



Agricultural Land Sales in Virginia

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Abstract

This report provides new insight into agricultural land¹ values in the Commonwealth of Virginia from 2010 through 2018. The graphs and data tables summarize the averages of market-based agricultural land transactions at the multi-county district and at the statewide levels. Several areas of the state experienced particularly high farmland price appreciation during the study period. The highest growth rates were observed in the Western district. Statewide, 2018 market-based estimates of farmland averaged \$4,994 per acre, down 0.7% from 2017.

Section 1: Motivation and Statewide Overview

Introduction

Virginia has a diverse and long history in agriculture, including a rich tradition of farming tobacco, peanuts, and livestock. Agriculture has always been a significant contributor to Virginia's economy and is the largest private industry within the Commonwealth with an estimated \$70 billion in annual revenue (Virginia Department of Agriculture and Consumer Services, n.d.). The foundation of this annual revenue production is the agricultural land upon which Virginia's agricultural commodities are grown, raised, and harvested. Landowners eventually choose to use their land for farm use, investment, development, and more. According to the U.S. Department of Agriculture (USDA), farm real estate has accounted for more than 80% of total farm asset value in recent years (Hellerstein, Vilorio, and Ribauda 2019). As such, farmland values can be a useful barometer for measuring the overall financial well-being of the agricultural sector.

Historically, data limitations hamper the analysis of actual farmland transactions. While residential property changes ownership quite frequently, agricultural land changes hand significantly less often. Thin market data is not the only challenge to accurately measuring agricultural land values. Annual estimates of farmland values reported by the USDA's National Agricultural Statistics Service are based on opinion-based surveys. These self-assessed values are often used to analyze farmland markets despite economists considering observed sales transaction prices to be the "gold standard" for research and the fact that little is known about how the self-assessed values correspond to the market's assessment of the land (Bigelow and Jodlowski 2019). This report sets forth "market based" trends for agricultural land in Virginia from 2010 to 2018.

[1] Reference to "agricultural land" throughout this report includes undeveloped land of 20-acres or more which may also be forested and/or have diverse topography.

The Data

The data analyzed represents the fair market value of agricultural land in recorded arms-length transactions. For the purposes of this report, the fair market value is deemed to be the value of the land on the open market through an analysis of recorded sales of undeveloped land of 20 acres or more. These estimates are based on data from agricultural land transactions obtained from the Virginia Department of Taxation. This data is independently reported to the Virginia Department of Taxation by localities, which file their real estate transactions through a prescribed format. Each transaction transferred into the Virginia Department of Taxation's database lists the date of recordation, instrument number, document type, guarantor and guarantee, sales price, and a description of the parcel(s). The analyzed data does not include all agricultural land sales in the Commonwealth of Virginia. However, it is a significant representation of fair market sales or "arm's length" transactions, which excludes land transfers such as sales within a family, foreclosures, or sales to a government unit within the Commonwealth. This report relies on data sourced from agricultural land transactions during the years 2010 through 2018. Each transaction has been cross-checked and verified for accurate acreage and sale values.

Research Purpose

Statistics in this report should be regarded only as indicators of past general conditions in the agricultural land market. The reported data does not represent the prices or values of any particular parcel. However, the statistics do provide a general guide to Virginia agricultural land market prices and geographic trends. Users should not regard these reported statistics as a substitute for an appraisal or market study of current local sales regarding the value of any particular land parcel. This data is intended to provide information on historical Virginia agricultural land markets and does not forecast future market values. The correlation between agricultural land market values and agricultural use-values is an area of future study. It is important to note the parcel data may reflect forestland as well as open land that may not be suitable for agricultural use. The data collected for this report comes from two specific land class codes in the Virginia Department of Taxation's land sales transaction database: Class 5 and Class 6. Class 5 consists of undeveloped parcels greater than 20 acres but less than 100 acres. Class 6 consists of all undeveloped parcels greater than 100 acres.

Methods and Procedures

The data sourced from the Virginia Department of Taxation went through a validation process for this report. The data was sorted by locality, then each transaction's sale price and acreage were validated using the local GIS system, land records, and/or property tax records. Parcel transaction data with an error in the class code or with missing sales information were excluded to obtain an accurate and effective representation in each locality. Data that remained after the two stages of cleaning and validation were checked for outliers using a box plot. The variable containing the "value per acre" in dollars was used as an indicator for outliers and any transactions with a value above or below the 1.5*IQR (interquartile range) were removed. After the data from all localities were compiled into a single spreadsheet, descriptive statistics were calculated for each locality.

Statewide Overview

Based on the data, the average price of agricultural land sold in Virginia during 2018 was \$4,994 per acre, a 0.7% decrease from 2017 (fig. 1). Land values slowly increased from 2014 through 2017 and the 2018 decrease may represent a small correction to that upswing. In comparison, the 2018 USDA estimates for farm real estate values (land and buildings) show the prices increased from 2017 to 2018 at the national level. All states in the Fifth Federal Reserve District (Virginia, Maryland, the Carolinas, the District of Columbia, and most of West Virginia) saw an increase in their 2018 USDA farm real estate value estimates. USDA research highlights the historically low interest rates and commodity price increases which coincided with the rapidly increasing inflation-adjusted real estate values between 2010 and 2013. However, farm real estate and land value appreciation slowed between 2015 and 2018 and the real value of cropland declined by nearly 5% (Hellerstein, Vilorio, and Ribauda 2019).

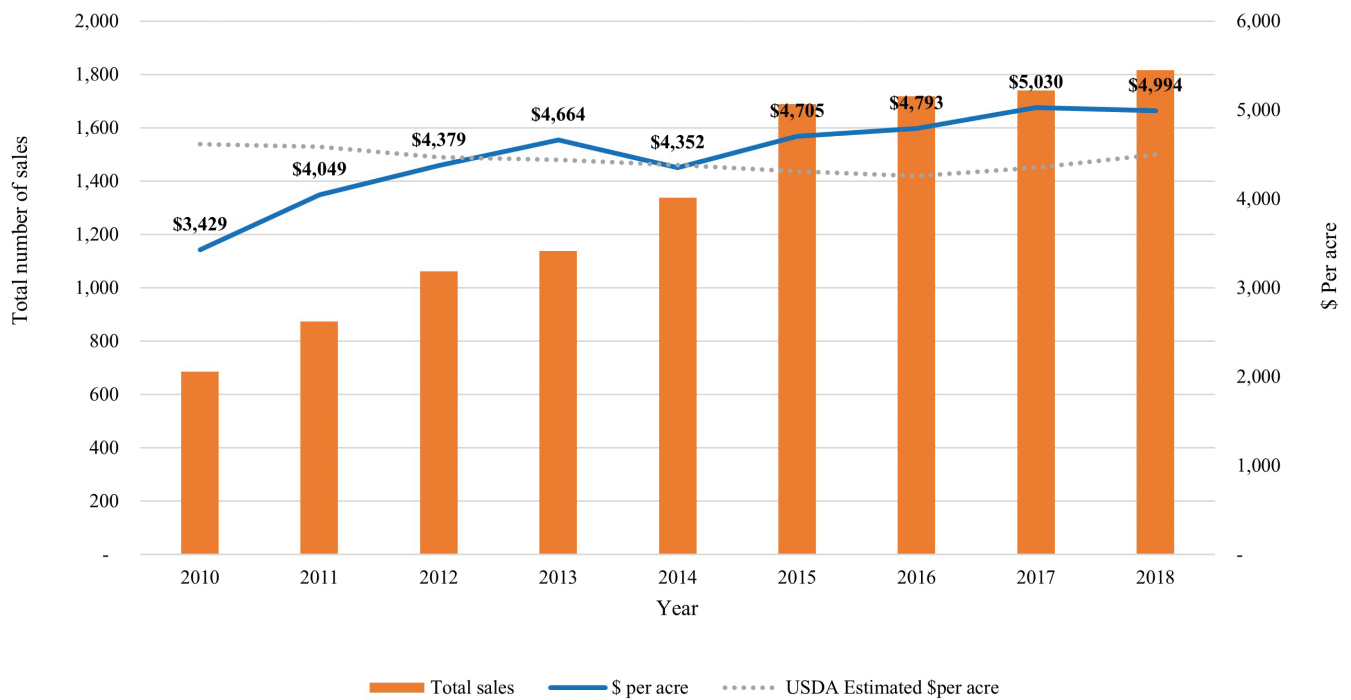


Figure 1: Estimated Virginia Ag Land Values and Volume, 2010-2018.

In 2018, land sales saw a wide variation in price per acre: 32% of the sales were less than \$2,000 per acre and 26% of sales had prices above \$6,000 per acre. A significant percentage were high dollar-per-acre sales, comparably speaking, as sales above \$10,000 per acre accounted for 11% of all transactions (fig. 2).

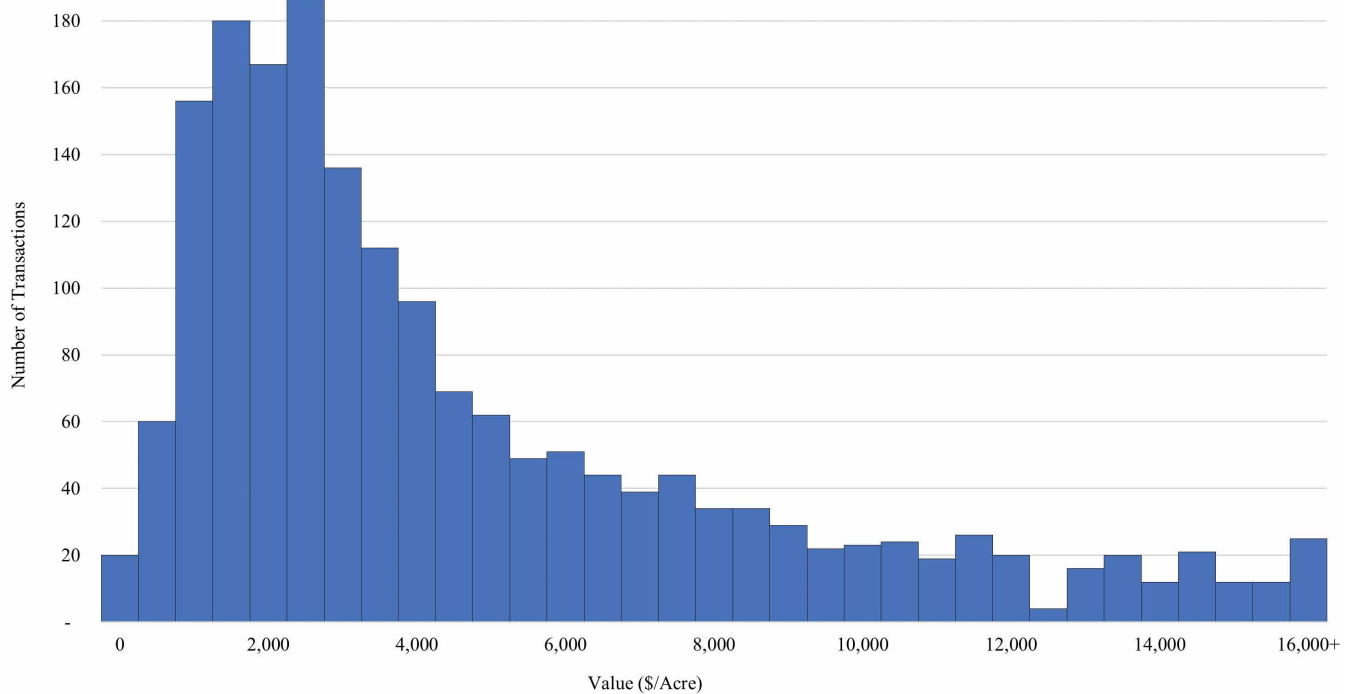


Figure 2: Value Per Acre by Transaction Volume, 2018.

Figure 3 shows the distribution of parcel size for the most recent data year, 2018, including the volume of transactions in property classes 5 and 6. As expected, smaller parcels of land change hands more frequently than larger parcels. Most observed agricultural real estate transactions transferred 200 acres or less, with the bulk of transactions consisting of 30, 50, and 150 acres. In 2018, there were 808 parcels sold between 20 and 40 acres, accounting for 45% of all reviewed sales.

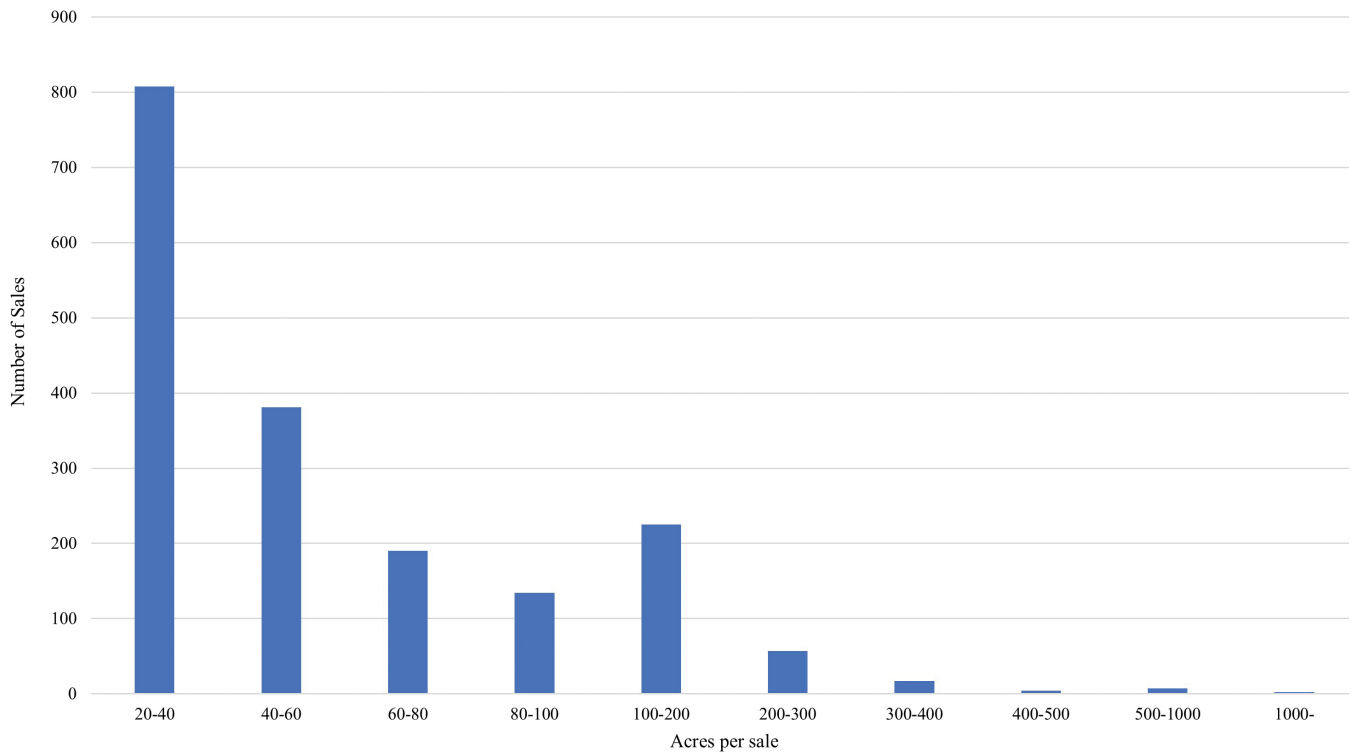


Figure 3: Parcel Size and Sales Volume, 2018.

Between 2010 and 2018, the number of land sales steadily increased, but the total acres sold each year was more volatile (fig. 4). In 2014, a large spike in acres sold occurred, reaching a maximum of 165,437 acres, which then fell by 40,000 acres the very next year in 2015. There were 18% more transactions in 2014 than in 2013, however, there were 93% more acres sold in 2014 than in 2013. This indicates that 2014 saw a greater percentage of sales consisting of larger parcels than in 2013.

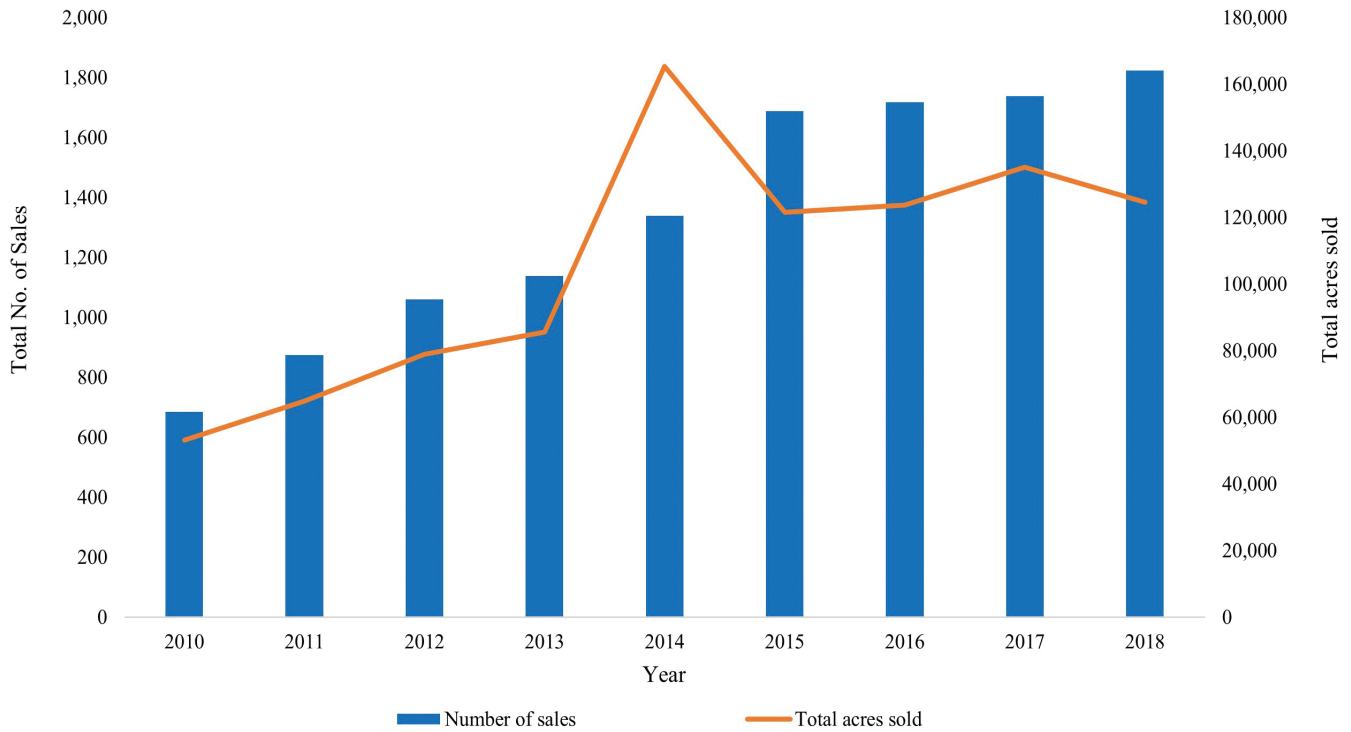


Figure 4: Annual Number of Sales and Acres Sold, 2010-2018².

Section 2: Regional Overview

Location is an important determinant of value. In addition to statewide averages, regional averages were analyzed by Agricultural Statistics Districts (ASD). An ASD is defined as a contiguous group of counties having relatively similar agricultural characteristics. The map and table below outline each ASD for this report (fig. 5). The average and median sale prices (dollars per acre) in each of the Agricultural Statistics Districts are reflected in table 1. As is true with all real estate, variations in individual parcel values reflect a variety of observed and unobserved characteristics of individual parcels including soil quality, population and urban influence, recreational and natural amenities, locational characteristics, etc.

[2] Land sales steadily increased between 2010 and 2018, but number of acres sold fluctuated year by year.



Districts	Jurisdictions			
Central	Albemarle	Campbell	Greene	Orange
	Amelia	Caroline	Hanover	Powhatan
	Amherst	Chesterfield	Henrico	Prince Edward
	Appomattox	Cumberland	Louisa	Spotsylvania
	Bedford	Fluvanna	Nelson	
	Buckingham	Goochland		
Eastern	Accomack	King & Queen	Mathews	Northumberland
	Charles City	King George	Middlesex	Richmond
	Essex	King William	New Kent	Westmoreland
	Gloucester	Lancaster	Northampton	York
	James City			
Northern	Arlington	Fauquier	Page	Shenandoah
	Clarke	Frederick	Prince William	Stafford
	Culpeper	Loudoun	Rappahannock	Warren
	Fairfax	Madison	Rockingham	
Southeastern	Brunswick	Greensville	Prince George	Surry
	Chesapeake City	Isle of Wight	Southampton	Sussex
	Dinwiddie	Mecklenburg	Suffolk City	Virginia Beach City
Southern	Charlotte	Halifax	Lunenburg	Patrick
	Franklin	Henry	Nottoway	Pittsylvania
Southwestern	Bland	Floyd	Pulaski	Tazewell
	Buchanan	Giles	Russell	Washington
	Carroll	Grayson	Scott	Wise
	Dickenson	Lee	Smyth	Wythe
		Montgomery		
Western	Alleghany	Bath	Craig	Roanoke
	Augusta	Botetourt	Highland	Rockbridge

Figure 5: Agricultural Statistics Districts (ASD) of Virginia.

In 2018, the average value declined less than 1% across the Commonwealth as a whole. The highest mean values in 2018 were the Northern ASD at \$8,714 per acre, followed by the Western ASD at \$5,959 and the Central ASD at \$5,470. The mean and median values dramatically increased for Western ASD from 2015 to 2018. The other districts saw mixed results for the average and mean agricultural land values.

Table 1: Average and Median Per Acre Sales Prices by District, 2015-2018.

District		Year				% Change			
		2015	2016	2017	2018	2015-16	2016-17	2017-18	2015-18
Central	Mean	\$5,518	\$5,639	\$5,284	\$5,470	2.20%	-6.30%	3.52%	-0.87%
	Median	\$4,078	\$4,299	\$3,770	\$3,975	5.43%	-12.32%	5.44%	-2.53%
Eastern	Mean	\$4,305	\$4,000	\$4,944	\$4,699	-7.07%	23.59%	-4.97%	9.16%
	Median	\$3,256	\$2,802	\$3,529	\$3,125	-13.94%	25.94%	-11.44%	-4.01%
Northern	Mean	\$8,310	\$8,045	\$8,080	\$8,714	-3.19%	0.44%	7.85%	4.86%
	Median	\$7,196	\$7,494	\$7,151	\$7,854	4.15%	-4.59%	9.83%	9.14%
Southeastern	Mean	\$3,869	\$3,060	\$4,011	\$3,741	-20.90%	31.07%	-6.73%	-3.30%
	Median	\$2,294	\$1,977	\$2,320	\$2,481	-13.80%	17.33%	6.92%	8.15%
Southern	Mean	\$2,968	\$3,344	\$3,600	\$3,456	12.67%	7.65%	-3.99%	16.45%
	Median	\$2,253	\$2,411	\$2,434	\$2,564	7.01%	0.97%	5.34%	13.81%
Southwestern	Mean	\$3,528	\$3,751	\$4,414	\$4,414	6.33%	17.66%	-7.04%	16.31%
	Median	\$2,879	\$2,989	\$3,445	\$3,177	3.82%	15.26%	-7.79%	10.34%
Western	Mean	\$4,774	\$4,854	\$5,030	\$5,959	1.66%	3.63%	18.46%	24.80%
	Median	\$3,854	\$3,937	\$3,797	\$4,899	2.15%	-3.54%	29.01%	27.12%
Total	Mean	\$4,705	\$4,793	\$5,030	\$4,994	1.88%	4.93%	-0.72%	6.13%
	Median	\$3,355	\$3,398	\$3,509	\$3,557	1.29%	3.26%	1.38%	6.04%

Table 2 shows the breakdown of recorded agricultural transactions across ASDs from 2010 to 2018 (prior to the data selection process). The number of recorded transactions steadily increased over time in each district within the Commonwealth.

Table 2: Land Class 5 and 6 Sales, 2010-2018³.

District	Number of Recorded Transactions									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Central	300	334	364	424	528	561	611	654	663	
Eastern	118	111	137	147	194	175	220	185	224	
Northern	148	183	224	265	247	320	318	304	310	
Southeastern	123	127	175	147	166	179	186	185	208	
Southern	210	161	272	281	303	317	289	339	294	
Southwestern	261	259	307	354	353	430	452	472	472	
Western	63	83	87	149	151	158	186	181	192	
Total	1,223	1,258	1,566	1,767	1,942	2,140	2,262	2,320	2,363	

The number of agricultural land acres in Virginia sold on an annual basis remained close to the transaction volumes observed between 2015 and 2017 (table 3). On the state level, agricultural land sales totaled 123,706 acres in 2018, which is 2.5% less than the 2015-2017 average. The volume of land sales varies by agricultural district, but the main contributor is the Central ASD. While the Northern and Western ASDs tend to have the highest dollar-per-acre values, they have relatively lower sales volumes.

[3] These values represent the original data from the 2010-2018 Virginia Sales/Assessment Ratio Studies.

Table 3: Agricultural Land Sales Trend, 2018⁴.

District	No. of 2018 Sales	2018 Total Acres Sold	Average Annual Acres Sold 2015-2017	% Change in 2018 from 2015-2017 Average
Central	479	31,077	34,253	-9.27%
Eastern	160	11,692	12,170	-3.93%
Northern	180	9,121	13,505	-32.46%
Southeastern	192	16,303	14,232	14.55%
Southern	269	20,338	21,084	-3.54%
Southwestern	387	24,659	19,633	25.60%
Western	158	10,516	11,999	-12.36%
Total Sales	1,816	123,706	126,876	-2.50%

Section 3: Virginia Real Estate Class Trends

Taking a broader look at Virginia real estate transactions, figure 6 and table 4 below examine the sale frequencies in Virginia for all six property classes designated by the Virginia Department of Taxation: single-family residential urban (Class 1), single-family residential suburban (Class 2), multi-family residential (Class 3), commercial and industrial (Class 4), agricultural land 20 to 100 acres (Class 5), agricultural land over 100 acres (Class 6). This data is published in the annual Virginia Assessment/Sales Ratio Studies by the Virginia Department of Taxation. With the exception of 2011, total sales steadily increased over this period. From 2010 to 2018, the total number of sales for all property classes almost doubled.

The residential housing markets dominate the share of total sales, of which single-family residential urban property sales account for more than 52% and single-family residential suburban property sales account for over 34% of total arm’s length transactions in Virginia during this period. Multifamily residential sales have the lowest share (less than 1%) of total sales for the entire study period. Agricultural land sales (Class 5 and 6), the major interest of this study, consistently accounted for 2.6% to 3.2% of the total number of sales. The overwhelming majority of agricultural land sales, 82% on average, are under 100 acres (represented by Class 5). To emphasize the trends over the study period, the number of agricultural land sales are shown in figure 6 using a secondary axis whereas all other sales use the primary axis. Series with dashed lines indicate the agricultural sales and solid lines indicate nonagricultural sales.

[4] Final data obtained through selection and validation process.

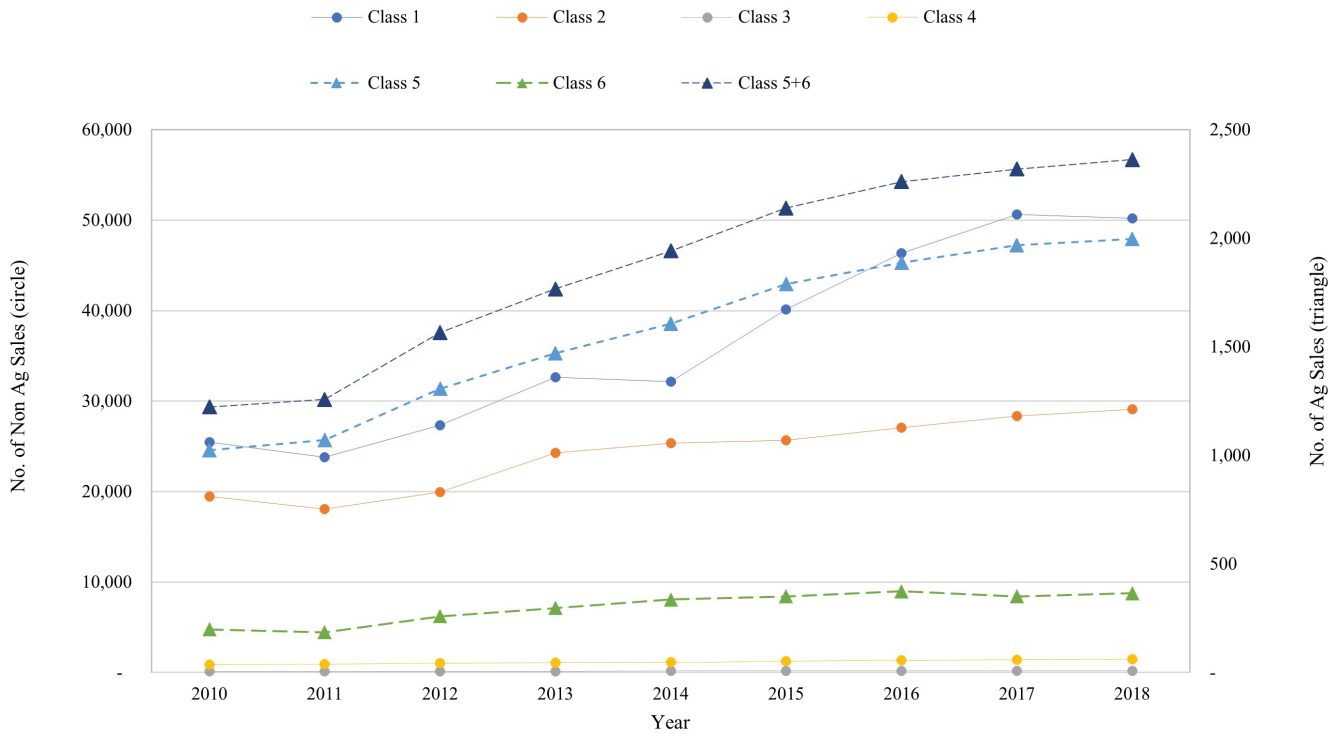


Figure 6: Total Sale Trends by Property Class, 2010-2018.

Table 4: Total Number of Sales by Property Class, 2010-2018⁵.

Property Classification	2010	2011	2012	2013	2014	2015	2016	2017	2018
Class 1 Single-family Residential Urban	25,475 (54.0%)	23,831 (53.9%)	27,340 (54.7%)	32,627 (54.4%)	32,158 (52.9%)	40,133 (57.8%)	46,349 (60.0%)	50,653 (61.1%)	50,203 (60.2%)
Class 2 Single-family Residential Suburban	19,479 (41.3%)	18,099 (40.9%)	19,929 (39.9%)	24,307 (40.6%)	25,371 (41.8%)	25,678 (37.0%)	27,092 (35.1%)	28,342 (34.2%)	29,131 (34.9%)
Class 3 Multi-family Residential	119 (0.3%)	113 (0.3%)	108 (0.2%)	149 (0.2%)	174 (0.3%)	192 (0.3%)	186 (0.2%)	205 (0.2%)	206 (0.2%)
Class 4 Commercial and Industrial	887 (1.9%)	917 (2.1%)	1,033 (2.1%)	1,090 (1.8%)	1,121 (1.8%)	1,279 (1.8%)	1,376 (1.8%)	1,413 (1.7%)	1,469 (1.8%)
Class 5 Agricultural 20-100 acres	1,024 (2.2%)	1,072 (2.4%)	1,307 (2.6%)	1,470 (2.5%)	1,606 (2.6%)	1,789 (2.6%)	1,888 (2.4%)	1,969 (2.4%)	1,998 (2.4%)
Class 6 Agricultural over 100 acres	199 (0.4%)	186 (0.4%)	259 (0.5%)	297 (0.5%)	336 (0.6%)	351 (0.5%)	374 (0.5%)	351 (0.4%)	365 (0.4%)
Total	47,183 (100%)	44,218 (100%)	49,976 (100%)	59,940 (100%)	60,766 (100%)	69,422 (100%)	77,265 (100%)	82,933 (100%)	83,372 (100%)
Class 5+6 Total	1,223 (2.6%)	1,258 (2.8%)	1,566 (3.1%)	1,767 (2.9%)	1,942 (3.2%)	2,140 (3.1%)	2,262 (2.9%)	2,320 (2.8%)	2,363 (2.8%)

[5] These values represent the original data from the 2010-2018 Virginia Sales/Assessment Ratio Studies. Values in the parentheses indicate the percentage of total sales.

Figure 7 shows the distribution of statewide sales prices for Property Classes 5 and 6 in 2010, 2014, and 2018. Each vertical bar indicates the number of transactions in each price range. The sales price was deflated to 2018 (most recent year) using Gross Domestic Product: Implicit Price Deflator (FRED 2021). The distribution highlights the large proportion of total ag sales in the \$1,000-\$4,000 range. This trend was remarkably similar for all three years. For each of these three years, the \$2,000-\$3,000 per acre category dominated the percentage of total ag sales (over 20%), followed by market values between \$1,000 and \$2,000 per acre. Throughout the study period, the data does not demonstrate a significant percentage of high dollar-per-acre land selling in a single year, or a notable increase in percentages of higher dollar-per-acre land sales.

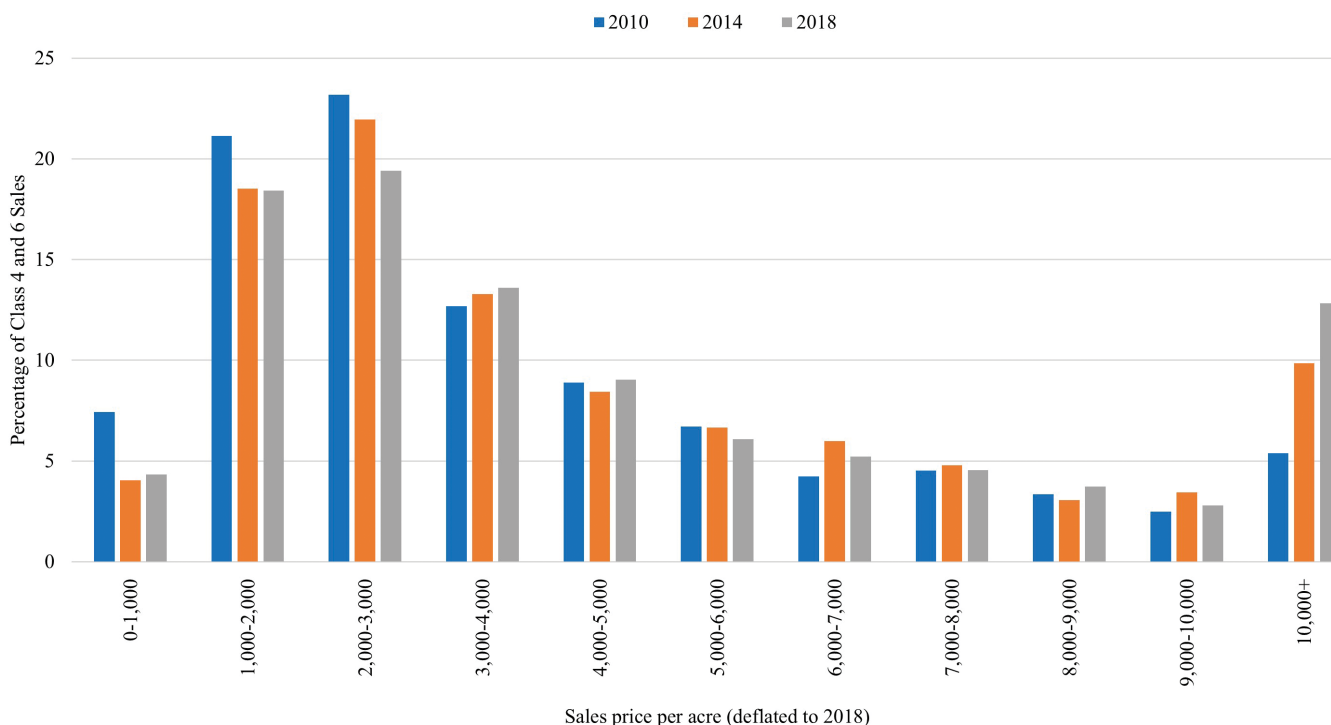


Figure 7: Average Sales Price Per Acre in 2010, 2014, 2018.

Summary and Conclusions

This historical look at arms-length transactions of agricultural and undeveloped land in the Commonwealth is a rearview mirror perspective of market values and is not a forecast of future land market conditions.

From 2010 to 2018, Virginia’s ag land sales increased in both volume and value. From 2010 to 2014, the number of ag land sales steadily increased before leveling off between 2015 and 2018. (fig. 1). An important finding in analyzing actual arms-length transactions is that the statewide data-based market values of agricultural land were often higher than what is reported in the opinion-based USDA-NASS surveys for the study period (fig. 1). While agricultural land sales consistently accounted for a small share of total land transactions in the Commonwealth, the vast majority of ag land transfers conveyed between 20 and 100 acres (Class 5) (table 4). Transactions of ag land parcels consisting of 100 acres or more, while not numerous, trended upward in both volume and value.

References

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Produced by Virginia Cooperative Extension, Virginia Tech, 2022

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VT/0222/AAEC-294P