quality" is a somewhat subjective measure, we are referring primarily to soil types, irrigation, topography, and overall ease of management. In regard to soil types, Cropland acreage will most often be comprised of good, versatile, silt loam soils that contain Class I and II soil classification. Corn, cotton, soybeans, peanuts, and – in the Grand Prairie Region – rice, are grown successfully on this type soil. (In the Grand Prairie some silt loam soils have a Class III soil classification but due to topography, irrigation, and drainage are still considered to have a Cropland A land classification.) To put another way, heavy clay-based soils (which are generally less-versatile and more difficult to manage) have not been included in the Cropland A category. Cropland A acreage will also be irrigated by a dependable source, either by groundwater or surface water improvements (river or bayou, reservoirs, or tailwater ditches). Cropland A, as for topography, will oftentimes be acreage that has been precision leveled to grade or, in some cases (and at a minimum), acreage that can easily row-water. Drainage is an important concern as well; Cropland A properties have topography and improvements which allow for drainage after heavy rains or overflow (crops are seldom lost due to flooding on Cropland A acreage). When referring to the "overall ease of management," we are including additional characteristics such as ease of access to and throughout the property as well as individual field shape and size.

Cropland B: This represents the broadest land category in the eastern Arkansas discussion. Whereas acreage that qualifies as Cropland A must be "better than average" in each of its primary land characteristics, Cropland B represents acreage which can be average to below average in certain characteristics, while remaining above average in others. For example, a heavy clay-based soil (with a soil classification of Class III or IV which is *not* a characteristic of Cropland A) but that is irrigated and has been precision leveled (both characteristics of Cropland A) would be considered, overall, as Cropland B acreage due to crop production limitations. Another example would be a tract comprised of good, light, versatile soils (a characteristic of Cropland A with a soil classification of Class I or II) but which has topography that makes irrigation difficult or cumbersome (which is *not* a characteristic of Cropland A) would be considered, overall, as Cropland B acreage. In general terms, Cropland B acreage, whether clay-based or silt loam, is typically irrigated. Row crops on Cropland B can be row-watered, but not with the ease of Cropland A tracts. Precision leveled clay-based soils (straight-leveed) are considered high Cropland B quality tracts whereas undulating clay-based soils (contour-leveed) are typically considered average Cropland B quality acreage.

Cropland C: Acreage categorized as Cropland C will be, generally speaking, below average agricultural acreage for a given area. In most cases, the Cropland C category is used to identify non-irrigated tillable acreage. Issues with topography are a common detriment found in this category, and are oftentimes the reason the acreage is non-irrigated. Issues relating to poor drainage can be emblematic of Cropland C as well, and it is not unusual to lose crops due to standing water or to be heavily delayed from planting or harvest. Put in general terms, Cropland C is typically comprised of problematic, non-irrigated, marginal tillable acreage with a soil classification of Class II, II





Arkansas Region 1

Cropland Values

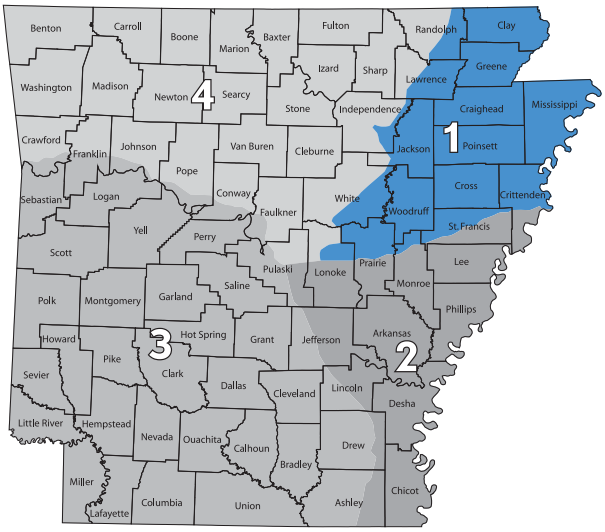
In the following discussion, Arkansas' Region 1 constitutes all the Delta area (the row crop producing area of Arkansas located on either side of Crowley's Ridge) within the state situated north of Interstate 40. This is a very broad region, ranging anywhere from highly productive sandy loam soils that have historically produced cotton to the heavy clay soils of rice and soybean farms.

The highest agricultural land values in Arkansas are located in the northeastern portions of Region 1. This area can be more closely defined as being east of Crowley's Ridge in Clay, Greene, Poinsett, and Cross Counties, all of Mississippi County, and most of Crittenden County. The highest agricultural values within this market are typically found in the northeastern-most corner of the state in eastern Clay County. This area is mostly flat and has a wide range of alluvial soil types ranging from coarse sand to sandy loams to heavy clays. These alluvial soils are high in natural fertility and have historically produced some of the highest yields in the state.

In the earlier years the area east of the ridge grew mostly cotton, but during the 1960s and 1970s many of the areas with clay soils transitioned to soybeans and rice while cotton remained the primary crop on the sandier soils. During the 1990s and 2000s, corn (which had very little commercial presence here prior to this time) displaced cotton as the crop of choice for rotation with soybeans in many areas with sandier soils and began to be grown as a rotational crop for cotton. In recent years acreage devoted to peanut production has increased, also usually in rotation with cotton and corn. Cotton acreage has also increased significantly in the area over the past few years.

This area east of the ridge generally has abundant, shallow, and quality groundwater which contributes to generally higher land values than some other parts of the state. Although this area has a high percentage of irrigated lands, state geologists say groundwater recharge from the Mississippi River and other area rivers replaces most or all of the withdrawal caused by heavy pumping during the growing season (the only exception is land on or very near Crowley's Ridge, where groundwater availability can be sporadic).

The other market to identify within Region 1 constitutes the row crop agricultural area situated west of Crowley's Ridge and runs south to Interstate 40. The cropland in this area ranges from versatile silt loam soils to heavy clay soils. In the market west of the ridge, the higher values have – for the last several years – come from the northern end of this territory (western Craighead and eastern Lawrence



Counties specifically). However, over the past twelve months, sales activity in this area has slowed considerably compared to recent years.

Peanut production has also gained acreage in some of the northern areas of this market; there are large peanut buying points in Portia (Lawrence County), in Pocahontas (Randolph County), and another buying point/processing facility (Delta Peanut) located in Jonesboro (Craighead County). Portions of this market are heavily influenced by the White, Cache, and Black Rivers; recreational demand has increased significantly in last several years with many farmers supplementing their income with recreational leases. The area west of the ridge is a major flyway for winter duck migration and is the prime duck hunting area for northern Arkansas. Duck hunting has an impact on land prices in much of the area, particularly along the rivers. The area economy receives a boost from duck hunters' recreational expenditures each year. Many of the values that comprise the lower end of the range are derived from this area; particularly southern Jackson County, eastern White County, and Woodruff Counties.

The following constitute the range of allocated values for Region 1:

Region 1 Cropland Values (Current)			
	Low	Average	High
Cropland A	$5000/acre	$6000/acre	$7100/acre
Cropland B	$3800/acre	$4600/acre	$5500/acre
Cropland C	$3300/acre	$3700/acre	$4100/acre

Behind the Numbers

The population set was comprised of properties that sold from January 1, 2021 to the end of 2021, were larger than 40 acres in size, and were primarily cropland tracts. 210 sales which occurred in Region 1 were analyzed. The allocated values from each category were sorted smallest to largest, then the top five and bottom five indications

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Arkansas Region 1 Cropland Values
continued

were removed from consideration. The "High" value for each category was calculated based on the average of the remaining 20 highest indications; the "Low" value for each category was calculated based on the average of the remaining 20 lowest indications.

Although Cropland A indicates a High of $7100/acre, it should be noted that this is simply an average of the top 20 value indications; in reality, there were 13 sales that indicated Cropland A values higher than $7100 and ranged from $7179/acre to $8771/acre for the Cropland A.

Next we'll compare the current range with the range indicated from last year's publication:

Region 1 Cropland Values (Last Year)			
	Low	Average	High
Cropland A	$4900/acre	$5500/acre	$6400/acre
Cropland B	$3800/acre	$4300/acre	$4900/acre
Cropland C	$3000/acre	$3500/acre	$3800/acre

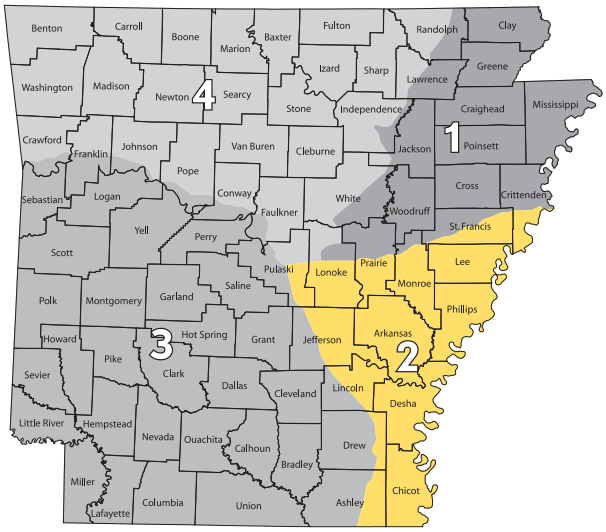
Compared to last year's Region 1 range, each of the categories have increased in value.

Cropland Rents for Region 1

In eastern Arkansas, farm rents are predominately crop share whereby the landowner receives a portion of the crop. In some instances, crop input costs are shared between the landowner and the tenant; however, the predominant arrangement is a "net" share where the landowner does not contribute to input costs. As a general statement for the Mid-South, crop-share leases, over time, have resulted in a higher landowner return than cash rents. 25% net crop share is the most common leasing rate for Region 1. Some landowners, particularly institutional investors, prefer fixed cash rent or "flex" rent. Flex rent usually has a base cash rent with additional rent due at harvest depending on yield and crop price. Cash rents in Region 1 commonly reach $180 per acre for prime, leveled farmland. However, in certain areas where competition among farmers for good farms is high, rents can top $200 per acre. Non-irrigated land with marginal soils are often in the $100 per acre range. Since 2015 (and due to relatively low commodity prices since that time) cash rents have been basically flat/unchanged. However, significant increases in commodity prices during late 2020 could generate cash rent increases for 2021. The reader is encouraged to contact an Accredited Farm Manager for a more specific discussion of the land rental market.

Arkansas Region 2

Cropland Values



In the following discussion, Arkansas' Region 2 constitutes all the Delta area (the row crop producing area of Arkansas located on either side of Crowley's Ridge) within the state situated south of Interstate 40. Like Region 1, Region 2 is a very broad region, ranging anywhere from highly-productive sandy loam soils that have historically produced cotton to the heavy clay soils of rice and soybean farms.

One of the sub-markets within Region 2 that merits some additional discussion is the Grand Prairie area of eastern Arkansas. The Grand Prairie stretches from the north-central part of Lonoke County in the northwest to near the confluence of the White and Arkansas Rivers in the southeast. This market area is a rice, soybean, corn, and wheat producing area. Soils are primarily silt loam to clay soils with Class II or III capability classifications. In much of the Grand Prairie area, the limited availability and depth to groundwater has a significant impact on production and cost of production. Groundwater limitations have brought about reservoirs, water recovery systems, and a large water diversion project from White River. Market participants on the Prairie are primarily local landowner and/or operators or local investors. Stuttgart is the trade center for the Grand Prairie and touts itself as the "Rice and Duck Capital of the World"; recreational duck hunting is a major influence in many parts of the Prairie. Historically, this is an area (when compared to other Arkansas production areas) that typically sees relatively little sales volume year to year.

The rest of Region 2 (located south of I-40, on either side of the Grand Prairie, and all the way into the southeastern corner of the state) is a diverse area: from very good versatile soils to limited heavy clay soils. Over the past twelve months, there has been a significant increase in sales activity in the southeastern portions of the state. This increased activity is immediately following a year (2020) when sales activity across Region 1 was noticeably low. Values across Region 2 have increased, but perhaps none as aggressively as those in the SE portions of the Region.

The following constitute the range of allocated values for Region 2:

Region 2 Cropland Values (Current)			
	Low	Average	High
Cropland A	$4900/acre	$5500/acre	$6100/acre
Cropland B	$3800/acre	$4500/acre	$5200/acre
Cropland C	$3200/acre	$3600/acre	$3900/acre

Behind the Numbers

The population set was comprised of properties that sold from January 1, 2021 to the end of 2021, were larger than 40 acres in size, and were primarily cropland tracts. 143 sales which occurred in Region 2 were analyzed. The allocated values from each category were sorted smallest to largest, then the top five and bottom five indications were removed from consideration. The "High" value for each category was calculated based on the average of the remaining 20 highest indications; the "Low" value for each category was calculated based on the average of the remaining 20 lowest indications.

Although Cropland A indicates a High of $6100/acre, it should be noted that this is simply an average of the top 20 value indications; in reality, there were 12 sales that indicated Cropland A values higher than $6050 and ranged from $6170/acre to $7521/acre.

Next we'll compare the current range with the range indicated from last year's publication:

Region 2 Cropland Values (Last Year)			
	Low	Average	High
Cropland A	$4700/acre	$5100/acre	$5700/acre
Cropland B	$3750/acre	$4100/acre	$4600/acre
Cropland C	$3000/acre	$3400/acre	$3800/acre

Compared to last year's Region 2 range, each of the categories have increased in value.

Continued on next page

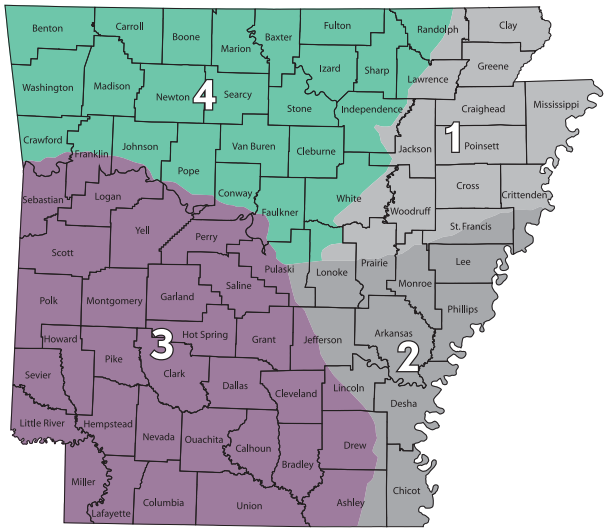
Arkansas Region 2 Land Classifications and Sales
continued

Cropland Rents for Region 2

In eastern Arkansas, farm rents are predominately crop share whereby the landowner receives a portion of the crop. In some instances, crop input costs are shared between the landowner and the tenant; however, the predominant arrangement is a "net" share where the landowner does not contribute to input costs. As a general statement for the Mid-South, crop-share leases, over time, have resulted in a higher landowner return than cash rents. 20 to 25% net crop share is the most common leasing rate for Region 2. In general, Region 2 has an increased number of 20% net rents the farther west one travels from the Mississippi River. Areas like the Grand Prairie have higher water costs and water issues. Grain basis is normally higher at elevators located along the Mississippi River compared to elevators on the Arkansas River near Little Rock, Pine Bluff, or the interior of Region 2. This contributes to higher profitability on farms closer to the Mississippi River. Outside of the Grand Prairie, Region 2 generally has larger operators, larger blocks of land, and less competition for land compared to other areas. All these factors and others may contribute to lower crop share percentages. Some landowners, particularly institutional investors, prefer fixed cash rent or "flex" rent. Flex rent usually has a base cash rent with additional rent due at harvest depending on yield and crop price. Cash rents in Region 2 commonly reach $160 per acre for prime, leveled farmland. However, in certain areas where competition among farmers for good farms is high, rents can top $200 per acre. Non-irrigated land with marginal soils are often in the $80 per acre range. Since 2015 (and due to relatively low commodity prices since that time) cash rents have been basically flat/unchanged. However, significant increases in commodity prices during late 2020 could generate cash rent increases for 2021. The reader is encouraged to contact an Accredited Farm Manager for a more specific discussion of the land rental market.

Arkansas Regions 3 & 4

Land Classifications and Sales



The following analysis addresses Regions 3 and 4. Geographically, these regions are located in Western/ Central Arkansas. Region 3 is located south of Interstate 40 and Region 4 is located north of Interstate 40.

The predominant agriculture in these two Regions are comprised of cattle, timber, swine, and poultry (primarily broilers but includes pullets, breeder hens, and turkeys). The cattle and timber farms are typically individually owned, while the swine and poultry farms are vertically integrated. The poultry sector is the largest income producer of the four.

Beef Cattle

Arkansas' cattle is 1,770,000, with 23,500+ farms producing cattle. Arkansas ranks 12th nationally in beef cows on farms.

Swine

More than 1.2 million pigs are produced in Arkansas annually. The total value of Arkansas pork production exceeds $100 million per year. The only swine integrator in the state is JBS. 95% or more of the swine in Arkansas are grown under contract. Arkansas ranks #18 in swine production in the U.S.

Broilers

Based on 2020 data there were 1,049,700,000 birds produced.

Turkeys

Based on 2020 data there were 31,000,000 birds produced.

COVID-19 Impact on Poultry

The protein sector has been impacted by COVID-19 in agriculture. This is due to the processing plants that each Integrator/Complex own/operate. The processing plants have numerous employees working in close proximity to each other.

To date there have been no processing plant closures in Arkansas. However, the supply/demand chain has been an issue. The supply has outpaced the demand due to school and restaurant closings and the general public not going out to eat.

When the processing plant's freezers reached capacity, it has been reported the flocks were euthanized. On the breeder hen farms, flocks have been pulled early to decrease hatch eggs, which decreased bird placements in the broiler houses. In addition, the out times for the broiler houses are running 45-60 days in some Complexes. This results in fewer flocks for the grower.

The Complexes that have "tray pack" contracts have been the least affected. Tray packs supply the grocery store chains.

The CARES ACT provided some relief for the poultry farmers. Growers that had Small Business Administration (SBA) guaranteed loans, as a part of the CARES ACT, had 50% of their annual payments paid in 2020 and another 25% in 2021.

SBA also implemented the Paycheck Protection Program (PPP). Many growers benefited from this program with an average loan size of $25,000; if the loan funds were used for approved purposes, the loans were forgiven.

The USDA implemented a program whereby if your 2020 gross income was less than your 2019 gross, the grower was paid that difference.

In the second Stimulus Bill there was an amendment concerning UDSA-FSA guaranteed and direct loans. The language in the bill stated that any Socially Disadvantaged (SDA) farmer/grower that had either a FSA guaranteed loan or a FSA Direct loan would be 100% forgiven plus 20% to allow for taxes. As of this date a Federal Court has issued an injunction. In the event the injunction is lifted hundreds if not thousands of farmers/growers will have their farms paid in full.

Further impact to the poultry industry related to COVID-19 is the cost of construction. Pre COVID-19 the cost to construct a broiler house was in the $12.50 - $13.00 / sf range. Based on recent construction bids the cost has increased to $17.50/sf. This equates to a 35% increase which has seriously impacted the cash flow.

In summary, the poultry industry has been impacted by the events of the past two years. To what extent this carries over into 2022 in an unknown at this time.

Continued on next page

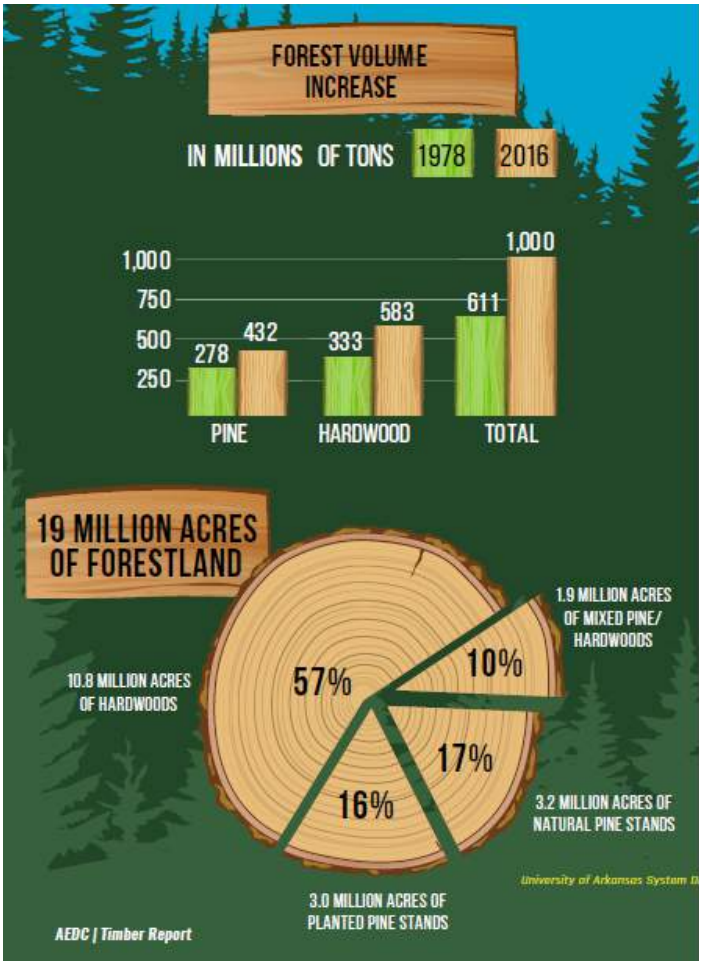
Arkansas Regions 3 & 4 Land Classifications and Sales

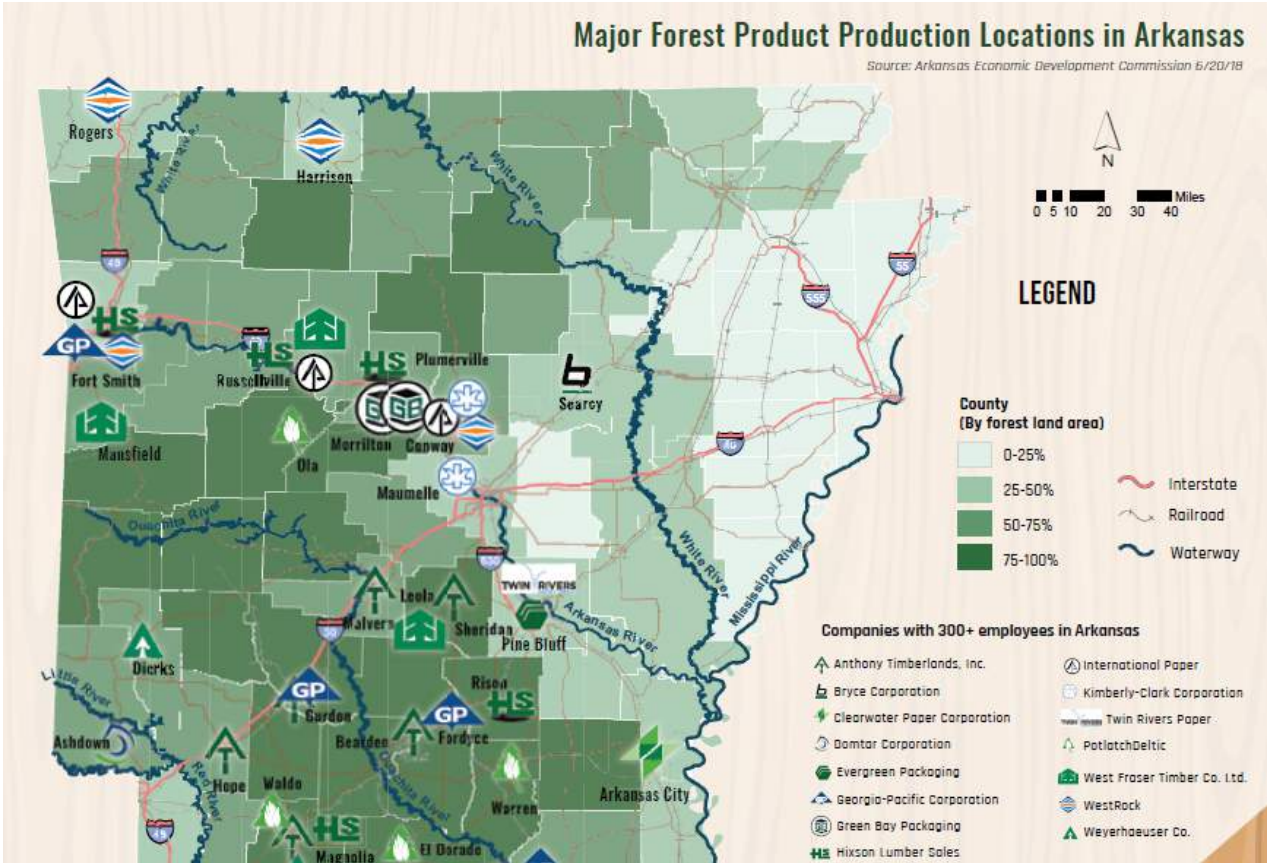
continued

Timber

Arkansas has over 19 million acres of forest land representing 56% of the total land base: 69% is owned by private landowners, 19% is publicly owned (13% is national forest which is largest in the south), and 12% is owned by the forestry industry.

Arkansas is the 4th largest softwood lumber producing state in the U.S., #4 in production of pine seedlings, and #1 in production of hardwood seedlings.





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Arkansas Regions 3 & 4 Land Classifications and Sales
continued

Poultry

It is the leading industry of Arkansas animal agriculture providing 44.6% of the state's total agriculture receipts. This industry provides over 138,000 jobs with 5,800 farms raising some type of poultry.

The state was 2nd in the nation (behind Georgia) in terms of broiler production in 2018 with the production of over 1 billion broilers weighing 7.3 billion pounds and a production value of over $4 billion per year. Benton County, AR is the 7th largest poultry and egg producing county in the U.S.

In 2018, Arkansas ranked 3rd in the US in turkey production and 7th in egg production. Turkey production is concentrated in the northwest and north central areas of the state.

The poultry production is vertically integrated with various Integrators, including but not limited to:

- Tyson Foods
- OK Foods
- Wayne Farms
- Pilgrim's Pride
- PECO
- Simmons Foods
- Ozark Mountain Poultry – Recently purchased by George's
- George's
- Cobb (primary breeding stock)
- Butterball (turkey)
- Cargill (turkey)

Both Regions 3 and 4 encompass a large geographic area and within these regions there are certain areas that the land value is much higher than the average regional values. For example, the very NW portion of Region 4 (Washington and Benton counties) has much higher land values than the eastern or southern boundary of Region 4.

In estimating the average land values for these regions, all available sales data for 2021 was analyzed. The typical make up of a comparable sale has both pasture as well as wooded acreage. In determining the value that the pasture acreage contributes, the following factors are considered for adequacy, quality, and quantity in classifying the pasture quality:

1) Perimeter & cross fencing
2) Cattle working pens
3) Ponds/creeks/rivers for water availability
4) Type/quantity of grass
5) Prevalence of noxious weeds
6) Soil classes
7) Location
8) Topography / Flood zones
9) Access

After considering the above criteria, the pasture acreage is divided between the following categories:

- Pasture "A" – Most desirable, well maintained, and productive pasture in the market area.
- Pasture "B" – Average desirability and productivity in the market area with average maintained.
- Pasture "C" – Below-average desirability and productivity and typically fair to poor maintained.
- Woods – Typically very little to no marketable timber value. In the event there is a significant amount of marketable timber, then a cruise is relied upon.

Based on the sales data reviewed during 2020, following are the *average* land prices for each land class;

Region 3 & 4 Land Values

	Region 3	Region 4
Pasture A	$2,775/acre	$4,850/acre
Pasture B	$2,100/acre	$3,700/acre
Pasture C	$1,795/acre	$3,175/acre
Woods	$1,775/acre	$2,900/acre

As previously mentioned, the poultry farms in Western Arkansas are the largest segment of farm income. Therefore, the following data is in reference to poultry broiler houses and what the average contributory values are. In estimating the contributory value of a poultry house, the most critical piece(s) of information you must have are as follows:

- Actual age of the house and equipment
- Effective age of the house and equipment
- The remaining economic life of the house and equipment

Most farm appraisers in Arkansas use 30 years as the total economic life of a poultry house when applying the above related ages.

While on most improvements on a farm such as a dwelling or shop/shed, the straight line depreciation method is acceptable. For example, a typical dwelling has a physical life of 60 years which would equate 1.7% per year depreciation, most farm sheds and barns have a 40-year physical life or 2.5% annual depreciation. However, using the straight line depreciation method for poultry houses is not only unacceptable, but also wrong.

As proven by years of sales data, the newer the poultry facility, the lesser the rate of annual depreciation. Conversely, as the poultry houses increase in age, the annual depreciation rate increases and eventually levels off at approximately 3.30% per year.

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Arkansas Regions 3 & 4 Land Classifications and Sales

continued

For this reason, the contributory values of poultry houses have been broken down into four age groups;

- 0 – 5 years old
- 6 – 10 years old
- 11 – 15 years old
- > than 15 years old

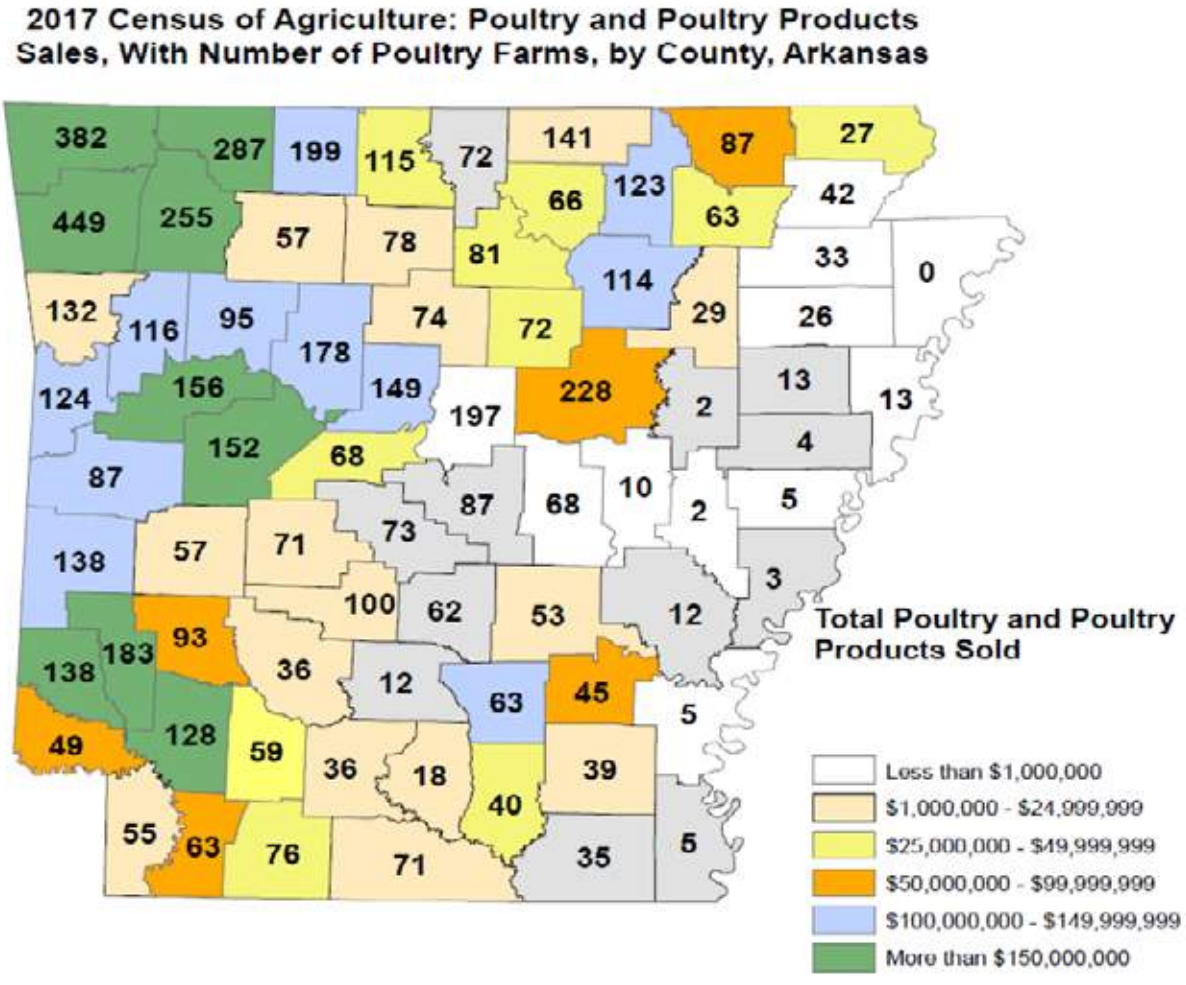
The following data reflects the average contributory value on a square footage basis and the average annual depreciation rate for each region.

Region 3
Contributory Values & Depreciation Rates

	Contributory Value	Depreciation Rate	Negative External
0-5 Years Old	$13.44/sf	2.91%/year	0%
6-10 Years Old	$9.27/sf	3.24%/year	0%
11-15 Years Old	$8.38/sf	3.23%/year	0%
>15 Years Old	$4.46/sf	2.20%/year	0%

Region 4
Contributory Values & Depreciation Rates

	Contributory Value	Depreciation Rate	Negative External
0-5 Years Old	$13.51/sf	2.80%/year	0%
6-10 Years Old	$10.67/sf	3.30%/year	0%
11-15 Years Old	$8.96/sf	3.28%/year	0%
>15 Years Old	$5.64/sf	3.25%/year	0%



Thoughts on 2022

Scott Stiles, University of Arkansas Economist

It seems like there's no downtime or "off season" in farming anymore. As soon as one crop is harvested, it's time to start preparing for next year's crop. Already, projections for 2022 crop acreage have begun to surface. Early indications point to more soybean and cotton acres in the upcoming year. With December 2022 cotton futures currently trading near 90 cents, prices reflect historically tight U.S. stocks and concerns about La Nina's impact on Texas production.

While soybean prices remain somewhat attractive above $12, the real attraction to soybeans may be in the dramatic rise in input costs over the past year. In mid-December, retail Urea prices hovered around $900 per ton, DAP at $840, and potash was $790 per ton. Compared to a year ago, Urea prices have shot up almost 150%, DAP is up 72%, and potash is up 125%. Fertilizer prices have increased due to tightening supplies, supply chain problems, higher freight costs, international trade restrictions, and increased demand driven by higher grain prices.

Not only are fertilizer costs higher, but ag chemicals, and seed costs are projected to increase as well in in 2022. Machinery and land costs are also on the rise. The higher input costs are squeezing crop margins for 2022 in what looks to be the most expensive year on record for growers.

Planning for the 2022 season is more urgent than usual due to rising costs, potential input supply constraints, and commodity price volatility. We at the University of Arkansas remind everyone that our 2022 crop budgets are available at www.uaex.uada.edu. With the dramatic shifts in input costs over the past year, we encourage growers to revisit their cost of production budgets and try to determine potential 2022 margins. Toward this effort, growers should secure input supplies when possible, lock in input prices, and hedge 2022 crop production in order to capture margins and take risk off the table.

While we are expecting positive margins in 2022, they will be greatly reduced from 2021. USDA provided its first glimpse at the 2022 crop season in its recent November Baseline projections. For corn, USDA projects the 2022/23 season-average price to fall to $4.80 per bushel, 65 cents below the 2021 price estimate. Likewise, USDA expects average grower prices to fall in 2022/23 for soybeans, cotton and long-grain rice, with season-average prices projected at $10.50, $0.80 and $12.50/cwt. respectively.

Commodity Price Outlook for 2021 and 2022

Commodity	Unit	2021/22	2022/23
Corn	bu.	$5.45	$4.80
Soybeans	bu.	$12.35	$10.50
Cotton	lbs.	$0.90	$0.80
Long-Grain Rice	cwt.	$13.00	$12.50

Source:
USDA Agricultural Projections to 2031, November 5, 2021.

At face value, USDA's projections indicate crop revenues in the 2022 marketing year will be lower than those in 2021. Higher input costs will squeeze profit margins even more in the coming year. The extent of that squeeze will depend on producers' abilities to manage costs and capture pricing opportunities from the markets. Current futures prices are offering growers opportunities above USDA's price projections for the upcoming year. In many ways this "off season" will be business as usual—dealing with volatility and many variables. For 2022 to have a positive outcome, forward planning is crucial.

Gain a Deeper Understanding with MapRight's Powerful GIS Mapping Software

Steve Roberson, CEO/Founder, MapRight

Professionals in virtually any industry can benefit from the insights that GIS-based mapping software has to offer, but there's a catch: these tools can be far too expensive and complex to actually use. That's why MapRight was built - to take the technical aspects out of GIS so those looking to market real estate, map large properties, and visually analyze spatial data of all kinds without having to first learn the intricacies of this technology. In other words, the purpose of MapRight is to *flatten the technical learning curve,* to help professionals quickly and easily get to the information that serves them best.

Create Fully Customizable Maps

Every property is unique; therefore, every map is different. What is shown on your map will vary depending on what your objective is; those in agriculture may need data on soil and water features, real estate professionals may need information on parcel size and land boundaries, and developers may be interested in learning about land use and surrounding infrastructure.

In order to serve such a wide range of professionals, MapRight allows users to decide exactly what is shown on their maps, so that the maps themselves become a tool for the professional – customizable, selective, and – like the property itself – unique. Unlike many GIS mapping solutions on the market, MapRight maps are versatile and fully customizable, allowing for the addition of project-specific data paired with critical datasets and spatial analysis tools. MapRight empowers the user to become intensely familiar with their project in a matter of minutes.

Users can draw custom shapes, create set-backs, divide land parcels, and measure area and distance with easy-to-use measurement tools thereby precisely depicting property lines, pastures, roads, and more. Labels and icons are easily added and extremely customizable, enabling viewers to spatially understand the most important elements of the property. To further help viewers understand the land, users can even attach drone photography, 360° panoramas, and videos to precise locations on their map.

Combine A Wide Range Of Data Sources

While customizations are a great place to start, customizations alone do not create a strong map — you also need data. While there are massive quantities of data currently in existence, gathering what you actually need for analysis can be challenging. The issue is that this data comes in multiple different formats and from multiple different sources, making it difficult to draw conclusions. MapRight consolidates these data sources, synthesizes and styles them so they are easier to view, and organizes them into a single, interactive map. The result is a professional, easy-to-understand map for your clients and colleagues. The software offers nine base layers, over two dozen GIS layers, in-depth parcel data, near-instant soil reports, and—if you still don't see what you need - you can upload your own data as well.

Build Custom Databases

Maps are uniquely suited to visually analyzing spatial patterns, especially when there is a real-world component to the dataset. On any MapRight map, you have the ability to build custom proprietary geographic databases. These databases give users full control over what attributes they track on their maps, including which details are recorded about each item (such as price, year built, acreage, etc).

Organization is extremely important. To this end, MapRight users can label, style, and color-code items within a certain feature group, allowing them to not only control how data is visually displayed but also making it far easier to identify trends. For example, a user who is keeping track of price-per-acre on properties could easily visualize those pricing differences on their map. Those dealing in real estate even have the option to search parcels by APN number, landowner name, or coordinate location to find parcels that match a query within a selected radius of a property.

Easily Share Your Insights

Regardless of your profession or the intended use of your map, you'll likely want to share your insights and analysis with colleagues/clients at some point: With MapRight, sharing your map with others is easy. Once the map is completed and customized to your satisfaction, you can share it as a high-resolution PDF or PNG, send it as an interactive map via email or text, or upload it to your website with the embed script MapRight provides. The best part is, if at any time you decide to update or edit your map, those changes will appear everywhere — even if the map has already been shared.

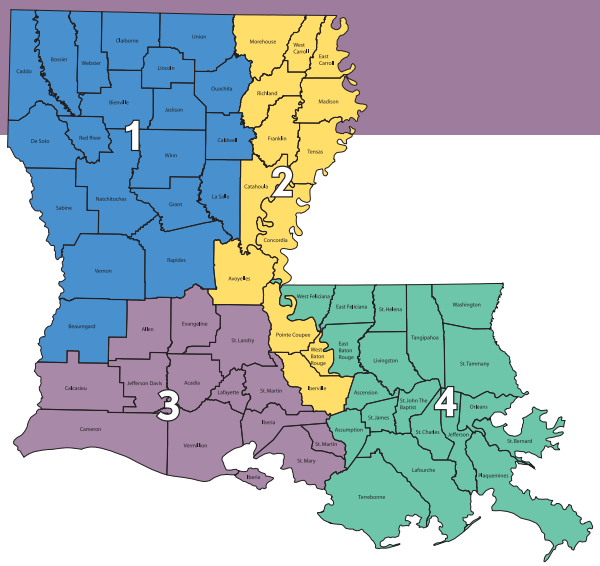
Take Your Maps On The Go

Desktop applications are incredibly useful, but most people can't bring their computers with them when they're in the field. That's why MapRight offers a mobile application for both Android and iOS that retains all the functionality and versatility of the web app. Plus, the mobile app offers a few additional features, as well. You can track your location on the map and save tours, take photos and attach them to your location, save maps to use offline, and even get driving directions to specific points on the map.

GIS-based mapping software is a valuable asset for anyone with a vested interest in the land we live and work on; now you can keep this powerful tool right in your back pocket. To learn more about MapRight and how it will help make your job a bit easier, we recommend signing up for a 7-day free trial of MapRight. It only takes a few minutes to create your first map.

Don't be satisfied with a one-size-fits-all mapping program. There are many software options that simply provide aerial imagery – but with MapRight, your maps can be so much more: MapRight empowers you to easily create the maps *you* want, rather than forcing you to settle for the maps you get. Maps tell a story – MapRight can help you tell a better one.

Louisiana Land Market –An Overivew



Louisiana Agricultural Land Values & Rents

Agriculture is the backbone of Louisiana's rural economy with very diverse cropping patterns throughout the state. Land use is dictated by the topography and Louisiana's 300+ soil types. Elevations range from sea level to about 535 feet above sea level with the average state elevation at about 100 feet. Louisiana's humid, subtropical climate is influenced by the Gulf of Mexico. Summers can be long, hot, and humid while the winters are generally shorter and mild.

By and large, the value of land is determined by the potential value that land can generate. All land types or classes of land have limitations. These limitations may be directly related to a particular soil type, topography, or a combination of other physical features. Climatological factors also play a key role in the available production alternatives given a specific geographic region. The parishes within each of the four geographical Areas in this report share similar traits.

Land Market Areas

Louisiana is the only state in the United States to have civil divisions named "parishes." This was influenced by the predominant religion of both France and Spain, Catholicism. During their rulership in the 1700s and 1800s the ecclesiastical term was adopted and remains today designating 64 civil divisions.

Four distinct Areas within the state are shown on the map above. The Areas were delineated based on topography, soils, climate, cropping patterns, and geographic location. Each Area, though having distinct differences, shares features with adjacent parishes in other Areas.

Agriculture Within the State

Over 50 agricultural enterprises are tracked throughout Louisiana. The data presented in this section was compiled by Louisiana State University's Ag Center. Data from 2019 was the most current data available.

The following chart illustrates the total estimated economic impact of the top ten agricultural enterprises in the state. The contribution of "Gross Farm Value" (GFV) is shown as the muted or lighter portion at the base of each bar. The darker portion of the bars can be thought of as the value added by the downstream processing of each commodity. These processes include LSU's estimation of value generated by the "cleaning, processing, packaging, marketing, and transporting" of the commodities.

In 2019 the Forestry and Poultry Enterprises remained, by far, the top two state enterprises. Combined, these two enterprises totaled over $1.8 billion in Gross Farm Value and an estimated $5.5 billion in Total Value. This represents nearly 50% of the Total Value for all commodities. Both enterprises are found primarily in Area 1.

Forestry's "value added" component is three times that of its base GFV. Significant downstream processes exist in-state which multiply the impact of this industry. Though not to the same magnitude or total dollar value, Poultry and Fisheries downstream processes nearly double their GFV. Sugarcane and Aquaculture also have significant value-added processes within the state.

Data for sales taken from Louisiana Land Bank sales database. Rental rates from Farm Managers and real estate professionals throughout the state. State and parish information was taken from multiple web based sources including Louisiana State University, USDA, and TMS. Timber prices were as published by *Timber Mart South.*

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Louisiana Agricultural Land Values & Rents

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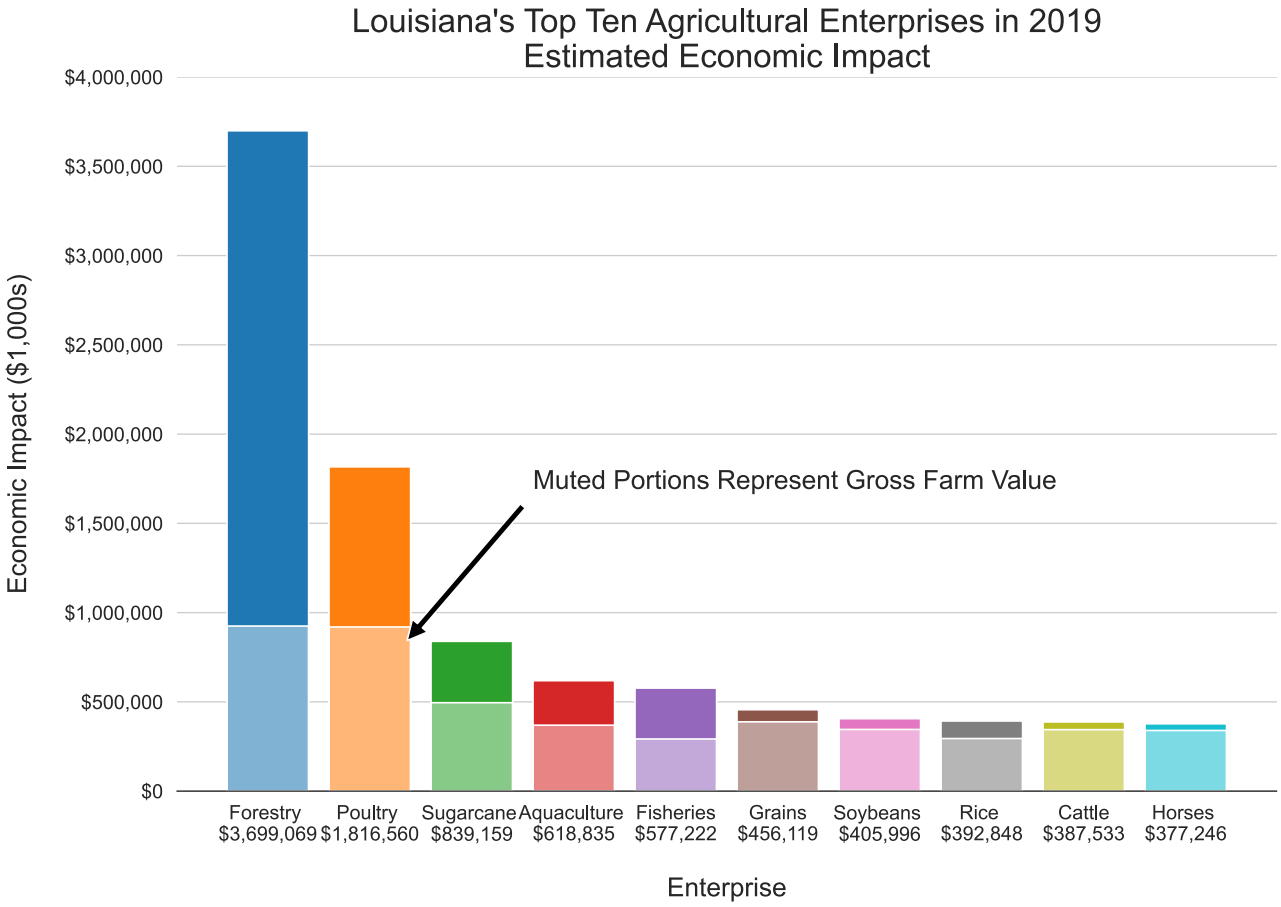


Sales Data

Verified rural sales between December 2020 and November 2021 were used in the analysis presented in the following pages. This analysis only considers the value of the land allocation in any given transaction. The value of any structural improvements was deducted from the sales price as allocated by the appraiser verifying the sale. The high quality of the sales data provides a good representation of bare land values for each classification.

Sales having 10 acres or greater were used in the analysis. This size was selected due to the influence of small ranchettes or larger rural home sites in Areas 3 and 4. A larger cutoff point would have overlooked a key influence in these Areas.

One of five land classes was used to categorize each sale transaction. Where a single transaction represented multiple land classes, the dominant land class was chosen. Some land classes are a general categorization of multiple sub classifications. For example, the class "Irrigated Cropland" represents all irrigated cropland without regard to a property's land forming characteristics. The five land classes are:

Irrigated Cropland: Any form of irrigated cropland is included in this categorization. The cropland may or may not be precision leveled.

Non-Irrigated Cropland: Cropland that did not have the ability to be irrigated at the time of the sale. In some instances, this land may have been precision leveled for drainage purposes.

Pasture: This category includes both improved and unimproved pasture used for grazing or hay production. It also includes those sales of smaller, ranchette-styled properties that are used as home sites.

Recreational: Land in this category is generally bottomland hardwood though some mixed stands are included. The motivations to purchase this type of property are recreational activities such as hunting and fishing. A timber value separate from a land value is seldom considered by buyers and sellers of this property type. This category combines unencumbered woodland, WRP, CRP, and any other type of encumbered property purchased or sold as a recreational property.

Timber: This property type includes upland woodlands purchased as an investment for its income stream. The value of the timber is typically a consideration in these transactions. Some bottomland hardwoods may be included in these sales, but these areas are generally limited and located in Streamside Management Zones. Recreational use is certainly possible on these tracts, but it is not the primary reason the property was purchased.

Louisiana Agricultural Land Values & Rents

continued

Overview

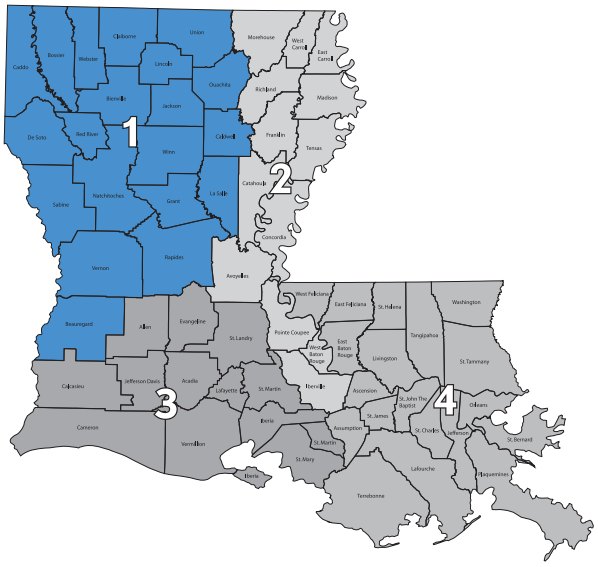
All rental information is quoted as cash rent in dollars per acre unless otherwise noted. Share rents are typical in certain areas for certain crops but, when necessary, they were converted to a cash equivalent realized during the reporting period. The rates quoted should be viewed as "typical" noting that outliers do exist.

Sales transactions were summarized by Area and land class. Each Area table provides a total of all acreage transferred and verified within that land class, the simple average of acres per transaction, the minimum and maximum land class values, the median land class value, and the weighted land class value or sale price. All values or prices are expressed on a "per acre" basis. Agricultural and larger rural properties are typically bought and sold based on this unit of comparison. Only land classes having more than two sales were included in this report.

This analysis was prepared to provide an overview of land values within each Area and land class. It is not intended to provide a valuation tool to be used for any specific property. Location, size, land quality, and other relevant property characteristics can impact the value of any given property.

Louisiana Region 1

Land Classifications and Sales



This Area is primarily an upland timber region and is composed of 20 parishes in the northwest and west central portions of the state. This Area includes Beauregard, Bienville, Bossier, Caddo, Caldwell, Claiborne, De Soto, Grant, Jackson, La Salle, Lincoln, Natchitoches, Ouachita, Rapides, Red River, Sabine, Union, Vernon, Webster, and Winn Parishes. The major metropolitan areas within this region are Shreveport, Monroe/West Monroe, and Alexandria, each of which are an MSA. The Area is bordered on the north by Arkansas, west by Texas, east by Area 2, and south by Area 3. Interstate 49 runs northwest to southeast in this region and Interstate 20 crosses the northern section. Two US Highways, US 165 and 167, also provide north/south arteries through this Area.

Cropland is limited to the Alluvium geology along the margins of the Red River. The Red River extends south and east across this region. Pasture can be found scattered throughout the region, especially where the timbered areas begin to transition to cropland. Bottomland hardwood tracts, used for recreational purposes, are scattered about, especially along rivers, bayous, and creeks/streams. Forestry, poultry, and livestock related enterprises are this Area's top agricultural revenue sources.

This region also contains the "Haynesville Shale" and parts of the "Deep Tuscaloosa," "Austin Chalk," and "Tuscaloosa Marine Shale" plays. This Area has the widest average annual precipitation, ranging from about 45 inches in the northwest to near 60 inches in the south. Louisiana's only National Forest, Kisatchie National Forest, is contained within this region.

Area 1 Summary

Three land classes were reported in this year's summary for "Area 1." Total acreage was lower in both pasture and recreational properties as compared to the previous year. Timberland acreage was significantly higher. All three categories saw a decrease in the number of sales in this area. Median land values for both pasture and recreational sales increased while there was a decline in median timberland values. This decline is attributed to a large increase in the size of the transactions. Appraisers in this area report all land types as being strong with increasing land values.

Region 1 Rents

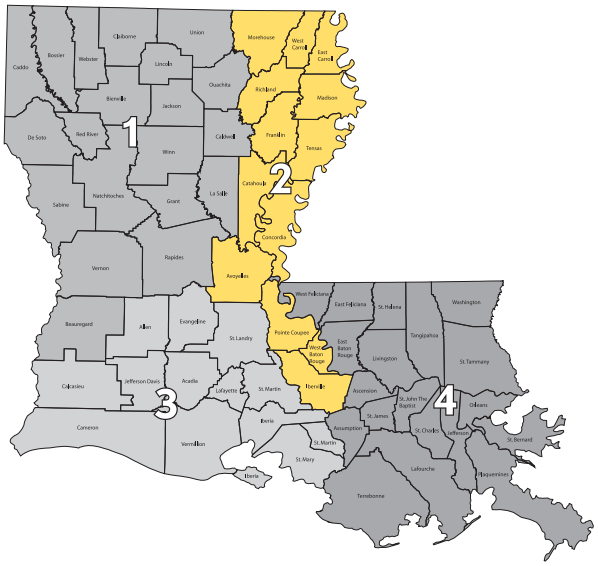
Land Class	Average	Typical Range
Irrigated Cropland	$130	$110 - $150
Non-Irrigated Cropland	$90	$40 - $110
Pasture	$25	$10 - $150
Recreational	$8	$5 - $30

Region 1 Land Values

	Acres		Per Acre Price			
Land Class	Total	Average	Low	High	Median	Average
Pasture	810	90	$2,609	$10,500	$4,924	$4,230
Recreational	318	159	$2,364	$3,150	$2,757	$2,955
Timber	16,463	549	$1,200	$4,001	$2,526	$2,352

Louisiana Region 2

Land Classifications and Sales



The "Delta" is a rural 13-parish area and, due to its fertile alluvial soils, is one of the primary row crop areas in the state. Parishes in this area include Avoyelles, Catahoula, Concordia, East Carroll, Franklin, Iberville, Madison, Morehouse, Pointe Coupee, Richland, Tensas, West Baton Rouge, and West Carroll. This Area is bordered on the north by Arkansas, east by Mississippi and Area 4, west by Area 1, and south by Area 3. Interstate 20 crosses this Area from east to west in the north and Interstate 10 crosses a small portion in the south. The main north/south route is US Highway 65, a two-lane roadway. This Area is devoid of any MSA or large city.

A wide range of cropping options exist in this Area and, in any given year, soybeans, corn, cotton, and rice prevail. Sugar cane is grown at the southern end in Avoyelles, Pointe Coupee, Iberville, West Baton Rouge, and extreme southern Concordia Parishes.

This region also has significant amounts of bottomland hardwoods and, relatively speaking, a small amount of upland timber. The hardwood tracts in the northeast portion of this Area along the Mississippi River are some of the highest valued recreational properties in the state. This region has produced several state record whitetail deer. Fertile soils contribute to the solid nutrition required to produce trophy whitetails. Average annual rainfall ranges from about 55 to near 60 inches per year.

Area 2 Summary

Verified acreage and sale counts for all land classes increased substantially as compared to last year. The average sale size also increased for all but Non-Irrigated Cropland and Pasture. The average size for these two categories were virtually the same as last year. Median values for Irrigated Cropland edged upward despite the large increase in size. Median price for all other land classes were lower than last year. A major contributing factor is that the size of tracts increased. Values for all land classes in this Area are considered strong with values steady to higher.

Both the Irrigated Cropland and Recreational classes saw very large increases in the number of transactions and the acreage. The increase in recreational acreage was primarily due to one large acreage purchase in the Area which was subsequently broken into smaller tracts and re-sold. After absorbing these tracts, good demand remains in the recreational market at this time.

Region 2 Rents

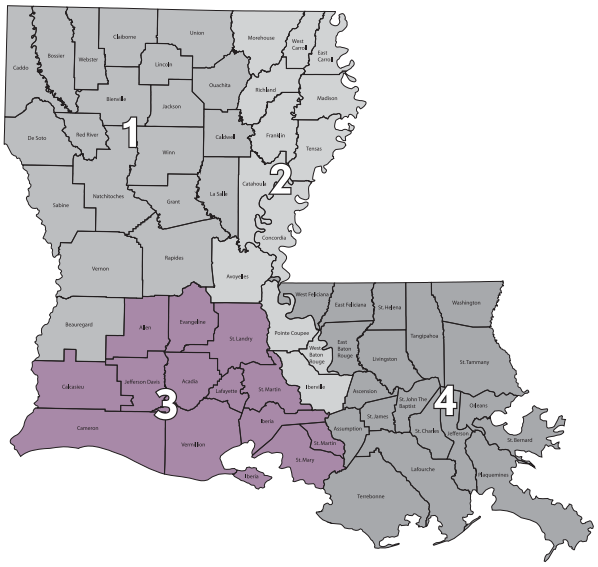
Land Class	Average	Typical Range
Irrigated Cropland	$145	$125 - $200
Non-Irrigated Cropland	$110	$55 - $130
Pasture	$25	$10 - $50
Recreational	$18	$10 - $55

Region 2 Land Values

	Acres		Per Acre Price			
Land Class	Total	Average	Low	High	Median	Average
Irrigated Cropland	25,397	1,270	$3,063	$6,545	$4,638	$4,655
Non-Irrigated Cropland	1,791	256	$2,800	$5,793	$3,225	$3,766
Pasture	305	51	$2,596	$6,512	$3,633	$3,240
Recreational	24,664	987	$1,757	$4,228	$2,500	$2,352
Timber	889	296	$1,525	$2,404	$2,150	$1,770

Louisiana Region 3

Land Classifications and Sales



The "Southwest" Area contains a large amount of prairie type soils within its 12 parishes which include Acadia, Allen, Calcasieu, Cameron, Evangeline, Iberia, Jefferson Davis, Lafayette, St. Landry, St. Martin, St. Mary, and Vermilion. The main commodities are rice, crawfish, sugar cane, and livestock related enterprises. Sugar cane is grown on the eastern side of this region and soybeans are found scattered throughout. The western portion is predominantly rice and crawfish. Aside from agriculture, oil and gas production has historically been a vital part of this Area's economy. Included in this Area are two MSAs: Lafayette and Lake Charles.

This Area is bordered on the north by Area 1, east by Areas 2 and 4, west by Texas, and south by the Gulf of Mexico. Elevations in the southern portion of this region are sea level to below sea level before reaching the Gulf of Mexico. The highest elevations, near 100 feet, are found in the extreme northern portion in Evangeline Parish.

Irrigation is prevalent where rice and crawfish are found but it is not so common in the sugar cane region to the east. The high annual rainfall (over 60 inches) places a priority on drainage for cane and soybeans. Though some cane rents are cash, as shown below, a share rent is also typical for this crop. Share rents for cane are 1/6th or 1/5th of the crop with milling fees ranging from 36% to 40%.

One factor worth noting in this Area is that land values may appear reversed when comparing Irrigated and Non-Irrigated Cropland values. The cause is that a higher value is placed on the more fertile soils where sugar cane is generally grown (non-irrigated, alluvial and loess soils). The lower valued soils present more production challenges or limitations. This is typically irrigated land where rice and crawfish are raised.

Louisiana Highway 14 crosses from east to west in the southern third of this Area, traveling through Iberia, Vermilion, Cameron, and Jefferson Davis Parishes before turning north in Calcasieu Parish. Much of the land just a short distance south of LA 14 is considered "pump off" land. It is common for water to be both pumped onto the property and off the property in this low-lying area. The network of canals is crucial to water management.

Rice fields and marshland are home to over-wintering migratory game birds from the Central and Mississippi Flyways. Many consider this area the premier waterfowl destination in the state. Major cities include Lake Charles in the western portion of the Area and Lafayette in the eastern portion. Interstate 10 crosses this Area and Interstate 49 begins in Lafayette and extends north through the region.

Area 3 Summary

Median values of verified sales for all land classes indicate an upward trend as compared to last year. All classes showed an increase in the number of sales except Irrigated Cropland which declined somewhat. The total acreage sold in all land classes is lower than last year except for the Recreational class. The number of recreational sales increased substantially. Values are strong in this Area for all land classes.

Region 3 Rents

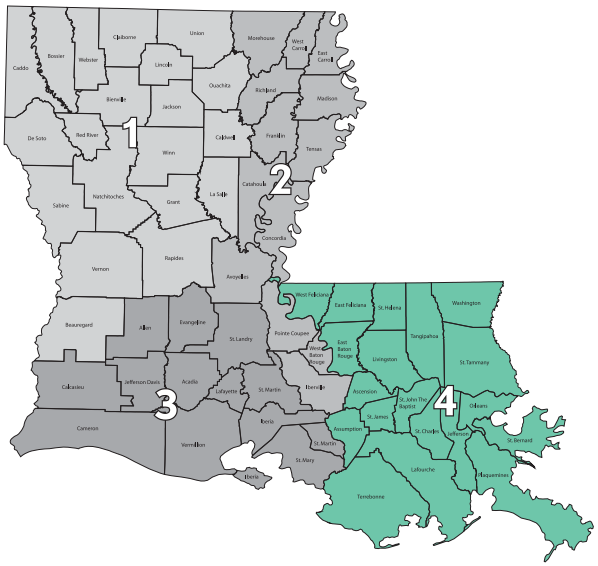
Land Class	Average	Typical Range
Irrigated Cropland	$110	$80 - $140
Non-Irrigated Cropland	$65	$40 - $175
Pasture	$20	$10 - $50
Recreational	$7	$5 - $25

Region 3 Land Values

	Acres		Per Acre Price			
Land Class	Total	Average	Low	High	Median	Average
Irrigated Cropland	208	104	$2,620	$5,565	$4,093	$3,256
Non-Irrigated Cropland	698	116	$2,800	$5,800	$4,091	$4,288
Pasture	570	26	$2,719	$27,323	$6,838	$7,547
Recreational	3,873	387	$1,647	$4,444	$2,899	$2,383

Louisiana Region 4

Land Classifications and Sales



The "toe of the boot" includes 19 parishes: Ascension, Assumption, East Baton Rouge, East Feliciana, Jefferson, Lafourche, Livingston, Orleans, Plaquemines, St. Bernard, St. Charles, St. Helena, St. James, St. John the Baptist, St. Tammany, Tangipahoa, Terrebonne, Washington, and West Feliciana. The region is bordered on the north and east by Mississippi, on the west by Areas 2 and 3, and on the south by the Gulf of Mexico. Land uses in this area are for produce or truck crops, timber production, livestock related enterprises, and sugar cane production. Aside from these land uses, fisheries are a major source of "farm" value due to the extensive coastline in this area around the mouth of the Mississippi River.

Major metropolitan areas of Baton Rouge and New Orleans are found in this densely populated Area. This Area contains four MSAs: Baton Rouge, Hammond, Houma, and New Orleans. Both Interstate 10 and Interstate 12 pass through this Area. Soils on the western side are Alluvium where sugar cane production battles development near the population centers. In addition to Interstates 10 and 12, Interstate 55 begins at La Place and extends north. US Highways 61 and 190 also cross this region.

Area 4 Summary

This Area had the fewest number of verified sales. The number of sales, though small, increased somewhat over last year. Median values for the Recreational and Timber land classes increased and Pasture declined. The decline in Pasture values is attributable the large increase in the size of the sales. Based on conversations with real estate professionals in this Area, values appear steady to somewhat up.

Region 4 Rents

Land Class	Average	Typical Range
Pasture	$30	$10 - $50
Recreational	$20	$10 - $45

Region 4 Land Values

	Acres		Per Acre Price			
Land Class	Total	Average	Low	High	Median	Average
Pasture	1,170	585	$6,000	$6,685	$6,342	$6,858
Recreational	2,976	559	$4,412	$6,300	$5,179	$5,044
Timber	568	189	$4,920	$9,444	$6,376	$5,112

2021 – An Overview

There were increases in the number of transactions statewide except for Pasture sales which were down somewhat from the 2020 level. The average tract size increased substantially for all land classes but Non-Irrigated Cropland whose average size decreased by roughly a third. Median values for all classes were mostly positive. The decrease shown within some land classes were the increased tract size. This negatively impacted median sales prices.

In discussions with appraisers across the state, land values for all land classes are strong with many showing increases over the last year. No appraiser interviewed reported declining values in any of the land classes. Values of some property types in the more rural areas were viewed as steady. The outlook for land values is generally positive heading into 2022 though concerns over higher interest rates and the rising costs and scarcity of farm inputs are of concern to most producers.

Statewide Timber Summary

By Josh Price,
Louisiana Land Bank Forester/Appraiser Trainee

Despite issues with the ongoing COVID-19 pandemic, overall timber prices for 2021 increased slightly in most product classes tracked over prices in 2020. As of July 2021, Forisk Consulting projected the U. S. Housing starts of 1.59 million for 2021, which was up from 2020 actual. As the demand for lumber surged in 2021, higher prices were observed for lumber, resulting in higher stumpage prices paid to forest landowners.

Stumpage prices for all pine products increased in 2021. Hardwood prices for Mixed Hardwood Sawtimber and Oak Sawtimber saw a slight decrease in the stumpage prices, while Hardwood Pulpwood increased slightly. The 1st and 4th Quarter 2020 stumpage prices were slightly higher for hardwood and oak sawtimber prices than the same quarters in 2021. A table of stumpage prices can be seen below.

Forest Industry News

In 2021, there have been several factors that have affected the forestry industry in not only Louisiana, but across the nation; the most pronounced of those are the continuation of the COVID-19 pandemic that began to be seen in early 2020. The state has also seen much widespread damage during the hurricane season, with over 168,000 acres of timberland damaged or destroyed by Hurricane Ida. The following paragraphs are some of the news highlights of the Louisiana Forestry Association in 2021.

Despite the virus and hurricane, forestry news was good for 2021. Brooks Mendell, CEO of Forisk Consulting, a leading forestry research firm said that several improvements are expected for the forestry industry in Louisiana. Mendell listed three positive markers for the state including: new or reopened lumber and biomass facilities and improvements to paper mills; a more balanced growth to drain ratio of Louisiana forestlands; and a push to create more and better carbon markets. One negative, but expected development, Mendell mentions is Forisk's research shows that trucking costs are going up. Mendell mentions driver wages, the largest component of trucking costs and insurance rates are going up.

New forest industry projects announced within the state include the Hunt-Tolko sawmill in Bienville Parish, a Canfor sawmill in Beauregard Parish, and the revival of a Georgia-Pacific sawmill by Interfor in Calcasieu Parish. Weyerhaeuser is also upgrading its Holden sawmill in southeast Louisiana. International Paper announced it will be investing $52.2

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Louisiana Statewide Land and Timber Summary
continued

million in their Bogalusa Mill to increase the efficiency of the mill. Industry figures from these announcements show an extra 870 million board feet manufacturing capacity when all are completed. In late December 2021, the Teal Jones Group announced plans to bring a new southern yellow pine lumber mill to Bossier Parish, although the details of starting the new mill have not been finalized, the company expects to have a production capacity of 300 million board feet at full capacity.

Timber is Louisiana's top-grossing agricultural commodity and is a significant economic driver in the Florida Parishes, where many pine trees snapped as Hurricane Ida unleashed hurricane-force winds. A total of approximately 168,000 acres of trees were affected, costing the industry more than $300 million, according to Kurt Guidry, economist with the LSU AgCenter. About 50% of the total estimated volume of damaged timber was in Tangipahoa Parish, he said.

It is often difficult to salvage timber that falls during hurricanes. Only 1-2% of timber that fell during 2020 hurricanes Laura and Delta could be sold, according to an assessment by AgCenter economists Jinggang Guo and Joseph Chang. There is a short window that downed timber must be salvaged before disease and other quality impacts essentially makes this timber unmarketable. Also, typically when a weather event such as this occurs, the amount of timber that becomes available on the market can overwhelm the market, impacting both the prices received as well as the ability to sell timber.

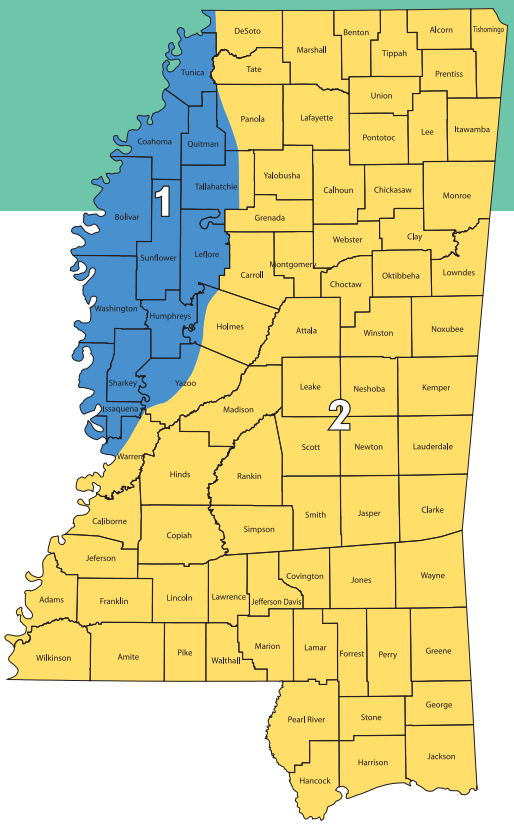
2021 Timber Stumpage Price Trends, as reported by TMS Quarterly Reports

	Quarterly Average Price				Yearly Average		Average Price Change
	1Q	2Q	3Q	4Q	2021	2020	2020-2021
Pine Sawtimber	$22.75	$27.39	$27.55	$26.05	$25.64	$24.49	$1.45
Pine Chip-n-Saw	$17.87	$18.59	$19.64	$19.88	$19.00	$17.28	$1.72
Pine Pulpwood	$7.27	$7.19	$9.31	$9.09	$8.22	$7.18	$1.04
Mixed Hardwood Sawtimber	$31.47	$31.80	$32.33	$35.73	$32.83	$33.74	$(0.91)
Hardwood Pulpwood	$7.55	$8.77	$9.40	$9.48	$8.80	$8.46	$0.34
Oak Sawtimber	$41.09	$42.11	$45.35	$35.73	$41.07	$41.99	$(0.92)

Data for sales taken from Louisiana Land Bank sales database. Rental rates from Farm Managers and real estate professionals throughout the state. State and parish information was taken from multiple web based sources including Louisiana State University, USDA, and TMS. Timber prices were as published by *Timber Mart South.*

MISSISSIPPI

Mississippi Land Market –An Overivew



Introduction

The Mississippi land market has remained stable to increasing over the past year. The story of 2021 is very similar to the story of 2020. Weather played a critical role in the planting and harvest seasons, and yields are slightly off compared to the historically high yields of the past several years. Thankfully, most producers were able to realize average yields despite the adverse weather conditions. Interest rates have played a key factor in the activities of the market. Many landowners took advantage of lower interest rates to refinance older debt and position themselves for additional land acquisitions. Inventories of land for sale has been short in most areas and compounded with increased demand, there was upward pressure on price. Demand for high quality, highly improved farms is as strong as ever.

In this 2021 study of land values, the sales used in this analysis occurred from January 1, 2021 through mid-November 2021. Although, the sales data may not include all sales that occurred during 2021, the sample used in this analysis is considered to be representative of the market throughout Mississippi.

As previously discussed, the state has been divided into two regions, the Mississippi Delta Region and the Mississippi Hill Region (Non-Delta). The counties and land classifications for each region have previously been discussed in the land classification section. All sales that were considered to be outliers were removed from this analysis. Also, all sales below 20 acres were removed as these sales typically have other influences that may alter values. Statistical analyses were performed on the sales in order to determine the average value for each land classification as well as lower and upper confidence levels. The lower and upper confidence levels were determined based on a 95% confidence level. That is with 95% certainty the true mean should fall within the lower level and the upper level.

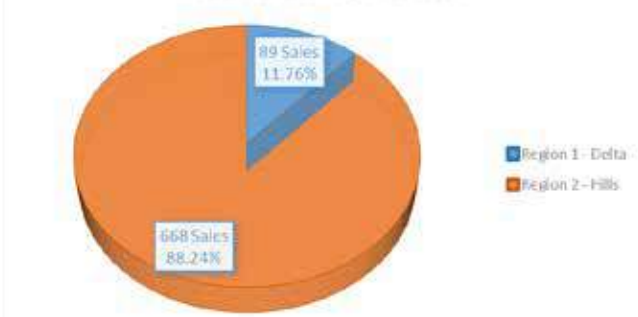
Below is a pie chart of the sales per region in 2021. As shown, there are far fewer Region 1 – Delta sales as compared to Region 2 – Hills. Region 1 sales totaled 89 sales and represented 11.8% of the transactions that occurred in the data used in this analysis. Region 2 sales totaled 668 sales and represented 88.2% of the transactions that occurred in the data used in this analysis.

Below is a table showing the number of sales reported over the past five years for this study. Overall, sales have been climbing since the time of the beginning of this study in 2017.

Number of Sales Reported	2017	2018	2019	2020	2021
Region 1	90	64	65	66	89
Region 2	335	349	462	466	668

Below is a pie chart of the total value of the sales per region. Although, there are far fewer sales observed in Region 1, the values associated with the land in Region 1 are much more significant than the land values in Region 2. As a percent of value, Region 1 is a much larger portion of the sales data than when considering the number of sales as compared to Region 2. As with the total sale numbers, the percentage of value for each region was nearly the same from 2019 to 2020. Region 1 for 2020 was 44.6% and was 36.6% for 2021. Region 2 for 2020 was 55.4% and was 63.4% for 2021. The slight change from 2020 as compared to 2021 is primarily attributed to the increase in sales in Region 2.

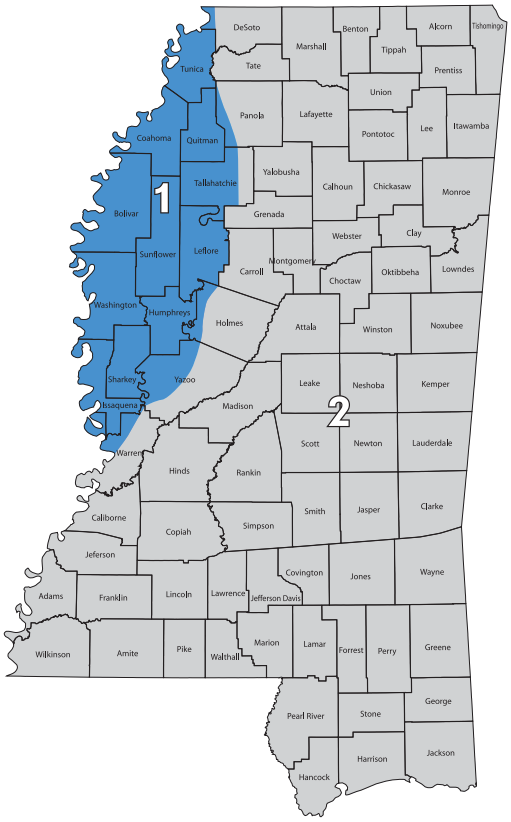
2021 SALE NUMBERS



TOTAL VALUE OF SALES

Mississippi Region 1

Land Classifications and Sales



Land Uses

Irrigated Cropland A

Precision leveled, flood irrigated, straight levee cropland with any soil type. Typically, these soil types contain heavier clay soils that are primarily used for grain production. Although there will be properties with lighter soils that have been precision leveled, this is a rare occurrence in this market and is not typical practice. This land classification is considered to be highly improved and is typically land formed. Land forming is completed by grading the property to a 0% grade to a 2/10ths of an inch per 100 foot slope. This grading allows for more uniform irrigation and drainage. Typically less water is required to irrigate this land classification as the topography is completely leveled or on a very slight grade. As previously stated, these soils typically are heavier clay soils. Crops such as rice, soybeans, sorghum, wheat, and other small grain crops are planted on this land classification. If managed properly and because these soils can efficiently be irrigated, yields on this land classification are above yearly averages, depending on growing conditions.

Irrigated Cropland B

Graded, furrow irrigated cropland with any soil type. This land classification can contain any type of soil. This land classification may often have some undulation and is not conducive to precision leveling; however, the land classification can be irrigated through gravity flow down the crop rows through the natural lay of the land or with the help of limited dirt work. By using the natural topography of the land to irrigate, the owner/operator can save the large costs of precision leveling the property. This method of irrigation is not as efficient as precision-leveled properties, but the lost efficiency is offset by the large cost of precision leveling. Typically, if this land classification contains Class I and II soil types, the property would be planted in cotton, corn, or possibly soybeans. If this land classification contains Class III and IV soil types, the property would be planted in soybeans, sorghum, wheat, and other small grain crops. Rice can be planted on this land classification, but conventional, contour levels will need to be pulled in order to properly irrigate the rice and maintain water levels.

Irrigated Cropland C

Pivot irrigated cropland with any soil type. This land classification can contain any type of soil. This land classification often has gently rolling topography with various slopes. It is usually not cost effective to precision level this land classification as the cost incurred would far exceed the gain in land appreciation from the precision leveling. This method of irrigation is low cost and often the only possible way to irrigate the property due to its topography. If this land classification contains Class I and II soil types, typically the property would be planted in cotton, corn, or possibly soybeans. If this land classification contains Class III and IV soil types, the property would be planted in soybeans, sorghum, wheat, and other small grain crops.

Non-Irrigated Cropland

Non-irrigated cropland with any soil type. This land classification can contain any type of soil and often has gently rolling topography with various slopes. It is usually not cost effective to precision level this land classification as the cost incurred would far exceed the gain in land appreciation, especially if this land classification has not had a center pivot installed for irrigation purposes due to field shape or small size. If this land classification contains Class I and II soil types, the property would typically be planted in cotton, corn, or possibly soybeans. If this land classification contains Class III and IV soil types, the property would be planted in soybeans, sorghum, wheat, and other small grain crops.

Recreational Land

This land classification contains property types typically used for recreational purposes. These property types include, but are not limited to, Conservation Reserve Program (CRP) land, Wetland Reserve Program (WRP) land, Woodland, sloughs, bayous, and abandoned catfish ponds. The property type containing CRP is usually planted in native hardwoods but may be planted in grasses and pines. The Conservation Reserve Program is administered by the Farm service Agency. This property type usually

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has been enrolled in the CRP program and removed from agricultural production. In return, the landowner is paid per acre by the Farm Service Agency since the land is not in production. This property type is usually enrolled in CRP to control soil erosion, improve water quality, and enhance wildlife habitat. Contracts on this property type typically run 15 years. The property type with a Wetland Reserve Program (WRP) is typically planted in native hardwood trees. The WRP is administered by the Natural Resources Conservation Service (NRCS). The WRP program was established in order to protect, restore, and enhance wetland areas. Most of the time WRP contracts are perpetual. All types of recreational land throughout the Mississippi Delta have strong demand as the Mississippi Delta is often considered the premier hunting destination in the state. Properties with proven duck hunting history or those that are in areas with a proven hunting history usually carry a premium. Duck hunting properties are considered one of the most sought-after recreational properties in the Mississippi Delta.

Sales

For the Delta Region, 89 sales were analyzed. The table below indicates the number of sales for each land classification, the average acreage for each sale, the average value per acre, a lower value range and an upper value range. It should be noted that 95% of all properties should fall within the stated lower confidence level and upper confidence level. The attributes of a given property will dictate its value. These attributes include, but are not limited to, land forming, soils, field size, non-productive acreage, and location. Some attributes are more heavily valued by the market than others.

Region 1 – Delta

Counties included: DeSoto, Tunica, Coahoma, Quitman, Panola, Bolivar, Sunflower, Tallahatchie, Leflore, Holmes, Humphreys, Yazoo, Warren, Sharkey, Issaquena, Washington

Total Sales for 2021	89				
Land Classifications	**Number of Sales**	**Average Acreage**	**Average Value per Acre**	**Lower Confidence Level**	**Upper Conficence Level**
Irrigated Cropland A	16	188.56	$5,608.50	$5,086.86	$6,130.14
Irrigated Cropland B	20	389.35	$4,995.93	$4,577.94	$5,413.92
Irrigated Cropland C	7	232.86	$5,450.00	$4,929.56	$5,970.44
Non-Irrigated Cropland	38	102.82	$3,947.97	$3,634.55	$4,261.39
Recreational Land	82	182.52	$2,625.02	$2,434.77	$2,815.27

- There were 16 sales analyzed for Irrigated Cropland A. The average sale size was 188.56 acres. The average value per acre was $5,608.50 per acre. According to statistical analysis with 95% certainty the true mean of all Irrigated Cropland A should fall within $5,086.86 per acre to $6,130.14 per acre.
- There were 20 sales analyzed for Irrigated Cropland B. The average sale size was 389.35 acres. The average value per acre was $4,995.93 per acre. According to statistical analysis with 95% certainty the true mean of all Irrigated Cropland B should fall within $4,577.94 per acre to $5,413.92 per acre.
- There were 7 sales analyzed for Irrigated Cropland C. The average sale size was 232.86 acres. The average value per acre was $5,450.00 per acre. According to statistical analysis with 95% certainty the true mean of all Irrigated Cropland C should fall within $4,929.56 per acre to $5,970.44 per acre.
- There were 38 sales analyzed for Non-Irrigated Cropland. The average sale size was 102.82 acres. The average value per acre was $3,947.97 per acre. According to statistical analysis with 95% certainty the true mean of all Non-Irrigated Cropland should fall within $3,634.55 per acre to $4,261.39 per acre.

The number of cropland sales throughout the Mississippi Delta, as well as all of Mississippi and the entire nation, has been down over the past several years. With commodity prices being slightly higher this year as compared to previous years, there is a lot of competition in the market for properties. Often times in the market, many properties do not come to market as long-term tenants are approaching landowners to purchase their properties off the market.

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Mississippi Region 1 Land Classifications and Sales

continued

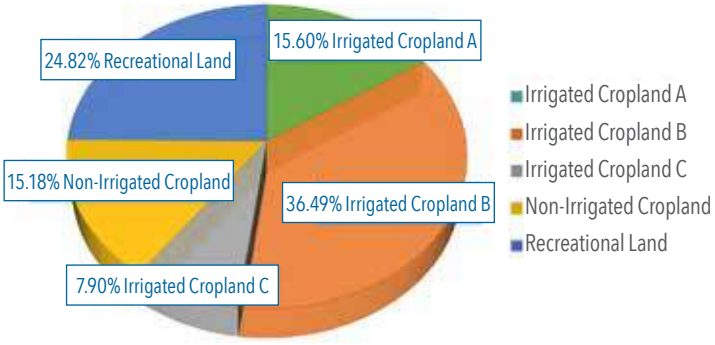
Off-market offers are typically very competitive as the tenant is not wanting any outside competition for the property. Based on the observed sales data, it appears as though local producers still have strong interest in any available farmland. This is very apparent when looking at the observed number of sales for each land category in the above grid. Irrigated Cropland A and B have substantially more sales than that of Irrigated Cropland C. Overall, the cropland values are stable to increasing in value. Cropland of the Mississippi Delta remains to be seen as a solid investment in the eyes of many investors when compared to the high cropland values of the Mid-West or Corn Belt. Investors are often interested in purchasing large blocks of farmland that typically only a few market participants would be competitive in the purchase of.

- There were 82 sales analyzed for Recreational Land. The average sale size was 182.52 acres. The average value per acre was $2,625.02 per acre. According to statistical analysis, 95% of all Recreational Land should fall within $2,434.77 per acre to $2,815.27 per acre.

The recreational properties' market has remained strong over the past several years. Property values can range greatly depending on area and location. Often times, properties that are known for duck hunting or have a proven duck hunting history bring premiums in the market when compared to other properties. Based on the current market, recreational land should remain strong for the foreseeable future. Based on sales data it appears as though buyers are willing to give more for recreational properties enrolled in the Conservation Reserve Program (CRP) as these properties have governmental payments associated with any enrolled acres.

The pie chart below shows a breakdown of the percent of each land category as based on total value observed in the market. Overall, Irrigated Cropland B has the largest share of the market when considering value. This is further validated as this category had the most sales with regards to the irrigated cropland categories. The graph also shows that

PERCENTAGE OF VALUE
OBSERVED IN THE MARKET - REGION 1



Irrigated Cropland C has the smallest market share, which is validated by the fact that it has the fewest sales in the region.

The following table contains the observed cropland rents for Region 1. These numbers have been provided by local farm managers that have several properties throughout the Region 1 area. Delta cropland rental rates are slightly up from a year ago. Irrigated ground ranges from $150 per acre to as high as $250 per acre, with an approximate average of $175 per acre. The variance among irrigated land is directly attributed to several qualities, those being layout and design of a farm property, soils, drainage and base acre allocation. Likewise, dryland rents have slightly increased as well. The range for dryland rents is $100 to $175, with the average dryland rent running approximately $125 per acre. Quality of soils, locations, soils and base acres are all contributing factors. Long-term, lower commodity prices could put some downward pressure on land rents, especially on dryland properties. Some farm managers are beginning to see more interest in landowners implementing a minimum cash rent or share lease type arrangements also known as flex rents. Under a minimum flex share lease the landowner is guaranteed a minimum cash rent but can also participate when yield, price, or both exceed baseline projections.

Region 1 – Delta			
	Average Rental Rate	**Minimum Rental Rate**	**Maximum Rental Rate**
Irrigated Cropland	$175	$150	$250
Non-Irrigated Cropland	$125	$100	$175

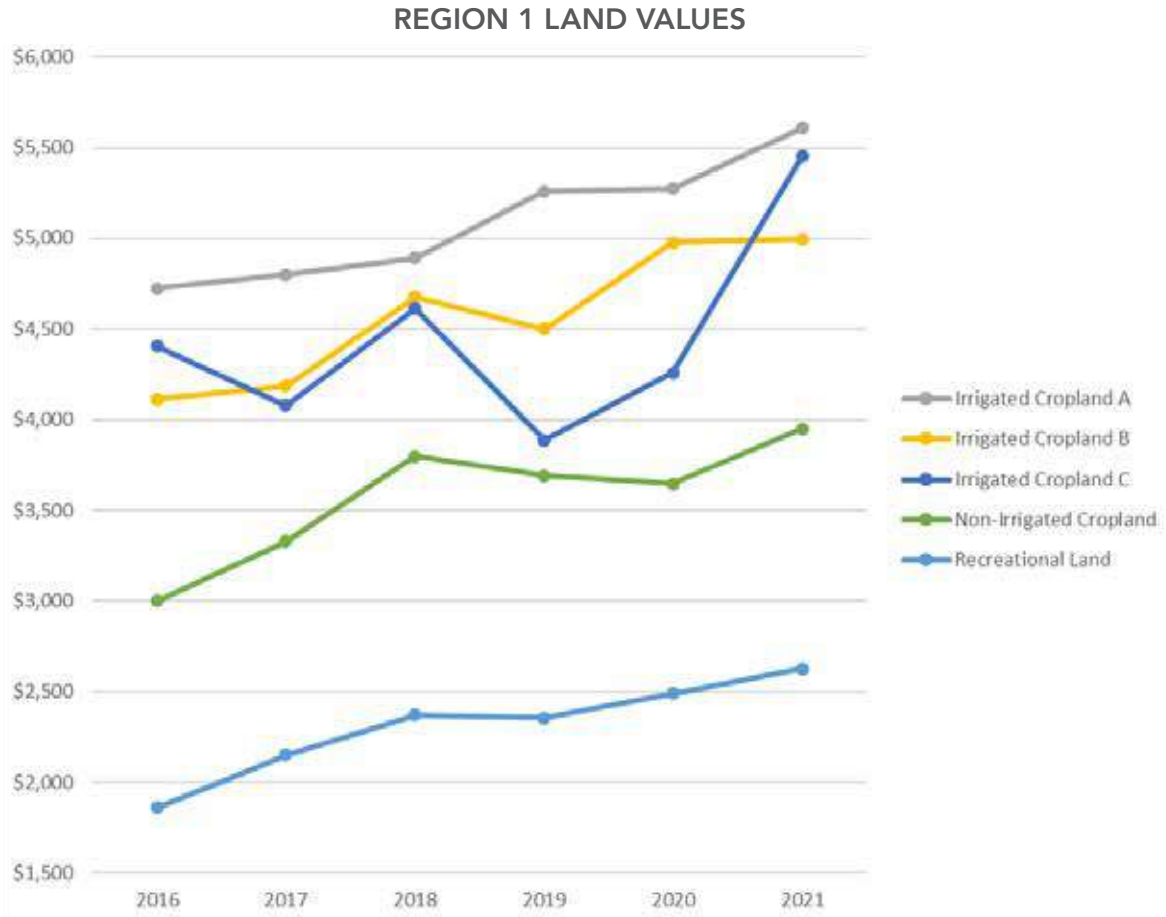
Recreational properties are not included in this data as rental rates can vary greatly and have been observed from $8 per acre to over $50 per acre. Less desirable properties that may only be used for deer hunting typically have lower rents; whereas, highly desirable properties that are known for excellent deer hunting may demand rents as high as $25 per acre. Duck hunt properties or mixed-use properties demand higher rents, and properties with a proven duck hunting history may command rents as high as $50 per acre or possibly higher.

According to the sales data, there has been a steady climb in land values over the course of the past five years. These values can be strongly influenced by the number of sales available in the region. Currently, demand in the market appears to be at all-time highs and compounding this demand is lack of inventory available and interest rates that are still low. There is competition between local landowners and investment groups for top quality farmland. The prices observed in the market are reflecting this competition. The

Continued on next page

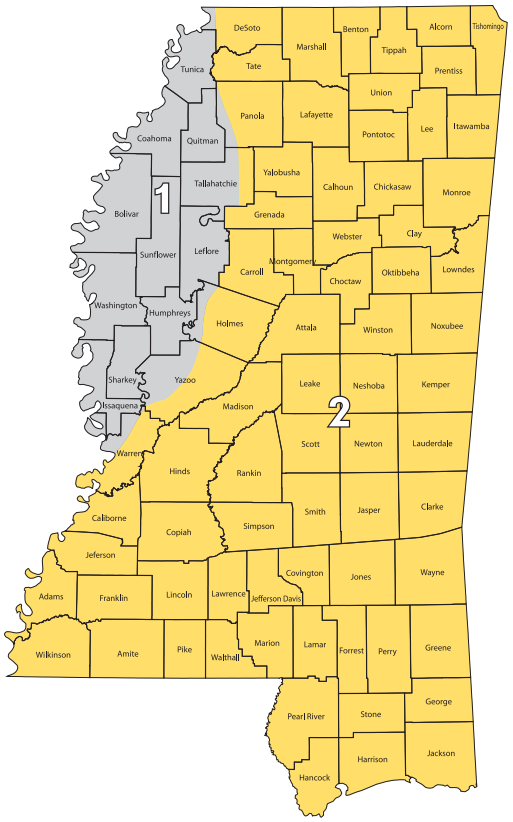
market appears to still show preference towards farms that are highly improved, highly efficient, and highly superior soils, and the market's preference is reflected in price received in the market. Irrigated Cropland A is showing a strong increase from 2020 to 2021 of nearly 6.5%. Irrigated Cropland B remains very stable and is showing little change from 2020. It is possible that some of these properties were purchased to improve (ie precision leveling). Irrigated Cropland C only had seven observed sales used in this analysis. This is not sufficient data to project any type of market change with any real accuracy and may indicate a sporadic market. Nevertheless, the findings have been reported. Non-irrigated Cropland is showing a strong increase from 2020 to 2021 of approximately 8.25%. Over the past several years, as fields have been graded or precision leveled, Irrigated Cropland C (pivot irrigation) has become increasingly less prevalent in the Mississippi Delta. With a majority of the remaining pivot irrigated cropland in the Mississippi Delta, it is likely cost prohibitive to furrow irrigate or precision level. Hence, there has been fewer and fewer sales of pivot irrigated cropland in the Mississippi Delta. The recreational land market in this region has remained strong. Recreational land prices are often believed to follow the overall health of the economy and is often tied to discretionary income. The recreational land market has held stable to increasing from last year. Demand for recreational properties in this region is driven by market participants from across the state, not just locals, and this demand has driven prices higher and higher.

Region 1 – Delta						
Land Classifications	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Irrigated Cropland A	$4,723	$4,799	$4,890	$5,259	$5,275	$5,609
Irrigated Cropland B	$4,113	$4,185	$4,676	$4,500	$4,975	$4,996
Irrigated Cropland C	$4,406	$4,078	$4,612	$3,887	$4,257	$5,450
Non-Irrigated Cropland	$2,999	$3,328	$3,797	$3,690	$3,646	$3,948
Recreational Land	$1,859	$2,150	$2,372	$2,353	$2,491	$2,625



Mississippi Region 2

Land Classifications and Sales



Land Uses (Hills/Non-Delta)

Cropland

Cropland in this region varies greatly depending on what portion of the state the property is located in. Bottomland cropland may be shoestring cropland along creeks and rivers with smaller field sizes. Upland cropland may vary greatly in topography such as the sweet potato soils in Calhoun and Chickasaw Counties. Cropland may also have fertile prairie soils such as is found in Lowndes and Noxubee Counties. This land classification represents all acres in agricultural row crop production outside of the Mississippi Delta. Soils may vary from Class I and Class II with crops such as cotton, corn, and possibly even sweet potatoes, to Class III and IV soils that typically have crops such as soybeans, sorghum, and wheat. Topography can cause a large difference in productivity as steeper grades may have erosion control problems. The Conservation Reserve Program (CRP) is an alternative for cropland acreage with these production issues.

Pasture

This land classification is used primarily for livestock or hay/silage production. This land classification would likely be fenced and possibly cross-fenced for grazing purposes. Topography can range from nearly level to rolling. Areas with greater slopes may need monitoring for soil erosion.

Woodland

This land classification is primarily recreational in nature. This classification means the market does not see timber value and more emphasis is placed on the recreational and/or rural residential aspects of the property. If the timber were to be severed from the land, the residual land plus the amount of timber harvested would not be equal to the land plus timber prior to harvest. Land values in this classification may be driven by proximity to areas that are known for excellent recreational opportunities or are desired for their rural residential appeal.

Timberland

Property in which the market participant values the timber located on the tract. Timber is actively being managed or the buyer plans to harvest the timber in the future. Recreational influences may still apply as there are recreational influences on most timbered acreage throughout the state. Timber stands may consist of pine plantation (various ages), hardwood pulpwood and sawtimber stands, natural mixed stands with both pine and hardwood, or recent cutover tracts. In this land classification, the timber has been valued by the purchaser of the tract, and the residual value has been placed on the bare land. In the analysis of this land classification, only the bare land value has been considered as timber values can vary greatly depending on species, age, wood product, or location. Land values in this classification maybe driven by proximity to sawmills or other wood product industries.

Sales

For the Hill Region, 668 sales were analyzed. The table below indicates the number of sales for each land classification, the average acreage for each sale, the average value per acre, a lower value range and an upper value range. It should be noted that 95% of all properties should fall within the stated lower confidence level and upper confidence level. The attributes of a given property will dictate its value. These attributes include, but are not limited to, soils, property size, land mix, non-productive acreage, and location. Location can play a large role in the value of a particular property, especially when considering proximity to large metropolitan areas. Some of the sales observed around these large metropolitan areas were removed from this analysis as these sales can vary in value greatly. Some attributes are more heavily valued by the market than others.

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Mississippi Region 2 Land Classifications and Sales

continued

Region 2 – Hills

Counties included: Tallahatachie, Yalobusha, Calhoun, Chickasaw, Monroe, Grenada, Carroll, Montgomery, Webster, Choctaw, Clay, Oktibbeha, Lowndes, Holmes, Attala, Winston, Yazoo, Madison, Leake, Neshoba, Kemper, Warren, Hinds, Rankin, Scott, Newton, Lauderdale, Claiborne, Copiah, Simpson, Smith, Jasper, Clarke, Jefferson, Adams, Franklin, Lincoln, Lawrence, Jefferson Davis, Covington, Jones, Wayne, Wilkinson, Amite, Pike, Walthall, Marion, Lamar, Forrest, Perry, Greene, Pearl River, Stone, George, Hancock, Harrison, Jackson

Total Sales for 2021	668				
Land Classifications	**Number of Sales**	**Average Acerage**	**Average Value per Acre**	**Lower Confidence Level**	**Upper Conficence Level**
Cropland	61	113.95	$3,798.68	$3,286.10	$4,311.26
Pasture	281	35.32	$3,654.68	$3,343.27	$3,966.09
Woodland	455	65.7	$2,761.75	$2,558.34	$2,965.16
Timberland	421	103.6	$1,964.11	$1,855.82	$2,072.40

- There were 61 sales analyzed for Cropland. The average sale size was 113.95 acres. The average value per acre was $3,798.68 per acre. According to statistical analysis with 95% certainty the true mean of all Cropland should fall within $3,286.10 per acre to $4,311.26 per acre.

The number of Cropland sales throughout this region have increased substantially since last year. Values have seen a drastic increase as well. There has not been as much outside investor activity in this region of the state as there has been in the Delta Region.

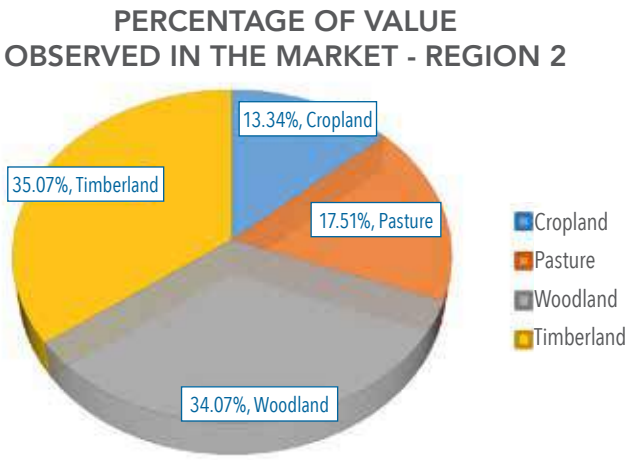
- There were 281 sales analyzed for Pasture. The average sale size was 35.32 acres. The average value per acre was $3,654.68 per acre. According to statistical analysis with 95% certainty the true mean of all Pasture should fall within $3,343.27 per acre to $3,966.09 per acre.

With these Pasture sales, rural residential influences can be observed in areas that are in close proximity or have easy access to larger metropolitan areas. This rural residential influence primarily affects smaller parcels of land in higher populated areas.

- There were 455 sales analyzed for Woodland. The average sale size was 65.7 acres. The average value per acre was $2,761.75 per acre. According to statistical analysis with 95% certainty the true mean of all Woodland should fall within $2,558.34 per acre to $2,965.16 per acre.
- There were 421 sales analyzed for Timberland. The average sale size was 103.6 acres. The average value per acre was $1,964.11 per acre. According to statistical analysis with 95% certainty the true mean of all Timberland should fall within $1,855.82 per acre to $2,072.40 per acre.

Both Woodland and Timberland values have strong recreational influences throughout the entire state. Also, rural residential influences can be observed in areas that are in close proximity or have easy access to larger metropolitan areas, particularly the smaller sized tracts. Pine timber prices have influenced the Timberland market over the past several years. Pine timber stumpage is still experiencing depressed prices and reduced markets, which has directly impacted the observed market prices for pine timberland. However, hardwood stumpage prices have remained strong to stable, and may have some influence on hardwood timberland tracts.

The pie chart below shows a breakdown of the percent of each land category as based on its value observed in the market. Overall, Timberland and Woodland make up the vast majority of the market share with nearly 70% of the observed market value in the sales utilized in this analysis. This is largely a function of the makeup of the region which is largely forested. Cropland and Pasture makeup the remaining approximately 30%.



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Mississippi Region 2 Land Classifications and Sales

continued

To the right are the observed land rents for Region 2. These numbers have been based on discussions with local operators/producers, FSA employees, farm managers, and agricultural lenders. Hill region rental rates, at this time, are showing signs of increasing from a year ago. Irrigated Cropland ranges from $150 per acre to as high as $225 per acre, with the average coming in around $165 per acre. There have been some isolated areas where there has been some upward pressure on rental rates for Irrigated Cropland. The variance among irrigated land is directly attributed to several qualities, those attributes being layout and design of a farm property, soils, drainage, and base acre allocation. Likewise, dryland rents are showing signs of increasing since last year. The range for Non-Irrigated Cropland rents is $75 to $150, with the average dryland rent running approximately $100 per acre. Quality of soils, drainage, and base acres are all contributing factors. There has been some tile drainage observed in areas of the hill region, primarily in the prairie area. Tile drainage aids in drainage and can allow producers to operate during wetter periods of the year. In discussions with local operators tile drainage typically demands a $30 per acre to $40 per acre premium. Pasture rents typically range from $15 per acre to $35 per acre for improved pasture with the average pasture rental rate being approximately $25 per acre.

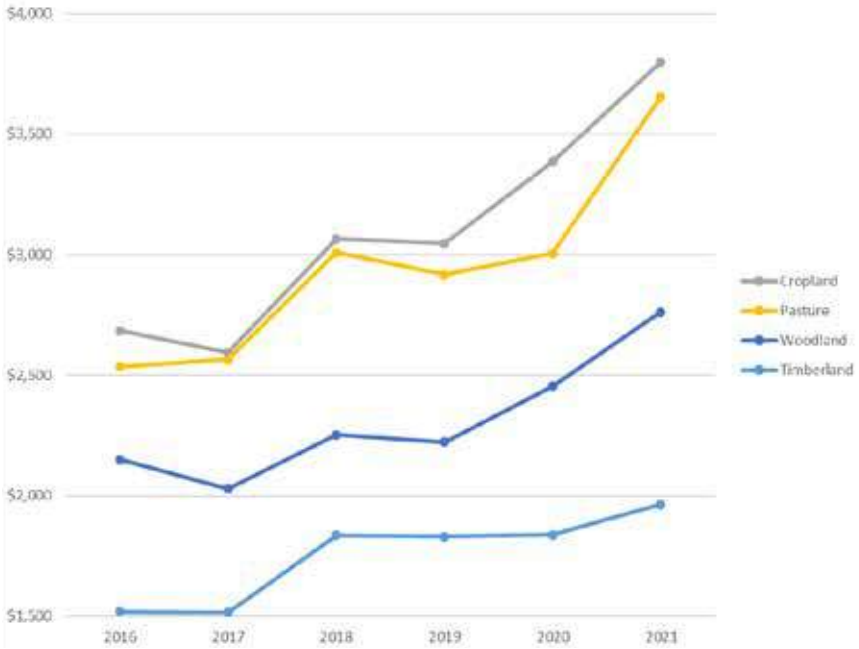
Region 2 – Hills	Average Rental Rate	Minimum Rental Rate	Maximum Rental Rate
Irrigated Cropland	$165	$150	$225
Non-Irrigated Cropland	$100	$75	$150
Pasture	$25	$15	$35

Recreational properties are not included in this data as rental rates can vary greatly and have been observed from $8 per acre to over $25 per acre. Less desirable properties that may only be used for deer hunting typically have lower rents; whereas, highly desirable properties that are known for excellent deer hunting may demand rents as high as $25 per acre. Duck hunting properties are not overly abundant in the region and have not been included. However, these properties typically demand much higher rents and are similar to those noted in the Region 1 discussion.

According to the sales data, the land values for Region 2 show signs of great increase since last year. There was a good sample of sales in each land category to obtain an accurate judgement of the market. Over the past five years, there has been an upward trend in this Region's market. Without a major disruption of the market, the trends should continue to remain stable with a slight increase.

Region 2 – Hills						
Land Classifications	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Cropland	$,685	$2,594	$3,065	$3,046	$3,387	$3,799
Pasture	$2,536	$2,565	$3,008	$2,914	$3,004	$3,655
Woodland	$2,150	$2,030	$2,252	$2,222	$2,455	$2,762
Timberland	$1,520	$1,516	$1,836	$1,830	$1,837	$1,964

REGION 2 LAND VALUES



Moist-Soil Management for Waterfowl

Kevin Brunke and Houston Havens (MDWFP)

Moist-soil management is the manipulation of water, seed banks, and soil to promote germination of desirable wetland plants for waterfowl. For the purposes of this article, we will define desirable moist-soil plants as those plants that provide seeds, tubers, or leaves for waterfowl and other wildlife to consume. As with other wildlife management practices, moist-soil management is both an art and a science. The art comes from each site seeming to be a little different than the next and sometimes, when Mother Nature throws a curve ball, you must quickly adapt to hit a home run. The science comes from decades of research supporting moist-soil management practices that are most beneficial to waterfowl and other wildlife.

Moist-soil management for waterfowl originated from early research conducted by the legendary Dr. Frank Bellrose in the Illinois River Valley, and has proven highly successful in other regions important for wintering waterfowl, including southeast Missouri, California's Central Valley, and the Playa Lakes of Texas. Although it is sometimes difficult to convince folks that growing "weeds" in their duck holes is a good idea, these weeds are a critical component in the waterfowl habitat complex. Moist-soil habitats provide high-energy seeds and good habitat for aquatic invertebrates which provide energy and nutrients for waterfowl throughout the fall and winter. Conversely, most conventionally-grown agricultural crops only provide waterfowl with foods that are high in carbohydrates. While these high-carbohydrate foods are extremely important to wintering waterfowl, ducks also need these additional nutrients and proteins found in moist-soil plants and invertebrates to thrive during winter and return to the breeding grounds in good condition. Just as importantly, ducks key into moist-soil habitats during certain times of winter, and without this important component of the waterfowl habitat complex on your property, you may be left staring at empty skies while the guy with the weeds is shooting ducks.

Successful moist-soil management typically occurs in wetlands that have a water control structure capable of manipulating water levels in increments (i.e., a flash board riser). However, moist-soil management may also occur in natural basins without a water control structure (e.g., beaver wetlands) if they dry naturally during summer and can be regularly accessed with a tractor and disk. Presence or absence of desirable weeds depends heavily on timing of the drawdown, plant successional stage, seed bank, and weather. Timing of drawdown is generally divided into early-, mid-, and late-season time frames. In Mississippi, an early season

Moist-soil vegetation on Trim Cane WMA.

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Moist-Soil Management for Waterfowl
continued

drawdown occurs during the first 45 days of the growing season (March 15 – May 1), a mid-season drawdown occurs during the next 45 days of the growing season (May 1 – July 15), and a late-season drawdown occurs after July 15. A slow, early- to mid-season drawdown typically produces the greatest diversity and quantity of seeds. However, mid- to late-season drawdowns will often favor the most desirable grasses and sedges. The key to successful moist-soil management is to hold water in a wetland until the growing season starts and the danger of a frost has passed. If a wetland is drained too early, it can be quite difficult to get any desirable wetland plants. Typically, we recommend beginning a drawdown in mid-April that will end in early May until we find out what works best for a particular property. If multiple wetlands are available on a property, we recommend a combination of early-, mid-, and late-season drawdowns to provide a diverse suite of waterfowl foods.

As in other habitats such as grasslands and forests, wetland plant communities change through time; this change is what biologists call "plant succession." Wetlands in early stages of plant succession are dominated by annual plants that produce many seeds (i.e. grasses), while wetlands in late stages of succession are dominated by perennial plants that typically do not produce many seeds. Thus, when managing for waterfowl foods, an early successional plant community is highly desirable, but must be maintained by disking every 2-3 years. These desirable annual plants are already present in the soil's seed bank; they just need a soil disturbance to be stimulated to grow. Waterfowl habitat managers have many opinions on when and how to disk. Disking during spring causes a manager to be entirely dependent on rainfall or irrigation to create the mudflats needed for moist-soil plant germination. If spring disking is planned, water should be drained in early March so there will be sufficient time for the soils to be dry enough to disk, and so that early spring rains and mild temperatures will encourage desirable moist-soil plant germination after disking. Furthermore, effective spring disking requires breaking up the soil until the seedbed is smooth and finely textured, as soil full of clods will likely result in a wetland full of undesirable plants like coffeeweed and cocklebur. We do not recommend disking in the heat of summer, as this will also likely result in an undesirable plant community unless disking is followed with an irrigation or timely rain.

Disking during fall will promote a good diversity of moist-soil plants when the water is drained during the following spring, but may reduce the amount of food available during fall and winter. Once beneficial waterfowl foods may be readily identified, target disking in areas dominated by undesirable plants. Disking these poor areas will promote a good moist-soil plant response the following year and will also conserve existing waterfowl foods. Soils may be left more coarsely disked during fall than during spring,

Barnyardgrass is a preferred moist-soil plant for waterfowl.

as winter flooding will reduce the soils into a mudflat over the course of the winter. Seek to disk about one-third of the wetland every year in a patchy mosaic pattern. Some disking each year will conserve waterfowl foods, reduce rank vegetation to improve waterfowl access early in the fall, and promote a diversity of moist-soil plants within an impoundment. Additionally, fall disking is an excellent strategy in wetland areas that do not dry until late summer or early fall.

Just as the duck migration varies according to annual weather patterns, so does the response of moist-soil plants. Weather patterns that are drier, wetter, colder, or hotter than the previous year may cause large-scale shifts in plant communities. To reduce these large shifts in plant communities, we recommend a slow drawdown over the course of two to six weeks. A slow drawdown will produce a diversity of desirable plants each year, because not all mudflats are exposed at the same time. Conversely, if the entire wetland is drained at the same time, a similar plant community (i.e. a monoculture) occurs across much of the impoundment. In some years, a rapid draw down may produce excellent results, but as is usually the case, when a cold front or other sudden weather event hits, it will produce an impoundment dominated by undesirable plants. Thus, vegetation identification and monitoring becomes very important soon after completion of a drawdown. Depending on the resulting vegetation response, effective management actions (i.e., disking, herbicide, and mowing) will vary.

Another benefit of moist-soil management is it allows for a fall flooding strategy that is not possible for many agricultural crops. In an ideal situation, a moist-soil wetland should be flooded from 5%-10% of capacity from mid-August until early November. Flooding should increase

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Moist-Soil Management for Waterfowl

continued

to about 25% of the wetland's capacity by mid- to late November. From late November to mid-December, 50%-75% of the wetland should be flooded and the wetland should be completely flooded by late December or mid-January. This strategy provides some wetland habitat for early migrants and constantly exposes new food resources throughout the winter. Many agricultural crops are not ready to be flooded by the time early-season migrants start filtering through Mississippi. Furthermore, most agricultural crops break down fairly rapidly once flooded whereas moist-soil seeds do not. This flooding strategy will provide hunting opportunities from early teal season to the last day of duck season.

It is important to remember that moist-soil management is not a silver bullet that will produce a full strap of ducks on every hunt, but it is certainly a key part of a complete waterfowl habitat management plan. The keys to successful moist-soil management are developing a plan, recording notes and observations on drawdown times, plant responses, herbicide applications, disking schedules, wildlife use, and flood timing. If you are interested in moist-soil management and other waterfowl habitat management assistance, please contact a MDWFP Waterfowl Program biologist or Private Lands Habitat Program biologist.

Sprangletop is a high seed producing moist-soil plant that can be attained with a late season drawdown.

Working on Issues Impacting the Cattle Industry

Andy Berry

Over the past year there have been many issues that have had impacts on the cattle industry. The Mississippi Cattlemen's Association (MCA) has been working on these issues – from livestock transportation to market transparency, environmental concerns, animal welfare, and more – on behalf of the cattle producers in Mississippi.

Over the last year and half, cattlemen have been discussing the topic of gaining leverage and creating more transparency in the live cattle market, with particular focus on how these could improve profitability for the cow-calf and stocker segments. MCA has debated the need for more negotiated trade of live cattle, the need for more packing capacity, and the need for more transparency in fed cattle transactions.

We currently have a USDA-AMS program called Livestock Mandatory Reporting (LMR) that does provide data on price grade of carcass, weight range, and price range. While a valuable tool, LMR does not always paint the whole picture. Part of the LMR law requires AMS to keep packers' "proprietary business information" confidential. This confidentiality requirement sometimes prevents any price information from being publicly available in major cattle feeding regions like Colorado. Additionally, we have seen market fluctuation – like pens being reported well below the days market value – cause the whole market to dip. Only later did we found out that those cattle were of lower quality than anything that was sold that day.

Recently introduced in the U.S. House by Congressmen Johnson (R-SD) and Cuellar (D-TX), the Cattle Contract Library Act of 2021, which passed the house in December of 20201, would help remedy some of our transparency problems in the live cattle market. This bill would require the Secretary of Agriculture to establish and maintain a library of each type of contract offered by packers to producers for the purchase of fed cattle.

Keeping an eye on other issues across the country, if you have loosely followed agriculture news over the last year you have surely heard of the ballot initiative proposed in Colorado. Titled "Protect Animals from Unnecessary Suffering and Exploitation," this initiative sounds like a worthwhile cause to get behind. I mean nobody wants animals exploited or to suffer, right?

But when you read into this initiative, you find that if enacted it would:

- Require that criminal animal cruelty charges be filed against veterinarians for performing common veterinary medical surgeries.
- Make spaying and neutering animals a criminal offense, thereby increasing animal suffering, pet overpopulation, and spreading of disease.

MISSISSIPPI CATTLEMEN'S ASSOCIATION

- Criminalize safe and common artificial insemination, pregnancy checking, semen collection of dogs, horses, and livestock as "sexual acts with an animal" or bestiality.
- Require livestock to reach 25% of their natural lifespan prior to slaughter.
- Criminalize some actions that are currently accepted veterinary medical and animal husbandry practices. Even generally accepted practices acknowledged by the American Veterinary Medical Association, would be criminal animal abuse.

This initiative was opposed by livestock groups, veterinary associations, and other farm groups in Colorado who rallied together and formed a group called Coloradans for Animal Care to challenge the initiative in court. Ultimately, the Colorado Supreme Court struck the proposed initiative down on the grounds that it violated the state's single-subject requirement.

Coupled with recent ballot initiatives in California, we have not seen the last of these efforts. While cattle markets and working to solve the conundrum of packer profits remains a top priority, our industries and associations must not lose sight that much of the public has not a clue of how or where their food comes from. Many would want to restrict common practices that provide a safe and healthy food source.

It has been documented that roughly two percent of the United States population is involved in agriculture. I suspect that if we were to break that number down to just production livestock, the number would fall well below one percent of our country's population. The need for mostly likeminded cattle producers to be banded together has never been greater, and MCA firmly believes the need for our organization will only grow in our future.

Many of you reading this are not members of MCA, but you are reaping the benefits that MCA provides. I humbly request that you simply become a member. If you are a member, thank you, but please ask your neighbor, relative, seat mate at the coffee shop, or anyone who just enjoys a steak to become an MCA member.

Trapping Hogs: The Little Things Matter

Mississippi Department of Wildlife, Fisheries, & Parks

Many of Mississippi's landowners have felt the surprise and concern of seeing a wild hog on their property for the first time. Most have seen the internet videos, watched the television shows, and have often considered what it would be like to have wild hogs on their own land. Unfortunately, they soon discover what YouTube did not tell them about the presence of hogs. That is the heartache and frustration of witnessing their destructive behavior. The most common progression of this situation is procrastination, half-hearted removal efforts, and then frustration. Often times, this progression is marked by still hunting, night vision equipment, or scattered, dilapidated hog traps that catch more rust than hogs over the years. While trapping has been proven as the best way to reduce wild hog numbers, there is a right way and a wrong way to trap wild hogs. Hopefully, this article will get you started on the right foot to more effective wild hog control.

Failing to plan is planning to fail

Imagine if a homeowner found termites in his house, but took no action because it was only "a few here and there." Surely, that is poor planning, because every minute of non-action results in more damage. Discovering wild hogs on your property should be considered similarly. The first day that wild hogs are detected on your property is the day a management plan should be put in action to get rid of them. Research shows that hogs can make rapid and substantial damage to ecosystems that can be observed for months or years into the future. Once damage occurs, it can take years to recover, even once all the hogs have been removed. So, always be vigilant about evidence of wild hogs on your property, talk to surrounding landowners about wild hog observations, and be ready to put a cooperative plan into action as soon as possible.

Know your enemy

The first step in your trapping plan should be pre-baiting. Spin-cast feeders are a good way to attract these ravenous eaters to places they can be photographed with a game camera. The pre-baiting period is used to figure out how many sounders (social groups) of hogs you are dealing with, when they come and go, and getting them accustomed to a dependable food source. In the same way you target a mature buck during deer season, being familiar with your enemy is the first step in being able to effectively eliminate them. Game cameras, aerial maps, and good old-fashioned tracking skills can pay off during the pre-baiting stage of trapping. In general, 1-2 pre-bait sites per 100 acres is considered to be sufficient coverage. When checking game cameras at your bait sites, make sure to note the time of day hogs are coming in to feed, and schedule your check times so that they do not overlap. Visiting the pre-bait sites during times that hogs are feeding can prolong the pre-baiting period and make trapping efforts much less successful. If you can discern bedding areas from feeding or wallowing areas, it is best to place pre-bait in between them. Try placing pre-bait sites in between bedding and feeding areas.

Build it and they will come

After you have established a pattern of habits and an estimate of the number of hogs at your pre-bait locations, it is time build a trap. Generally, wild hogs will tolerate the appearance of a new trap at a bait site. In some cases, however, wild hogs can be very "trap shy" and will stop using a pre-baited site when a trap is placed in the area. In this case, building the trap a little at a time (one piece added every few days) will seem less intrusive and hogs may tolerate the changes. Every sounder of hogs will respond differently to this type of disturbance, so trial and error will help you figure out what works best on your property. Some find success by camouflaging or "brushing in" the trap to give it a more natural look and to disguise the posts, wire panels, and gates. Try to keep human disturbance to a minimum during the trapping process. Avoid unnecessary visits to the area. The fewer vehicles, scents, voices, gunshots, dogs, etc. the hogs encounter during this time, the more comfortable they will feel. It is also important to keep bait on the ground at all times. A lapse in available food could cause the hogs to move away from the bait site.

Continued on next page

Trapping Hogs: The Little Things Matter
continued

Trap smarter, not harder
Once your trap is constructed, the most crucial time of trapping begins. By now, you know when your hogs are coming through to feed and you know how many hogs are in each sounder. At this point, the game becomes getting them into your trap at one time to catch them ALL. Wild hogs breed like rodents, but they cannot be trapped in the same way. Many landowners make the mistake of putting a small amount of bait in the trap and setting the trap to capture immediately. This will usually lead to catching a small amount of juvenile hogs and educating the other, more mature hogs. Putting a small amount of bait outside the trap and leading it to a larger amount inside your open gate is the best way to entice the hogs to enter your trap and begin trusting it. Once hogs begin feeding inside your trap, do not put any more bait outside the trap or near the entrance. The mature hogs that are more reluctant to enter the trap are faced with two choices: enter the trap and eat, or stay outside and watch the others eat. Eventually, this temptation will result in every hog in the sounder entering and feeding inside the trap. The only way to confirm this is with a game camera set to take video or still shots with a short delay (5 minutes or less). The trap door should be set to catch only after the entire sounder is entering the trap to feed on a regular basis. After you trap the hogs, quickly dispatch all of the individuals, and dispose of the carcasses properly. MDWFP requires hog traps to be checked at least every 36 hours.

Size matters
There is a multitude of wild hog traps on the market today, and like most other commercial products, there is a wide range of effectiveness and cost associated with each. One general rule to remember is "bigger is better." There are two major classifications of traps: small "box" or "hay ring" traps and larger "corral" style traps. In a 2011 study, corral traps caught four times more wild hogs than box traps. Adult sows entered corral traps 2.2 times more often than the smaller box traps. Why? The thought is that wild hogs feel less confined in a larger trap. As a result, the smarter, mature hogs will enter a corral trap more readily than with a box trap. This means you can catch the entire sounder instead of catching only the juveniles and teaching the rest to avoid traps.

Keep your powder dry
Shooting wild hogs is a popular tactic to get rid of this porcine pestilence. However, there is a time and place for such measures, and it is almost always less often than most landowners think. Shooting wild hogs on your property should be a last resort instead of a first reaction. Even then, landowners should use proper selection of when and where to shoot hogs. Remember, disturbing trapping sites with human traffic and gunshots can put a serious damper on future trapping efforts. Ideally, taking hogs

with a firearm should occur only after trapping attempts have failed. As mentioned, the old mature hogs will be the last to enter the traps and therefore the most difficult to capture. Sometimes, these adults have had so much exposure to trapping efforts they simply will never enter a hog trap. Often, there will be one or more mature sows that quite literally stand in the way of capturing an entire sounder. At this point, it is time to surgically remove these individuals from the sounder and continue trapping.

Wild hog control is a methodical process. Take this advice, which has been fine-tuned by many managers and trappers over the years. Minor details can cause serious delays to your success. Allow these experiences with trial and error to work to your advantage even before you ever get started. For more information on wild hog trapping, visit the Mississippi State University Extension Service at www.wildhoginfo.com or the MDWFP Wild Hog Webpage at www.mdwfp.com/wildhogs.

Some hunters ask why hunting wild hogs year-round on WMAs is not allowed. This is certainly a valid question, and one that should be further examined. First and foremost, published scientific research has proven that trapping is the most effective way to reduce the overall numbers of wild hogs on the landscape, not by hunting alone. Furthermore, research has shown that wild hogs under human-induced stress (i.e., hunted or disturbed) are much harder to pattern and much more difficult to trap due to their increased wariness. In addition to these reasons, we also have to consider the time of year. During the late spring and summer months, many game species such as deer and turkey are raising their young of the year.

During this time, nutrition is at a premium, temperatures are hot, and unnecessary disturbance causes stress and can reduce successful reproduction of these popular species. So next time you see wild hogs on a WMA, rest assured we are doing everything possible to protect the natural resources of Mississippi.

What Determines Standing Tree Value?

Eric McConnell and Marc Measells, Department of Forestry Mississippi State University

MISSISSIPPI

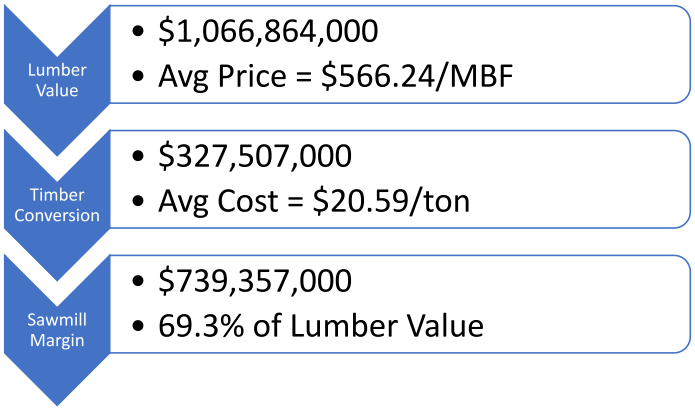
We are often asked, how is the value of my timber determined? With lumber prices reaching unprecedented levels, many landowners question why they are not receiving higher stumpage values. Many factors influence what forest landowners ultimately receive for standing timber. These factors include, but are not limited to, costs associated with consulting foresters, wood suppliers, logging, delivery/trucking, and mill costs. Another factor leading to disparity between stumpage and lumber prices is the fact that lumber is a traded commodity, which is subject to market speculation due to information releases regarding housing starts, trade proclamations, and judicial decisions.[1] In this article, we walk you through the analytical method for calculating stumpage value using the residual value approach. The equation is

Residual Value=LPV-Mill-Log

where *LPV* is lumber's product value, *Mill* is sawmill costs, risk, and profits and *Log* is the wood suppliers' costs, risk, and profits. Costs include those for capital, labor, energy, materials, and services. Risk includes both variation caused by overall changes in the market and factors unique to the company or industry itself.

We begin our journey not at the stump but instead at the sawmill sales office. We consider lumber's product value as the starting point because it operates in a more defined market with high volumes of sales. We then subtract all relevant expenses from the mill back to the stump. The remaining, or residual, value is the timber's value as it stands in the woods (i.e., stumpage price). Many figures presented here have been rounded off for clarity, so they may not exactly equal should you try to replicate each calculation. Figure 1 highlights industry estimates for Mississippi in 2020, the last full year for which we have data. Plus, we avoid the large price swings we saw in 2021.

Figure 1.
Mississippi pine lumber and timber product output estimates.

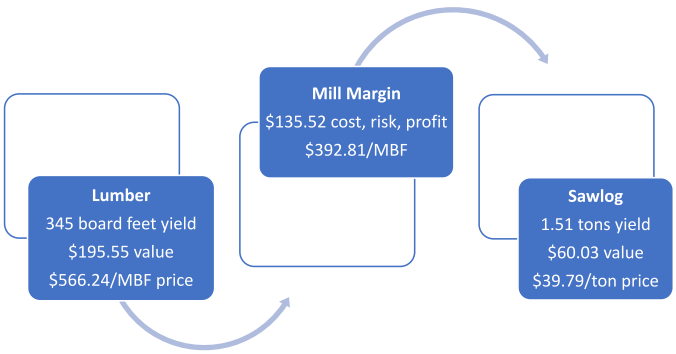


We estimated the state's southern pine 2020 lumber product to have exceeded $1 billion in value. Timber conversion expenses for southern pine sawlogs totaled $327.5 million. This includes logging, trucking, other contractual services, timber buying, and marketing.[2] Subtracting the two, we arrived at a contribution, or margin, for Mississippi southern pine sawmills of $739.4 million, which was 69.3% of the state's lumber product value. For this exercise we will use the 2020 average #2&Better lumber price of $566.24/MBF.

Now to the woods. Let's assume a 16" DBH tree totaling 90 feet in height. The tree possesses a bulk density of 63 pounds of wood + bark for every cubic foot of wood. On a tract with site index of 75 feet at 25 years, the tree is 35 years old.[3] Using the US Forest Service tree grading rules,[4] the tree is Grade 1. The merchantable stem volume is predicted to be 47.9 cubic feet of wood. At 63 pounds per cubic foot, the merchantable stem weighs 3,018 pounds, or 1.51 tons. This tree is predicted to saw out 345 board feet of lumber, mill tally.

Figure 2 estimates a mill's balance sheet. At the lumber's price of $566.24/MBF ($0.56624 per board foot) the lumber product value of this tree is $195.55. The mill's margin is

Figure 2.
Yields, values, and prices for lumber and log at the sawmill.

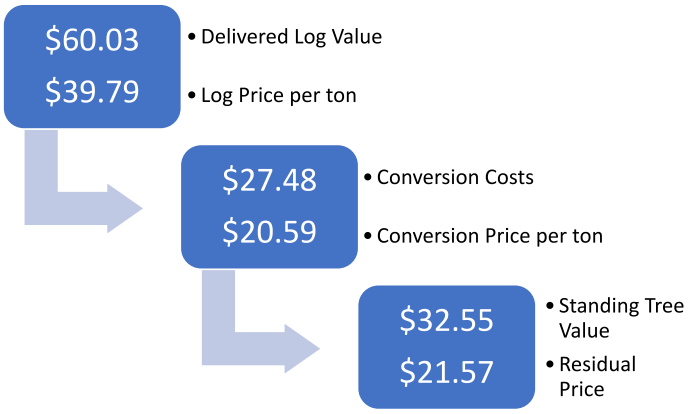


What Determines Standing Tree Value
continued

$135.52 or 69.3% of the product's value. It would cost the mill $392.81/MBF to produce one MBF of lumber from this type of stem. Subtracting mill margin from lumber product value provides a value of $60.03, which is what the mill paid to receive our merchantable stem. Dividing the stem's $60.03 value by its 1.51 ton weight tells us delivered pine sawlog price per ton was $39.79.

Figure 3 describes the roundwood supply chain, which converts standing timber to logs and moves them to wood-using mills. Here, we work from the common unit of measure for roundwood in Mississippi, the ton. Again, at $39.79 per ton and a stem weight of 1.51 tons, our stem was valued at $60.03 when delivered to the mill. The timber conversion rate was $20.59 per ton. Therefore, costs, risk, and profits associated with harvesting, hauling, and marketing services totaled $27.48 for this stem. Subtracting the $27.48 conversion cost from the $60.03 delivered value, the standing tree's value for manufacturing #2&Better lumber was $32.55. Dividing $32.55 by the weight of 1.51 tons, we arrive at the price of $21.57 per ton, the residual price.

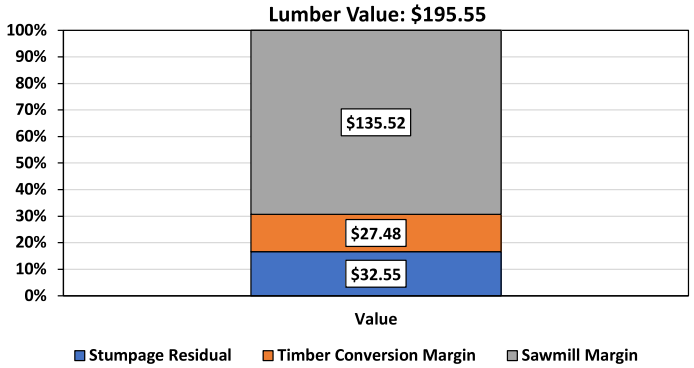
Figure 3.
Values and prices from the sawmill to the stump.



The residual signifies the price payable for the standing tree covering all margins along the forest to market chain. The timber margin is the difference between finished lumber product value, $195.55, and residual value of $32.55, which equals $163.00. This represents the total expenses required to produce #2&Better lumber from the standing tree. In this case, expenses are 83% of final product value. Note that while topwood may also have value, it is a byproduct of the tree's sawlog portion. Figure 4 summarizes our results at each step of processing.

So how close is the $21.57 residual price to the reported stumpage value in the Mississippi Timber Price Report?[5] The 2020 average annual pine sawtimber price reported by survey respondents was $21.45. This is $0.12 lower than our estimated residual value, or 0.55%. Why might there be a difference?

Figure 4.
Supply chain contributions to lumber product value.



The residual value is a theoretical value, but stumpage is a market derived value representing the interactions of a buyer's willingness to pay and seller's willingness to accept. We generally consider it the buyer's maximum and seller's minimum. We accounted for some degree of variability for both the mill and wood suppliers. What we have not accounted for were the variations within and between buyers and sellers. Factors influencing stumpage price include global trade, national policy, regional and local market conditions, organizational differences in stumpage appraisal, and sale characteristics (such as timber quality, sale size, operability and accessibility, landowner characteristics, number of bidders, organizational policies, contract terms, and technology).[6] Each timber sale will be different based on who all is involved and how efficient they each are.

The above calculations were for one single tree. Moving roundwood from forest to mill to final consumer requires multiple exchanges, each at a different price level. Beyond just the wood, equipment, energy, labor, and services costs (such as insurance) are substantial at each stage of processing in the lumber value chain. We have a large supply of excess pine timber in our forests. Recent mill expansion and construction announcements stand to increase Mississippi sawmill capacity by 1 billion board feet. This should provide competitive opportunities for landowners in the near future.

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Mississippi's Changing Broiler Industry Has Large Impact Through In-State Purchases

Mark Leggett, President, Mississippi Poultry Association

Mississippi's broiler industry, which stretches from the extreme Northeast corner of the state down to the Louisiana line in the Southwest, has undergone widespread changes in 2021. Mississippi is in the middle of the poultry belt stretching from Delaware to Texas.

The industry has no operations in the Mississippi Delta but does purchase fresh corn during harvest from farmers in the Delta and across the state. The Gulf Coast is another area with almost no poultry presence. From the 1990s up to Hurricane Katrina in 2005, Gulfport and Pascagoula were major poultry shipping ports. Since Katrina, exports from Mississippi – about a fifth of all poultry produced – have shifted to other ports.

Mississippi's poultry industry has been undergoing a major transition in the last year. Sanderson Farms, the only broiler company headquartered in Mississippi, is being bought by a joint venture of Cargill and Continental Grain. Cargill raises turkeys in the U.S. and chickens outside the U.S. The Sanderson Farms operations will be run by Wayne Farms LLC, a division of Continental Grain.

Sanderson operates plants in Laurel, Collins, Hazlehurst, Flowood, and McComb as well as two in North Carolina, one in Georgia, one in Louisiana and three in Texas. Wayne Farms, which is about half the size of Sanderson Farms operates one plant in Georgia, six in Alabama, and one each in Arkansas and North Carolina.

Wayne Farms recently sold its Laurel complex to Amick Farms. Amick is headquartered in and has a plant in South Carolina and another plant in Maryland.

Peco Foods, based in Tuscaloosa, Alabama, operates plants in Mississippi and Arkansas as well as Alabama. Peco this year closed its Canton processing plant and the Brooksville further processing plant. Peco maintains a further processing plant in Canton. The Brooksville jobs were shifted to West Point after Peco purchased the former Bryan Foods plant in West Point.

Mar-Jac Poultry, which has a Hattiesburg processing plant, has others in Alabama and Georgia. Tyson Foods with plants Carthage, Forest, and Vicksburg in Mississippi has 44 poultry plants in 14 other states. Koch Foods has two plants in Morton and 13 plants in four other states.

MPA

Mississippi Poultry Association, Inc.

Growing Mississippi's Economy Since 1937

Let's take a moment to look at the flow of goods through the industry. Processing companies buy breeding chickens from companies that produce what are known as grandparent stock. The breeder farms have hens and roosters that produce fertilized eggs that go to the hatchery and then, when the chicks hatch, they are transported to broiler farms. A broiler farm raises these meat chickens that go to the processing plant. Once processed some of that meat can go to a further processing plant to be made into nuggets or patties or hot dogs or corn dogs. A further processing plant can be in the same location as the processing plant, or the further processing can be a stand-alone plant in another location.

The whole process takes place in Mississippi. In Northeast Mississippi, (Alcorn, Tippah, and Tishomingo counties) far away from the rest of the poultry industry, Aviagen has 20 farms raising grandparent chickens that produce the breeders that lay the eggs that produce the broiler (meat) chickens.

The meat side of the industry is organized around a "complex" which is like an airport hub. The complex has a hatchery, a feed mill, and a processing plant in close proximity. Trucks from the complex travel to farms picking up eggs, delivering baby chicks and feed, bringing grown chickens to the processing plant from which they are sent by truck and ship all over the world. An estimated 3,000 truck trips per day are made around Mississippi to supply the industry.

The average processing plant has around 75-100 farms supplying broilers – the meat chickens. The broiler farms

Continued on next page

Mississippi's Changing Broiler Industry Has Large Impact...

continued

rely on breeder and pullet farms. Pullets are immature breeders who are not of the age to produce fertilized eggs.

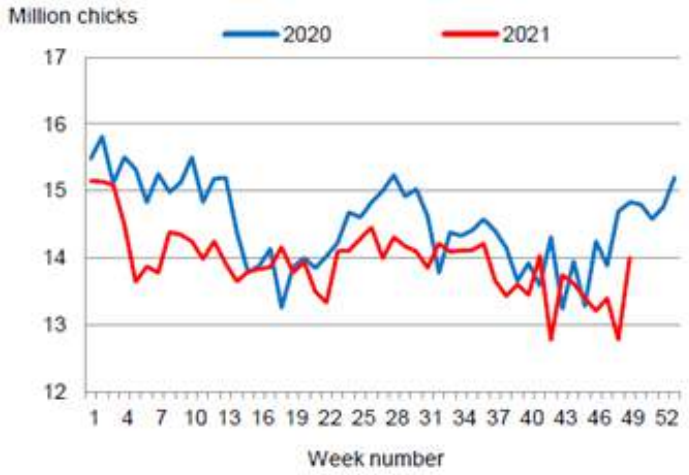
The poultry companies in 2020 in Mississippi had 1,242 producers or farms with 6,326 houses. About 95 of these are pullet farms and 244 are breeder farms. Pullet and breeder farms have fewer houses than broiler farms, which may have from four to a dozen houses. The houses being built are larger in size than in the past, so there may be fewer per farm.

Some companies are currently adding new houses to meet increased demand for chicken. Demand has rebounded from March 2020 when government lockdowns closed restaurants. About half the poultry meat sold within the U.S. goes to restaurants and half to grocery stores. Demand, input costs, and therefore, prices for poultry, are up. Prices of other proteins also are up, which has an impact on poultry. When beef prices rise, many consumers convert to chicken.

MSU economist Dr. Alan Barefield in November in a preliminary analysis of the economic impact of a single poultry house, said, "A new 25,000-square-foot (50-by-500-foot) broiler house in Mississippi results in an increase in economic activity in the state, in terms of both the construction of the house and its ongoing operations. Economic activity includes spending by the grower, spending by the grower's supply chain businesses, and spending by the employees of the grower and the supply-chain businesses. Broiler houses also support the poultry processing industry in the state."

According to Dr. Barefield, 85.5% of the inputs used in producing poultry in Mississippi come from within the state, while 72.1% of the inputs used in processing poultry in Mississippi come from within the state.

Broiler-Type Chicks Placed Mississippi: 2020 and 2021



Source: USDA National Agricultural Statistics Service

PRELIMINARY Analysis of the Economic Contribution of a Single 25,000-square -foot (50x500 foot) Broiler House

Construction Phase

- Jobs and earnings: Supports 5.6 jobs earning $237,701
- Value added: Supports $302,209 of value-added activity
- Total output (sales): $623,754
- Local and state taxes: $23,159
- Federal taxes: $40,817

House Operations

- Each broiler house annually produces 976,800 pounds of live birds.
- Jobs and earnings: Supports 0.4 jobs earning $12,052
- Value added: Supports $19,605 of value-added activity
- Total output (sales): $106,593 in total sales
- Local and state taxes: $1,987
- Federal taxes: $2,347

Feed Production

- Each broiler house annually uses $93,090 of Mississippi-produced corn and soybeans.
  - 72.8 percent of the corn used for Mississippi's poultry production industry comes from within the state.
  - 49.8 percent of the soybeans used for Mississippi's poultry production industry comes from within the state.
- Jobs and earnings: Supports 1.1 jobs earning $69,535
- Value added: Supports $77,692 of value-added activity
- Total output (sales): $178,937 in total sales
- Local and state taxes: ($23,554)
- Federal taxes: $6,0681

Processing

- Whole bird processing from the annual production from each broiler house supports 2.6 jobs earning $110,412.
- Value added: Supports $161,525 of value-added activity
- Total output (sales): $596,135
- Local and state taxes: $11,651
- Federal taxes: $21,846

Source: Dr. Alan Barefield, Miss. State University

Poultry Cost Estimation

Brett Cates, Senior Appraiser, First South Farm Credit

The commercial poultry production industry in Mississippi remained strong in 2021, despite uncertainty throughout the commodity markets caused by the Covid 19 Pandemic. Demand continues to hold steady at high levels for existing facilities with production contracts. This has resulted in strong values and an abundant supply of farm listings and sales throughout the state.

Uncertainty in commodity prices along with the extraordinary circumstances surrounding the global Covid 19 pandemic led to sharp increases in construction costs across the board. Supply chain disruption has led to metal price increases of nearly 40% from December of 2020 to December 2021 for a typical broiler house package. Lumber volatility for 2021 saw record price fluctuation with peak increases nearing 400% above the typical market price. This volatility is not expected to stabilize in the near future. While there was some price correction in the second half of 2021, the lumber futures are currently spiking again for the first quarter of 2022.

Equipment packages for new and retrofitted poultry facilities have not been immune to the inflationary price increases of the previous 12 months. Several suppliers have reported marked increases in component pricing as well as delays in component ordering and delivery due to Covid-19 supply chain issues.

The poultry industry is currently undergoing dramatic changes throughout the southeast region with the sale of Sanderson Farms and integrator realignment throughout the industry. These changes may have an impact on the contract status and potential income of poultry facilities throughout the region, but the degree of that impact is currently undetermined.

Current income for poultry facilities can fluctuate from integrator to integrator and from farm to farm. The pay for a broiler facility is dependent on the growth performance of that individual farm. Due to the performance variations between farms, it is difficult to estimate potential income without extensive analysis of the facilities past growth records in relation to integrator targets.

Typical facility expenses however, are much more predictable and typically range from 25%-35% of gross income for a broiler farm. This expense ratio includes the costs incurred in the day-to-day operation of the farm as well as property taxes. These expenses do not include any loan repayment assignment, which can vary greatly based on the financial entity, applicant, loan terms, and rates.

Lumber Market Roller Coaster

Tedrick Ratcliff, Executive Vice President, Mississippi Forestry Association

We thought the craziness was over in 2021 and that we, as a society, had moved on from the uncertainty of the past year. Unfortunately, our country has been challenged with many ups and downs related to the Covid-19 Pandemic which has affected different communities in different ways. I hope you and your families have found ways to remain safe and have taken to heart some thoughts from my last article about getting outside and enjoying the outdoors.

Each year, I try to discuss a few hot topics that have occurred throughout the year. This year, I would like to focus on the roller coaster of the lumber market everyone has heard about in the news. Additionally, I'll touch on a frequently asked question that will feel recycled to many of you who have been around timberland for a number of years… carbon.

First, I'll talk about lumber. 2021 was an absolute roller coaster of prices and emotions in the lumber industry. Lumber prices fell to near pre-pandemic levels but also saw near record highs. Supply chains ranged from no available lumber to a glutted market. Many builders who had backed off due to high prices took advantage of market drops and were able to get started on large projects as lumber rose and fell yet again. Understand, please, I do not fancy myself an advanced economist for purposes of this discussion, and you may enjoy reading blogs about lumber over at Forest2Market or Forisk for a more in-depth dive on lumber. While there are many articles on these sites and news sites about what is causing supply chain shortages throughout the market, the question I am more frequently asked comes from landowners.

Landowners ask, "if lumber is trading at near all-time highs, why are timber prices in my local community not trending up as rapidly?" The short answer is, in the U.S. South, we are still over-supplied on the timber side of the equation. The supply chain breakdowns that caused lumber prices to increase were not for lack of raw timber or, for the most part, the ability to get it to mills. That said, across the U.S. South, companies have continued to add future lumber capacity with new mill announcements. Many of those facilities have recently completed construction; others are mid construction; and others wait for equipment to arrive to begin. Landowners should closely watch for new markets in their area to see how that may affect timber prices. Be clear, weekly or monthly lumber prices likely will not have much effect on individual timber sales, but the increased market opportunities in those communities and the surrounding areas, where new mills are being constructed, will likely affect landowner prices over time. Now is the time for landowners to work with consulting foresters to best understand current and future markets and what updates, if any, need to be made to their management plans.

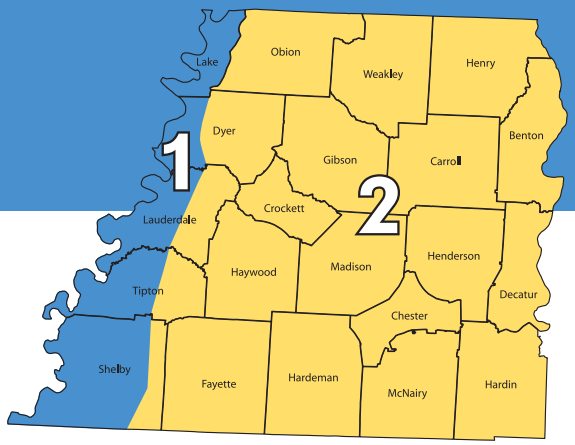
With carbon, what is old is new. I remember, while in college, hearing stories of carbon credits and carbon exchanges. While this has been somewhat of a hopeful spectator sport for landowners, that environment is changing. Depending on where you are in the country, varying carbon opportunities are emerging in which non-industrial private landowners can participate. While I will not discuss the merits of any of the programs or advertise for any of them, companies such as NCX or FiniteCarbon, and household names like American Forest Foundation, have found business models that allow smaller landowners to participate in carbon markets. Opportunities for landowners range from payments for practices similar to what they know from conservation programs to payments for contracts to not harvest for periods of time as short as one year.

If I have not written about "ecosystem services" before, maybe I will save that topic for another day; however, a day has arrived where at least one of the services landowners are providing to the public (historically at no charge) is something it appears they can now monetize. Things to watch for and to be aware of in this space are: 1) what additional companies emerge on the scene to purchase carbon or pay for harvest deferment to create carbon capture; 2) landowners will need to advance in sophistication around contracts, as will consultants who work to aggregate managed acres; 3) landowners and managers will need to keep good records within their management plans to be ready to capitalize on new and changing opportunities.

I am not confident enough yet to speculate what this does long-term to land values, a world we all care about and you live in daily, but as a new revenue stream that is likely here to stay, it is one to be watched closely.

In closing, I will make my annual shameless plug to engage your state forestry associations. They are doing great things to advance sound policy for businesses, landowners, and loggers who work in the forestry and land space. Additionally, they are working to educate groups such as teachers, architects, and engineers about what all of us do working with land. They do all of this while seeking to help develop new markets that benefit the forestry industry. Get involved, attend a meeting, sponsor an event, or serve on a committee; there is a place for everyone who works with land to participate. With 2022 upon us, now is the time to find your place to participate in your forestry association.

TENNESSEE



Tennessee Land Market –An Overivew

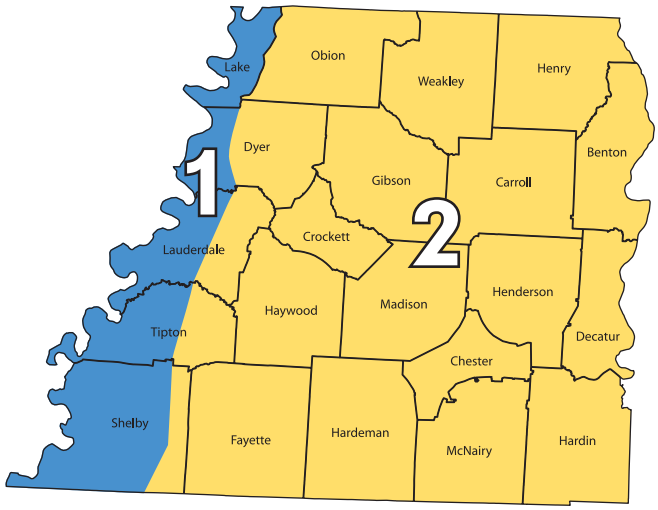
Western Tennessee, like other areas, is extremely diverse in its soil productivity, topography, and land use patterns. Part of this area includes the near level, vast fields of row crop farmland in the Mississippi River floodplain. This area, which is designated Region 1, generally lies east of the Mississippi River and west of US Highway 51 and includes the very westernmost portions of Lake, Dyer, Lauderdale, and Tipton Counties. This narrow band of cropland is more similar to the Mississippi River Delta area of west Mississippi and east Arkansas than it is to the upland farmland that adjoins it to the east. Here, soils are alluvial or water-deposited and can vary widely as a result of overflows from the Mississippi, Forked Deer, and Obion Rivers over the millennia. During these overflows, soils from the Midwest are deposited in order of particle size. Typically, sand particles settle first, followed by silt, then fine clay precipitates last. The result of thousands of years of overflow typically results in a blending of soils, often within a relatively small area, to the extent that silt may overlay sand, clay may be subsequently be covered by clay, and so forth. This widely varying soil pattern creates challenges for producers to manage fertilizer and weed control applications for maximum efficiency. As an offset, within this area, producers are able to employ larger tillage and planting equipment due to larger field size. Both irrigated and non-irrigated farmland is in high demand for producing cotton, corn, soybeans, sorghum, and winter wheat. The relatively small amount of Tennessee rice acreage is also found within this area. Recreational woodland along the Mississippi River is also in high demand by hunters and outdoorsmen from Memphis.

Region 2 is comprised of farmland situated in the "Upland Hills" area that is generally defined as the area west of the Tennessee River and east of the Mississippi River flatlands. This area is comprised of portions of Obion, Weakley, Henry, Benton, Carroll, Gibson, Crockett, Haywood, Madison, Henderson, Chester, Decatur, Hardin, McNairy, Hardeman and Fayette Counties. Over this broad geographical area, upland farmland includes traditional row crops, consisting of cotton, corn, soybeans, sorghum, and winter wheat; improved and native pasture; hay and truck crop operations. Timber is also an important economic enterprise within this region. Within Region 2, topography varies widely from level to near-level farmland bordering interior rivers and streams, to moderately steeply sloped lands that are the tail end of the westernmost Blue Ridge mountain chain. Soils are almost exclusively loess, or wind-borne loams and silt loams that carried from the Midwest plains over thousands of years. Two defining features of these regional soils are the extensive depth of rich, highly productive topsoil and the close degree of uniformity between these soils. A very high percentage of regional soils are silt loams with the primary distinguishing characteristic being the degree of slope, with thinner topsoil, or depression, with slower internal drainage.

Cotton and corn are grown on a multitude of soil types and under many different environments in this region of Tennessee. Production of the crop across rolling hills, creek bottoms, and alluvial flood plains commonly results in management activities and strategies unique to each individual field. This diversity in production systems speaks to the adaptability and the ingenuity the area's producers. Tennessee generally produces between 200,000-350,000 acres of cotton and over 300,000 acres of corn with average yields between 700-900 pounds of lint and 135-145 bushels per acre, respectively. While irrigated cotton and corn acreage has increased in recent years, the majority of the acreage is still non-irrigated. Due to the undulating topography and its related erosion concern, conservation/no-tillage systems are prominent, with approximately 52% of the cotton grown no-till and an additional 24% grown using some form of conservation tillage.

Tennessee

Land Classifications and Definitions



Region 1 – Delta

This region encompasses the westernmost portion of five counties located along the Mississippi River, which forms the state's western boundary. This area is technically part of the Mississippi River Delta Region that was formed over thousands of years as the Mississippi River deposited sand, silt, and clay during periods of flooding. This very narrow region of the state is known for its virtually flat, open areas of cropland with row crop production as the main agricultural sector. Irrigation and some land forming are characteristic of cropland within this region. The major crops grown in this region are cotton, corn, soybeans, rice, wheat, and sorghum.

Irrigated Cropland A
Graded, furrow irrigated cropland with any soil type. This land classification may have some undulation; however, rather through the natural lay of the land or with the help of limited dirt work, the land classification can be irrigated through gravity flow down the crop rows. Using the natural topography of the land to irrigate this acreage can save the costs of leveling this ground. Typically, if this land classification contains Class I and II soil types, the property would be planted in cotton, corn, peanuts, or possibly soybeans. If this land classification contains Class III and IV soil types, the property would be planted in soybeans, sorghum, or rice.

Irrigated Cropland B
Pivot irrigated cropland with any soil type. This land classification may contain heavier, less well-drained soils. Often, this land classification has gently rolling topography with various slopes. Typically, it is not cost effective to level this land classification as the cost incurred will exceed the gain in land appreciation. This method of irrigation is lower cost and is often the only feasible way to irrigate. Typically, if this land classification contains Class I and II soil types, the property would be planted in cotton, corn, or possibly soybeans. If this land classification contains Class III and IV soil types, the property would be planted in soybeans, sorghum, wheat, and other small grain crops.

Non-Irrigated Cropland A
Non-irrigated cropland with predominate Class I and II silt loam soils. Often, this land classification has gently rolling topography with various slopes. Typically, it is not cost effective to level this land classification as the cost would far exceed the gain in land value. And, for a variety of reasons, including topography, field shape and size, and drainage, this land classification cannot be cost-effectively irrigated. If this land classification contains Class I and II soil types, the property would be planted in cotton, corn, sorghum, or soybeans. If this land classification contains Class III and IV soil types, the property would be planted in soybeans, sorghum, wheat, and other small grain crops.

Non-Irrigated Cropland B
Non-irrigated cropland with predominate Class III and IV silty clay and clay soils. Often, this land classification has undulating topography with various slopes that can cause drainage problems. It is usually not cost effective to level this land classification as the cost would exceed the gain in land value. And, for a variety of reasons, including topography, field shape and size, and drainage, this land classification cannot be cost-effectively irrigated. If this land classification contains Class I and II soil types, the property would be planted in cotton, corn, sorghum, or soybeans. If this land classification contains Class III and IV soil types, the property would be planted in soybeans, sorghum, or rice.

Region 2 – Upland Hills/Non-Delta

This region encompasses the upland area situated east of the Mississippi River Delta and west of the Tennessee River. This region is made up of varying terrain with numerous land classifications. This region is very diverse in its agricultural production, providing opportunities for producers to diversify from a single agricultural enterprise. The top agricultural industry in this region is cotton and corn production followed by livestock production on upland pasture acreage.

Continued on next page

Tennessee Land Classifications and Definitions

continued

Cropland

Cropland in this region varies greatly depending on what portion of the state the property is located in. Cropland can be bottomland fields along inland creeks and rivers with smaller field sizes, upland cropland where the topography differences can vary greatly. This land classification represents all acres in agricultural row crop production outside of the Mississippi Delta Region. Soils can vary from Class I and II soils that typically have crops such as cotton and corn to Class III and IV soils that typically have crops such as soybeans, sorghum, and wheat. Topography can may a large difference in productivity as steeper grades may see erosion control problems. The USDA Conservation Reserve Program (CRP) is an alternative for cropland acreage with production issues.

Pasture

This land classification is used primarily for livestock or hay/silage production. Typically, this land classification would be fenced and possibly cross-fenced for grazing purposes. Topography can range from nearly level to rolling. Areas with greater slopes may have to be monitored for soil erosion.

Woodland

This land classification is primarily recreational in nature. That is the market does not see timber value, and more interest is placed on the recreational and/or rural residential aspects of the property. If the timber were to be severed from the land, the residual land plus the amount of timber harvested would not be equal to the land plus timber prior to harvest. Land values in this classification maybe driven by proximity to areas that are known for excellent recreational opportunities or proximity to areas that are desired for their rural residential appeal.

Continued on next page

Mid-South Chapter Tennessee Land Values

COUNTY	SALE DATE	TOTAL ACRES	PRIMARY LAND USE	PRICE/ ACRE
Benton	1/11/21	103.86	Woodland	$1,878
Benton	3/26/21	289.17	Woodland	$1,556
Benton	6/18/21	86.56	Woodland	$2,200
Benton	8/30/21	1500.00	Woodland	$3,541
Carroll	1/6/21	50.00	Open	$2,840
Carroll	2/4/21	67.42	Woodland	$3,855
Carroll	4/1/21	207.40	Woodland	$1,037
Carroll	4/8/21	52.20	Open	$5,364
Carroll	8/30/21	91.50	Open	$4,481
Chester	1/12/21	43.19	Open	$4,168
Chester	8/5/21	48.64	Open	$2,570
Chester	8/5/21	45.30	Open	$3,812
Crockett	2/12/21	60.62	Open	$3,712
Crockett	3/31/21	108.00	Open	$5,037
Crockett	5/25/21	99.50	Open	$4,491
Crockett	6/1/21	50.50	Open	$2,475
Decatur	2/2/21	78.33	Woodland	$4,149
Decatur	5/12/21	100.00	Woodland	$2,000
Decatur	5/21/21	239.90	Woodland	$1,201
Dyer	1/12/21	510.00	Woodland	$1,302
Dyer	2/25/21	72.00	Open	$4,000
Dyer	3/19/21	89.00	Open	$2,247
Dyer	3/19/21	255.00	Open	$6,006
Dyer	3/30/21	329.50	Batture	$2,124
Dyer	5/11/21	147.40	Open	$6,045
Dyer	6/3/21	77.30	Open	$1,294
Dyer	9/3/21	200.85	Open	$5,539
Fayette	5/14/21	402.62	Open	$4,222
Fayette	5/21/21	43.28	Open	$5,545
Fayette	5/28/21	168.64	Woodland	$3,207
Fayette	6/2/21	47.65	Woodland	$4,722
Fayette	9/15/21	276.50	Open	$3,345
Gibson	1/14/21	64.00	Woodland	$3,125
Gibson	1/20/21	92.20	Open	$5,076
Gibson	1/29/21	76.95	Open	$2,924
Gibson	5/5/21	54.00	Woodland	$2,100
Gibson	5/17/21	80.30	Open	$4,706
Gibson	6/18/21	45.30	Woodland	$5,519
Gibson	7/15/21	100.80	Open	$6,696
Gibson	7/26/21	208.80	Woodland	$4,981
Gibson	7/30/21	110.90	Open	$5,230
Hardeman	2/1/21	186.82	Open	$1,552
Hardeman	4/22/21	93.54	Open	$2,886
Hardeman	7/8/21	69.00	Woodland	$2,971
Hardeman	8/18/21	126.50	Woodland	$1,383
Hardin	1/24/21	88.79	Woodland	$1,661
Hardin	1/28/21	87.09	Open	$5,741
Hardin	4/27/21	78.30	Open	$3,193
Hardin	6/25/21	64.39	Woodland	$2,153
Hardin	7/30/21	56.00	Woodland	$2,054
Hardin	8/25/21	54.81	Woodland	$2,919
Haywood	2/19/21	58.60	Open	$4,590
Haywood	3/15/21	146.00	Woodland	$3,791
Haywood	4/9/21	208.81	Open	$3,352
Haywood	7/27/21	391.98	Woodland	$2,296
Henderson	1/20/21	87.10	Open	$2,003
Henderson	3/4/21	87.12	Woodland	$1,722
Henderson	6/30/21	100.35	Woodland	$2,551
Henderson	8/2/21	59.76	Open	$2,092
Henry	1/8/21	175.90	Woodland	$1,635
Henry	3/11/21	113.00	Open	$5,310
Henry	3/30/21	80.00	Woodland	$5,125
Henry	5/13/21	246.00	Woodland	$1,067
Henry	6/11/21	45.58	Open	$5,265
Henry	8/4/21	144.50	Open	$6,000
Henry	8/16/21	74.00	Woodland	$2,459
Lake	3/17/21	51.00	Batture	$3,529
Lake	4/16/21	96.00	Open	$5,469
Lake	7/7/21	913.90	Batture	$3,429
Lauderdale	2/25/21	94.40	Open	$3,496
Lauderdale	5/13/21	142.10	Open	$2,885
Lauderdale	7/1/21	133.10	Open	$5,259
Lauderdale	8/30/21	84.50	Batture	$2,722
Madison	3/10/21	105.50	Woodland	$1,422
Madison	7/14/21	112.10	Open	$4,059
Madison	8/20/21	328.11	Open	$5,117
Madison	8/25/21	368.90	Open	$2,060
Mcnairy	3/29/21	300.00	Woodland	$1,320
Mcnairy	4/30/21	80.58	Woodland	$3,040
Mcnairy	7/8/21	100.00	Woodland	$2,050
Obion	1/27/21	75.00	Open	$2,067
Obion	3/4/21	54.85	Woodland	$1,823
Obion	4/21/21	91.97	Open	$5,437
Obion	6/28/21	200.00	Woodland	$3,125
Obion	8/27/21	79.30	Woodland	$5,662
Obion	9/3/21	47.65	Open	$3,568
Tipton	2/25/21	53.27	Woodland	$3,191
Tipton	3/8/21	43.00	Open	$2,933
Tipton	4/22/21	46.44	Open	$3,410
Tipton	6/21/21	68.20	Woodland	$2,493
Tipton	7/1/21	106.95	Open	$4,675
Tipton	9/8/21	83.00	Woodland	$2,410
Weakley	2/4/21	58.00	Open	$6,034
Weakley	2/5/21	41.10	Woodland	$4,380
Weakley	3/31/21	40.00	Open	$3,000
Weakley	5/17/21	404.60	Woodland	$1,900
Weakley	6/10/21	98.00	Open	$6,122
Weakley	7/6/21	69.00	Woodland	$3,072
Weakley	8/18/21	149.60	Open	$2,340

Tennessee Cash Rental Rates and Land Values, 2021

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University of Tennessee Institute of Agriculture

Overview

This article provides an overview of agricultural land values and cash rental rates in Tennessee with an emphasis on West Tennessee. Data was collected from USDA National Agricultural Statistics Service (NASS) and the State of Tennessee Comptroller of the Treasury – Real Estate Assessment Data. Prevailing cash rental rates and land values, for cropland and pastureland in Tennessee, are determined by local supply and demand. Significantly higher or lower cash rental rates and land values will occur within a county and will be dictated by land use, quality of land, location, soil type, and other local factors.

Factors Influencing Land Values

In 2021, factors that positively impacted land values in Tennessee were a strong economic recovery, increased population, low interest rates, higher commodity prices than in recent years, above trend line yields for key row crops, and federal government payments to agricultural producers. Federal government payments from programs like the Market Facilitation Program (MFP), the Coronavirus Food Assistance Program (CFAP), and the Paycheck Protection Program (PPP) helped mitigate the adverse consequences of the trade dispute with China and the COVID-19 pandemic. These payments helped stabilize farm income and support land values.

In Tennessee, agriculture land values continue to be supported by non-agricultural production factors. This can lead to a highly regionalized impact on land values with proximity to population/urban areas skewing agricultural property values. There has also been a trend in farmland markets in some parts of the state where people are wanting to leave cities for smaller towns and rural areas. This has led to increased demand for rural properties, which has escalated prices above the value implied by agricultural use alone. Not all rural areas are affected, but where they have been, the markets are very strong. The supply side of the land market is also important and strong commodity prices are prompting farmers to both look for more land and keep the land they have. This leads to a limited supply of land for sale that is driving prices up.

So, will we see things continue into the near future with strong farmland values? That will depend on several factors, but the potential for higher interest rates and lower levels of government payments may limit price increases in some counties. However, if commodity prices and profitability remain strong, and investors see farmland as a good alternative to other investments, there will be bidders for a limited supply of agricultural land and prices will remain strong.

USDA NASS Estimates

For 2021, USDA-NASS estimated Tennessee average cropland values up 3.5% to $4,130 per acre and pastureland up 3.1% to $4,000 per acre (Figure 1). From 2020 to 2021, Tennessee cash rental rates, for non-irrigated cropland, increased 7.2%, while irrigated cropland decreased 3%, and pastureland rates decreased by 2% (Figure 2). However, since 2011, non-irrigated, irrigated, and pastureland cash rental rates are up 35%, 22%, and 13%, respectively. In Tennessee, cash rental rates vary dramatically from county to county due to differences in the commodities produced and the quality and productivity of agricultural land. Figures 3 and 4 show the cropland and pasture cash rental rates and percent change from 2020 to 2021.

Real Estate Assessment Data

For 2016-20, land sales data was obtained from the State of Tennessee Comptroller of the Treasury. The data includes sales of agricultural, farm, and forestry land in selected West Tennessee counties. Abnormal property transactions (greater than three standard deviations from the mean) were removed from the data presented. Figure 5 shows number of sales by sales price for select Tennessee counties.

Disclaimer - Significant variation in cash rental rates and land values will occur within regions and counties. When negotiating a cash rental rate or land purchase value, consideration should be given to: location, soils, topography, size, best agricultural use, and other local or regional factors. The information presented does not constitute a recommendation or fair value – it is presented for information purposes only. Producers and property owners who are trying to determine a value or rental rate should contact a qualified professional in their region.

Tennessee Cash Rental Rates and Land Values, 2021

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Figure 1.
Number of Agricultural Land Sales by Price Range (Dyer, Lauderdale and Tipton Counties), 2017-2019

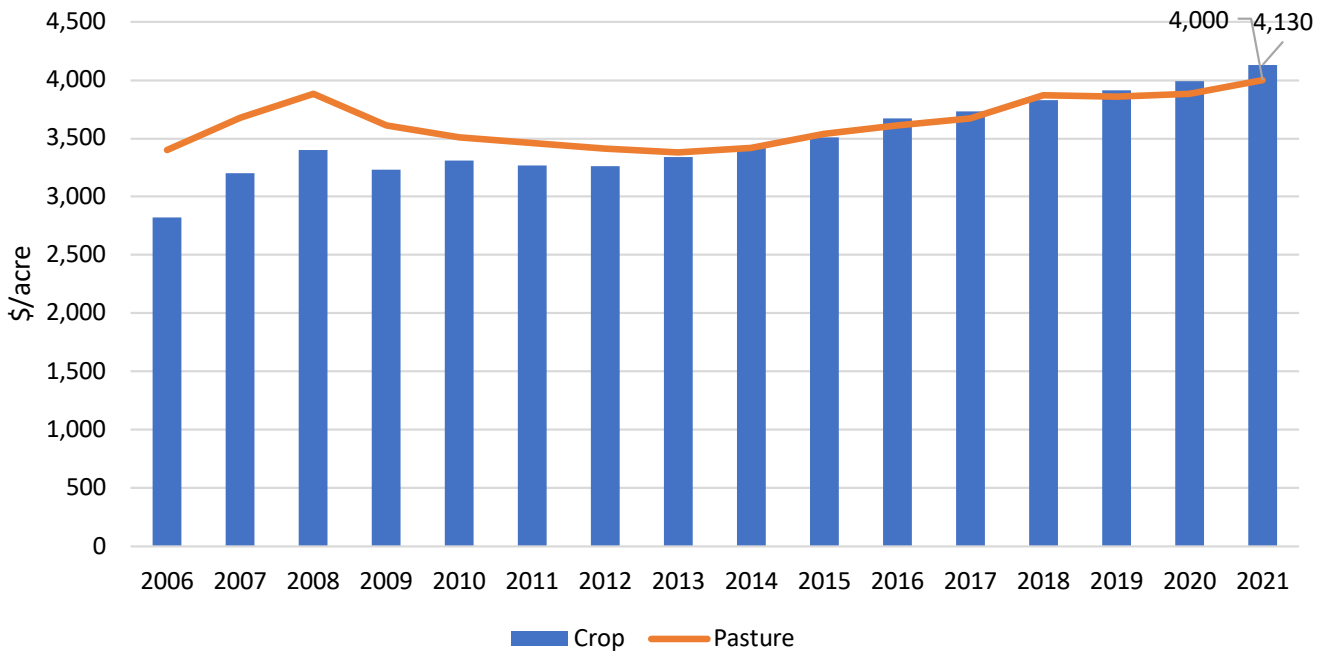
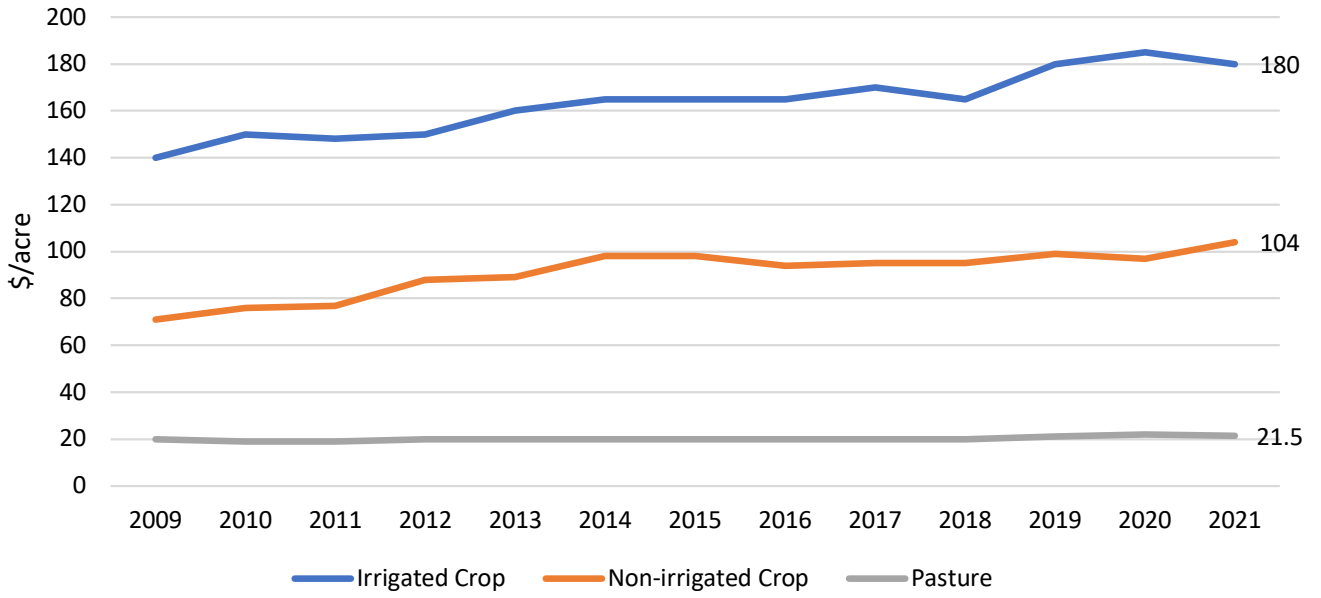


Figure 2.
USDA – NASS pastureland and irrigated and non-irrigated cropland rents for Tennessee, 2006-2021



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Tennessee Cash Rental Rates and Land Values, 2021
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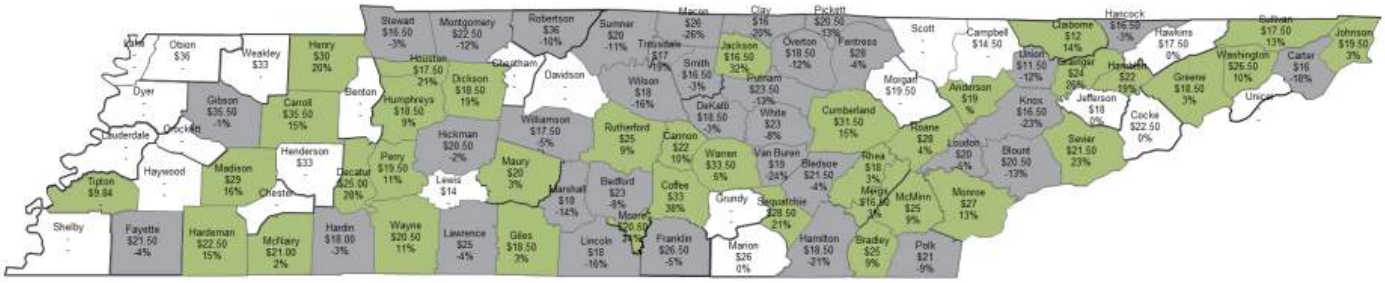
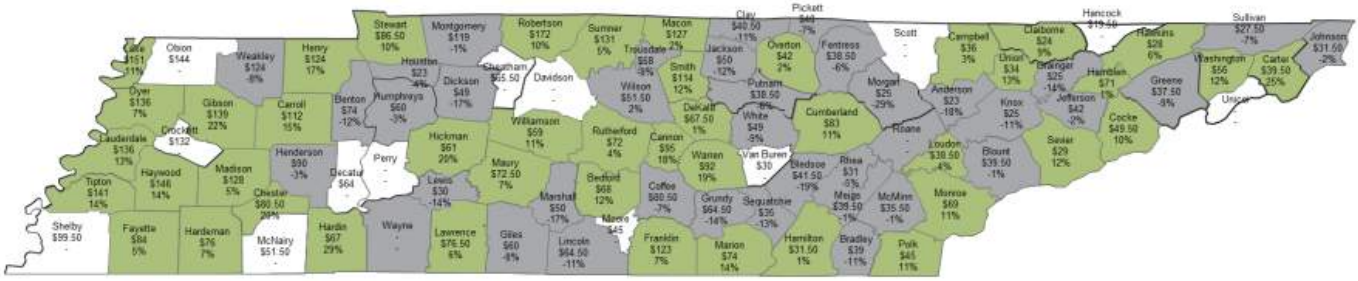
Figure 3.
Tennessee cash rent, pastureland, $/acre, 2021, % change from 2020



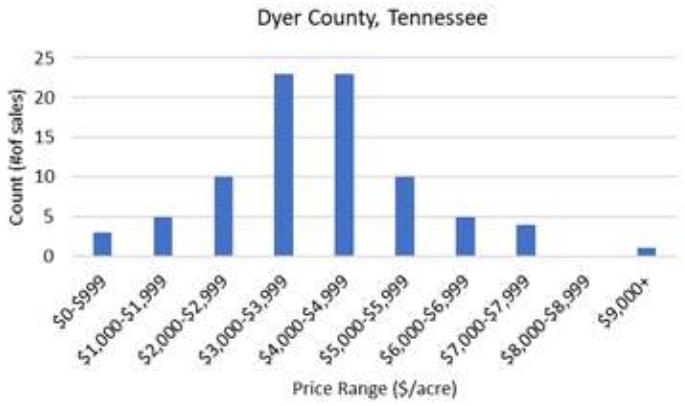
Data source: USDA National Agricultural Statistics Service

Figure 4.
Tennessee cash rent, non-irrigated cropland, $/acre, 2021, % change from 2020



Data source: USDA National Agricultural Statistics Service

Figures 5.
Select West Tennessee County Agricultural and Forestry Land Sales, 2016-2020



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Tennessee Cash Rental Rates and Land Values, 2021

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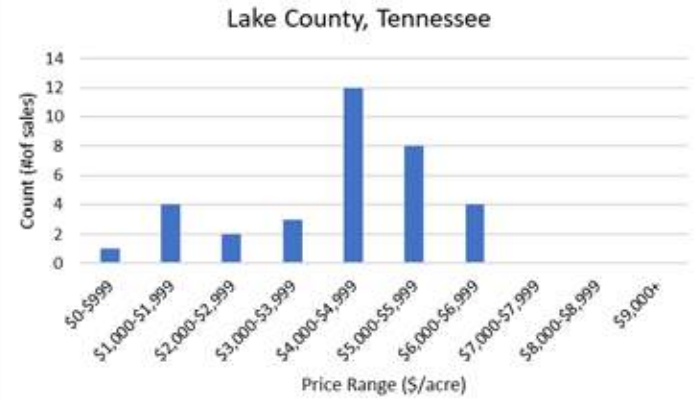
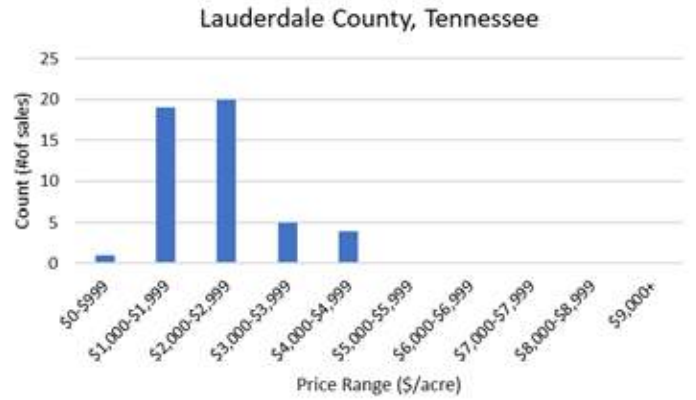
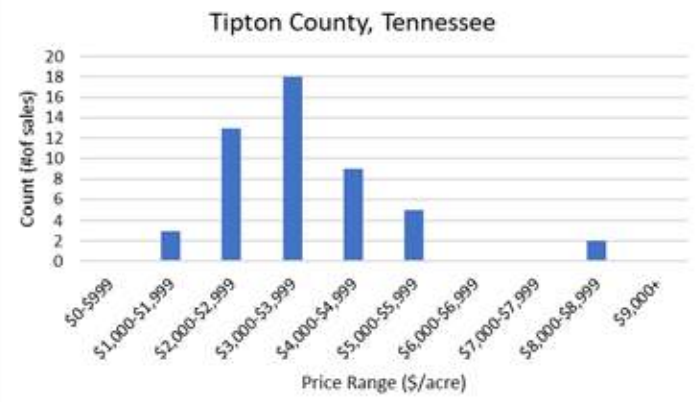
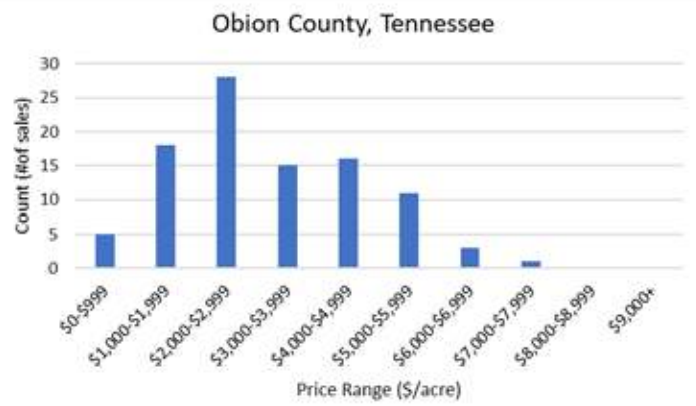
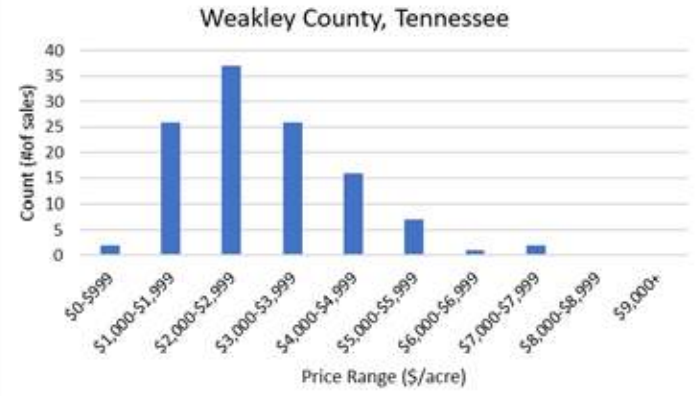
Select West Tennessee County Agricultural and Forestry Land Sales, 2016-2020 (continued)

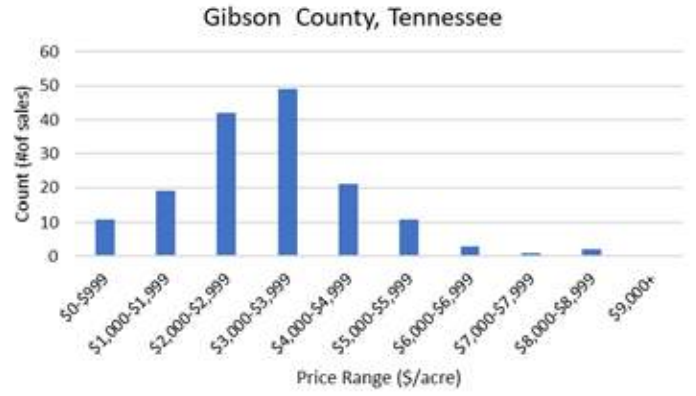


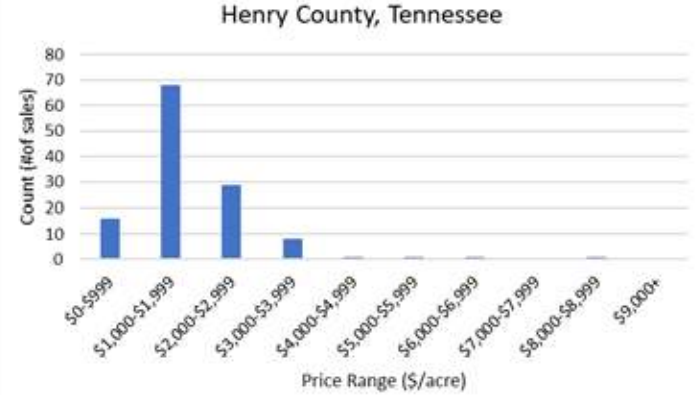


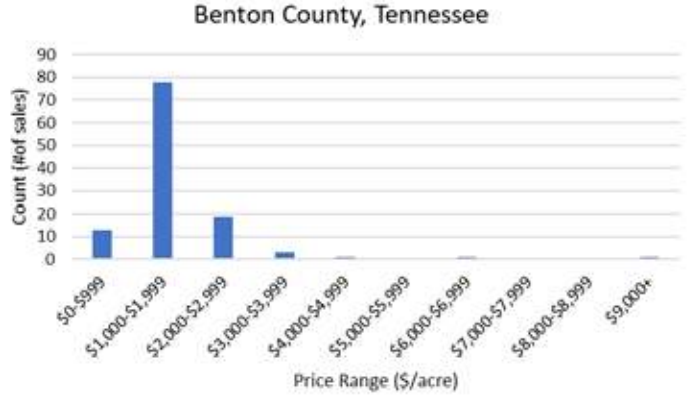












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Tennessee Cash Rental Rates and Land Values, 2021

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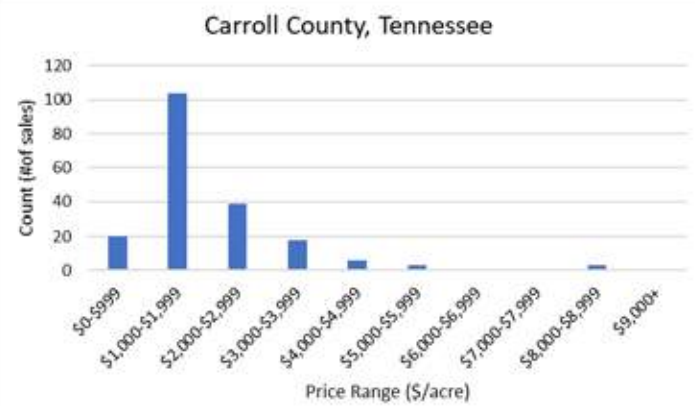
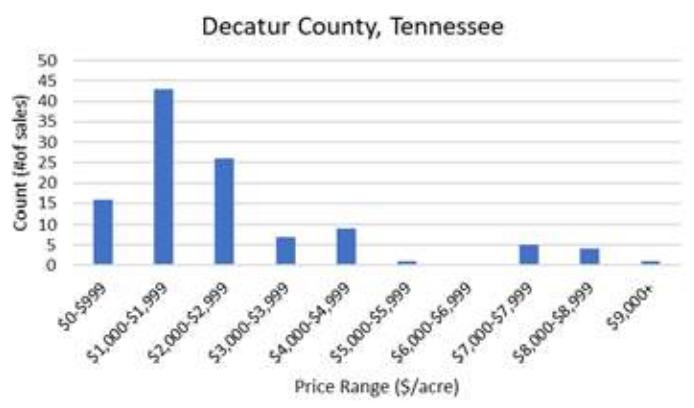
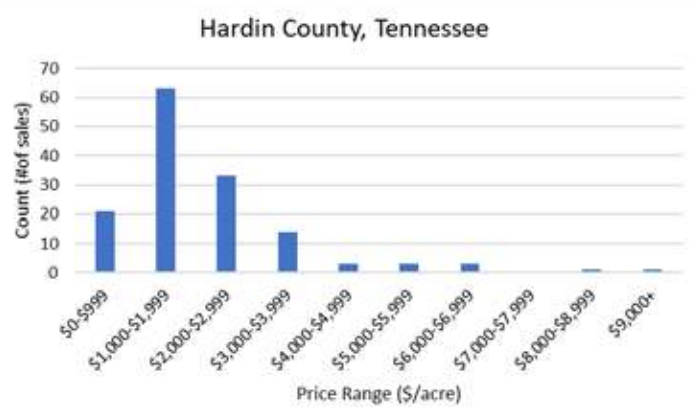
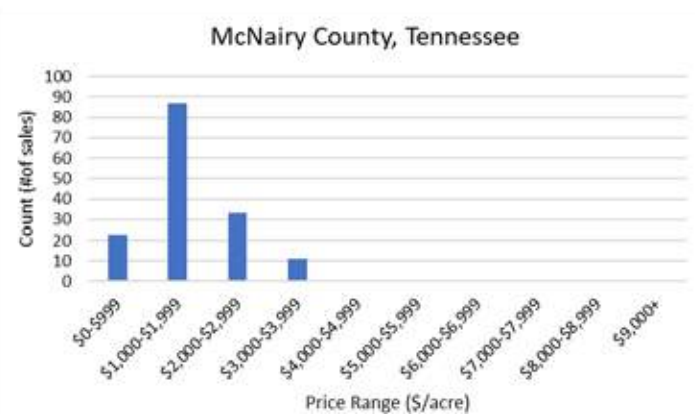
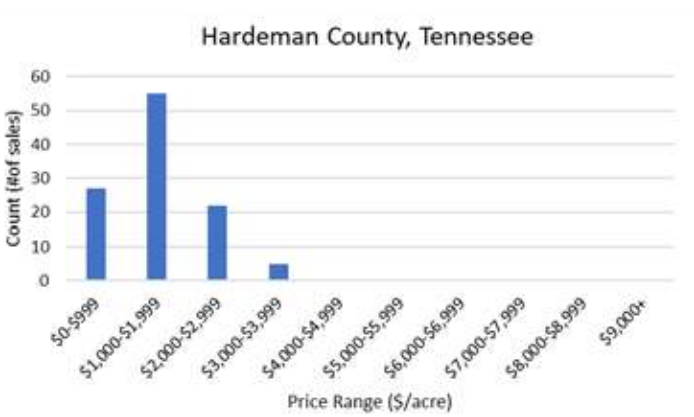
Select West Tennessee County Agricultural and Forestry Land Sales, 2016-2020 (continued)

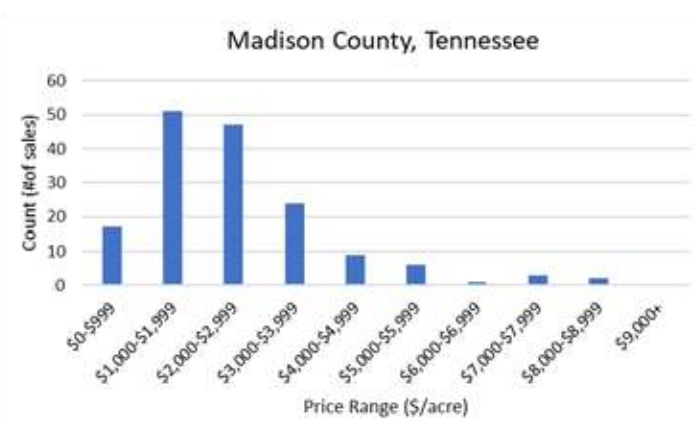


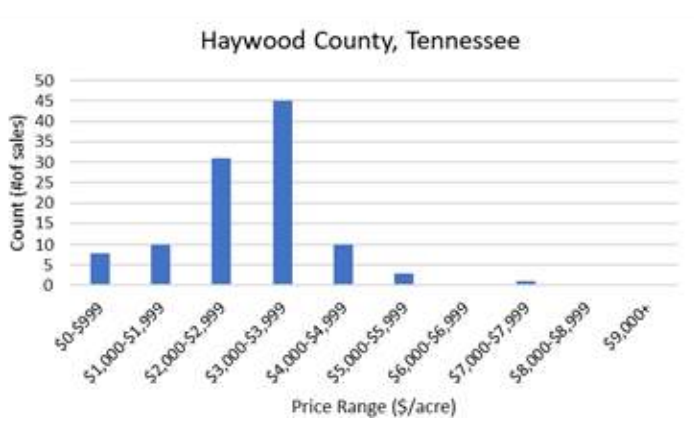












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Tennessee Cash Rental Rates and Land Values, 2021

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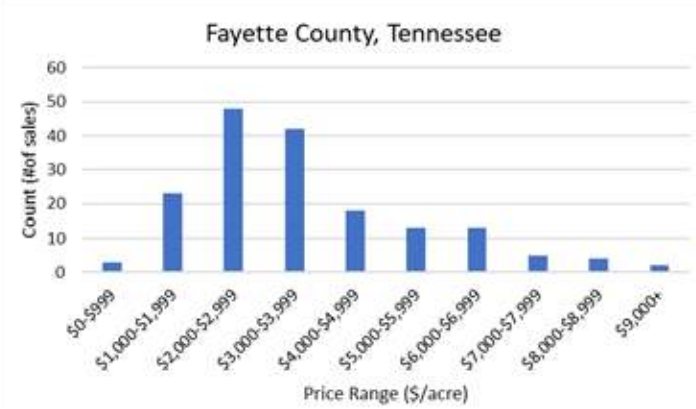
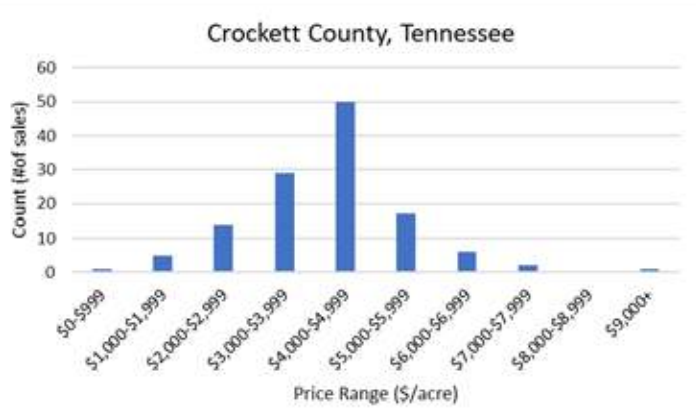
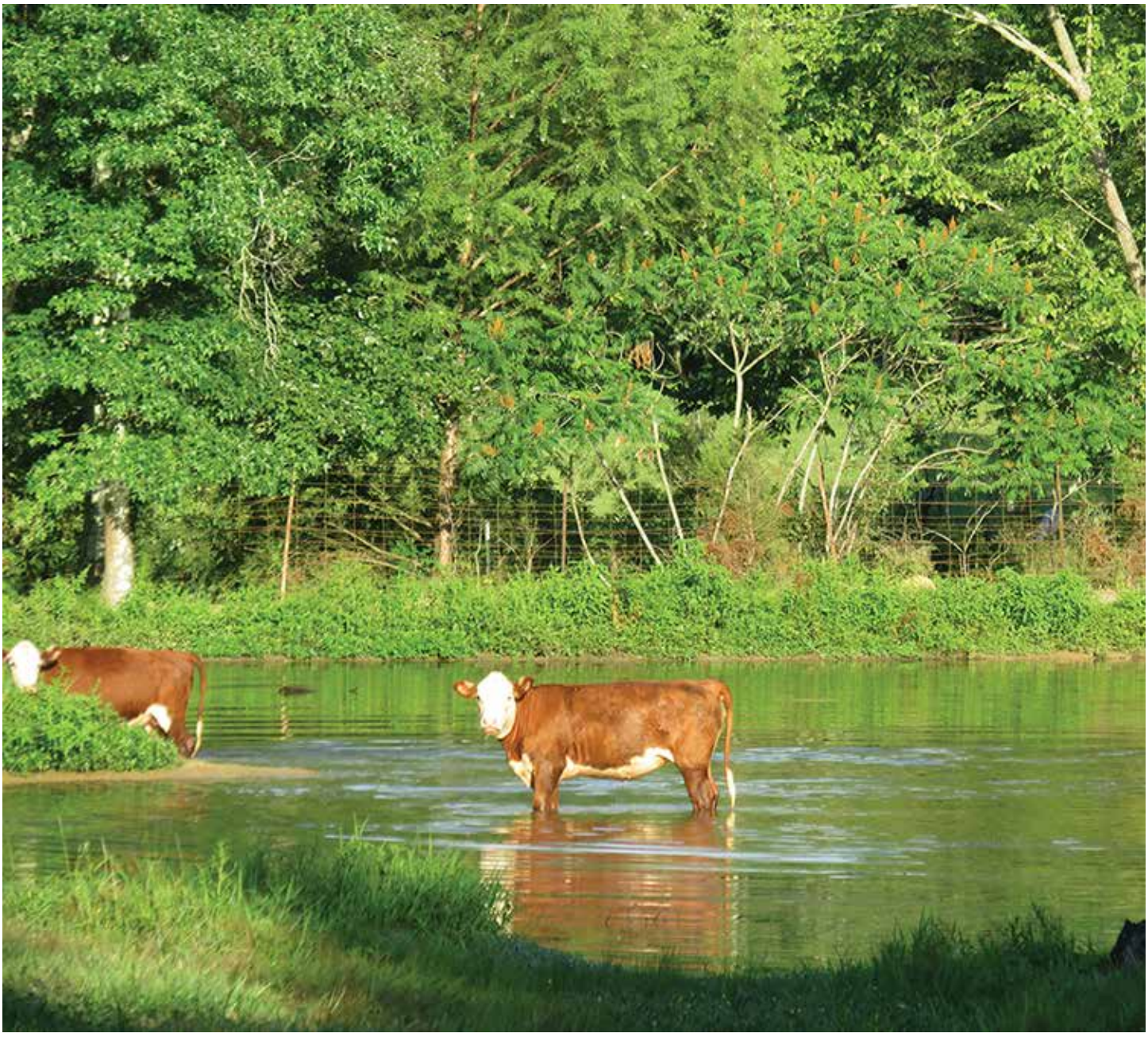
Select West Tennessee County Agricultural and Forestry Land Sales, 2016-2020 (continued)







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The **American Society of Farm Managers and Rural Appraisers®** (ASFMRA®) is the largest professional association for rural property land experts. ASFMRA has over 2,150 members and the Mid-South Chapter is one of 31 chapters throughout the United States. Over 40 percent of ASFMRA's members hold a designation as an Accredited Farm Manager (AFM), Accredited Rural Appraiser (ARA), Real Property Review Appraiser (RPRA) or Accredited Agricultural Consultant (ACC).

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- Implements sound business principles and manages production inputs and market variables to improve margins.
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- Maintains specific resources to support all types of appraisal-related review work.
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>
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>
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