



## Agricultural Land Sales in Virginia, 2021

*Authored by Bheom-Seok Kim, Graduate Research Assistant, Virginia Tech; Patrick Kayser, Land Use-Value Assessment, Analyst, Virginia Tech; Jennifer S. Friedel, Land Use-Value Assessment, Director, Virginia Tech*

### Abstract

This report follows the analysis presented in the previous year's "Agricultural Land Sales in Virginia" report (Kayser et al. 2022). This report extends the analysis to agricultural land sales in the Commonwealth of Virginia for the year 2021. Similar to its predecessor, this report offers a detailed examination of market-based agricultural land transactions, providing insights at both the multi-county district and statewide levels.

The report highlights significant trends and market dynamics, revealing an increase in the average price per acre and a notable rise in the volume of transactions for agricultural land. Statewide, the market-based estimates of farmland averaged \$6,175 per acre in 2021, marking an 11.6% increase from \$5,533 in 2020. The southwestern Agricultural Statistics District (ASD) recorded the highest number of transactions, while the southeastern ASD experienced the most substantial growth on average by dollar per acre. This comprehensive analysis, based on actual transaction data from the Virginia Department of Taxation, offers a reliable and detailed understanding of Virginia's agricultural land market, underscoring the sector's resilience and dynamic recovery from the impacts of the COVID-19 pandemic.

## Section 1: Motivation and Statewide Overview

### Introduction

Virginia's storied agricultural diversity has profoundly influenced its economic landscape, establishing a rich legacy of significance in the Commonwealth's economic history. The economic impact of Virginia's agriculture (including forestry sector) reached nearly \$106 billion in total industry output in 2021, accounting for an estimated 11.2 percent of the Commonwealth's overall output (Virginia Department of Agriculture and Consumer Services, n.d.). Despite the negative impacts of the COVID-19 pandemic, Virginia's agricultural sector has shown resilience, especially in the agricultural supply chain and consumption of agri-food (Aday and Aday 2020), but still lagged behind pre-pandemic levels (Raphann 2021). This output fundamentally relies on the contributions produced and cultivated from Virginia's farmlands. Consequently, landowners ultimately decide to utilize their land for farming, investment, and development, among other purposes.

This report delves into the actual sales of agricultural land in 2021, analyzing arm's-length transactions in the open market. By using actual transaction data reported to the Virginia Department of Taxation, this analysis provides a factual basis for understanding market trends, contrasting with the opinion-based valuations from surveys like those conducted by the U.S. Department of Agriculture's National Agricultural Statistics Service. Detailed methodologies and research procedures are explained in subsequent sections, shedding light on the market conditions over a year into the COVID-19 pandemic.

### The Data

The data analyzed reflects the fair market value of agricultural land based on recorded arm's-length transactions. For this report, fair market value is considered the value of land on the open market, determined by examining sale transactions for value, excluding statistical outliers. For the purposes of this study, agricultural land is

considered to be undeveloped land parcels of 20 acres or more. This data is collected by each locality and then reported to the Virginia Department of Taxation.

Transaction data included in the Virginia Department of Taxation's database includes details such as the date of recordation, instrument number, deed type, grantors and grantees, sales price, and parcel descriptions. It is important to note that the dataset does not encompass all agricultural land transactions within the Commonwealth, but does include all reported transactions. This study excludes non-arm's length transactions including family sales, foreclosures, or government purchases within the Commonwealth.

In total, 2,702 transactions were thoroughly reviewed and incorporated into this analysis, with each transaction validated to ensure the accuracy of the reported acreage and sales values.

## Research Purpose

The statistics presented in this report are meant to serve as general indicators of historical trends in the agricultural land market; they do not represent specific prices or values of any parcels or serve to project future market values. These figures offer a broad overview of market values and geographical patterns in Virginia's agricultural land sector. It is important to note that these statistics should not be used as a replacement for a detailed appraisal or local market analysis when assessing the value of a specific land parcel. This information is intended to provide insights into historical market conditions in Virginia and is not intended to predict future market values. The data analyzed may include both forestland and open land, some of which may not be suitable for agricultural production purposes. The information for this report was sourced from two specific land class codes in the Virginia Department of Taxation's land sales transaction database: Class 5, which includes undeveloped parcels between 20 and 100 acres, and Class 6, which encompasses undeveloped parcels over 100 acres.

## Methods and Procedures

For this report, data obtained from the Virginia Department of Taxation underwent an extensive validation process. Data was organized by locality and each transaction's sale price and acreage were confirmed using the local GIS system, along with publicly available land or property tax records. Transactions that had incorrect class codes or lacked requisite sales information were excluded to ensure data accuracy. The remaining data underwent two rounds of cleaning and validation, followed by outlier analysis using a box plot. The "value per acre" in dollars was the metric for identifying outliers, and any transactions deviating beyond 1.5 times the interquartile range were eliminated. Once the data from all localities were consolidated into one spreadsheet, descriptive statistics for each locality were compiled.

## Statewide Overview

Figure 1 indicates the average dollar per acre for land transactions in Virginia from 2019 to 2021 alongside the total volume of transactions. In 2021, the dollar per acre was \$6,175, marking an 11.6% increase from \$5,533 in 2020. However, this growth rate is less than the 14.3% increase from \$4,841 in 2019 to \$5,533 in 2020.

Conversely, according to USDA surveys and reports, the average dollar per acre for agricultural land in Virginia in 2021 was \$4,700, showing a 1.73% increase from 2020.

The data-cleaned total transaction<sup>1</sup> volume for 2021 was 2,702, which represents a 35.6% increase from the previous year. This figure is after removing 14.3% of the transactions from the initially recorded 3,153 transactions after data cleaning, which can be found in Table 2.

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<sup>1</sup> In contrast to data cleaned shown in Figure 1, Table 2 provides the total number of transactions including outliers from 2019 to 2021.

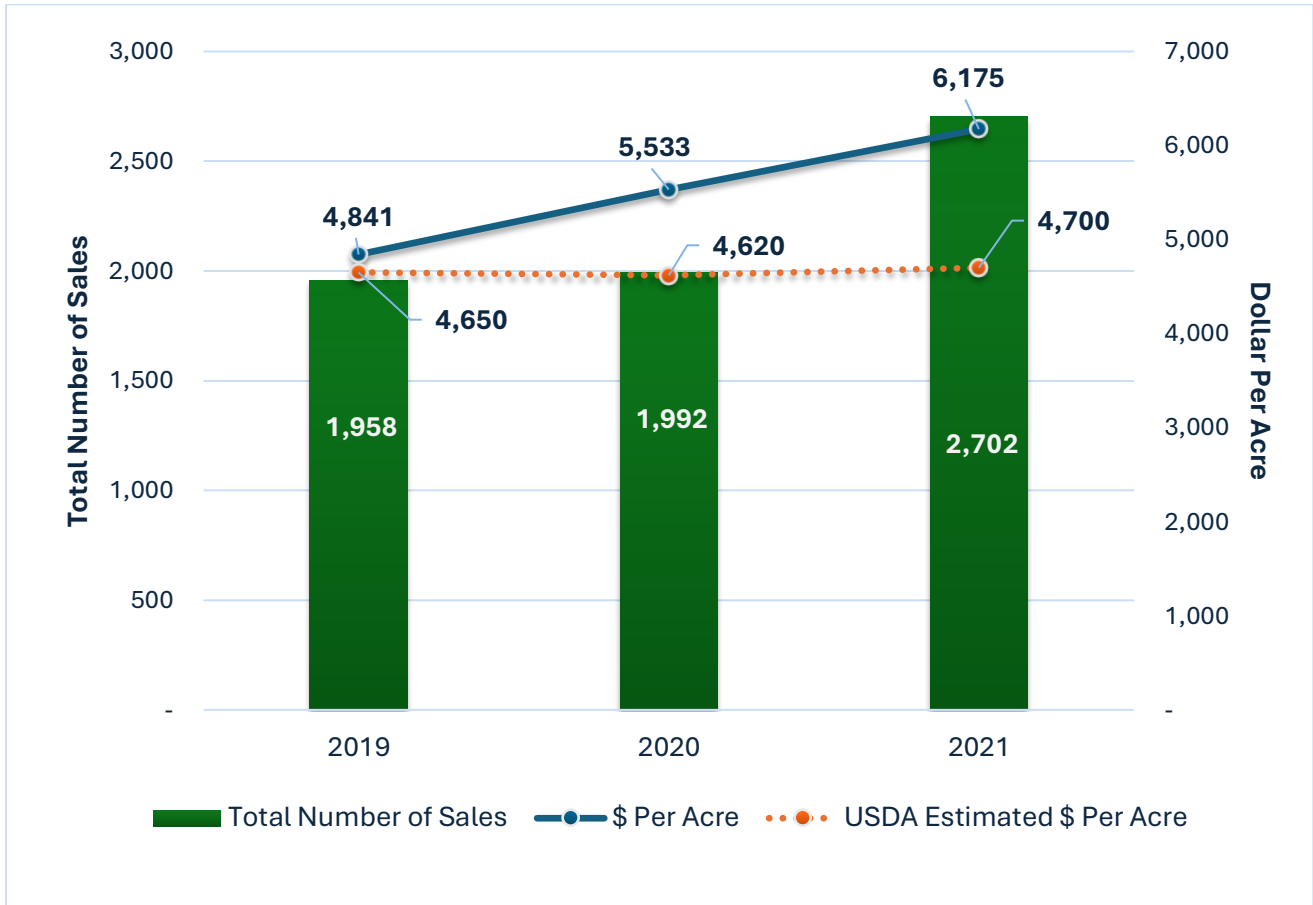


Figure 1: Estimated Virginia Ag Land Values in number of transactions and dollar per acre, 2019-2021.

In 2021, a total of 2,702 transactions were recorded. The data visualization, denoted as "Figure 2", categorizes these transactions based on the value per acre, providing a granular view of transaction volumes across different price segments. The data reveals considerable variations in transaction volumes across different value ranges. Specifically, the transactions for lands priced under \$6,000 per acre accounted for 1,740 cases, representing 64.4% of the total transactions, denoting a concentration of activity in the lower price brackets.

Notably, the range between \$2,000 to less than \$3,000 per acre witnessed the highest volume of transactions with 473 sales, comprising 17.5% of the annual total. Furthermore, transactions for land valued at \$10,000 per acre and above were quantified at 521 transactions, equating to 19.3% of the yearly aggregate. Within this higher-valued tier, land transactions exceeding \$15,000 per acre constituted 8.9% of the total market activity. This distribution underscores a significant engagement at the upper end of the market value spectrum.

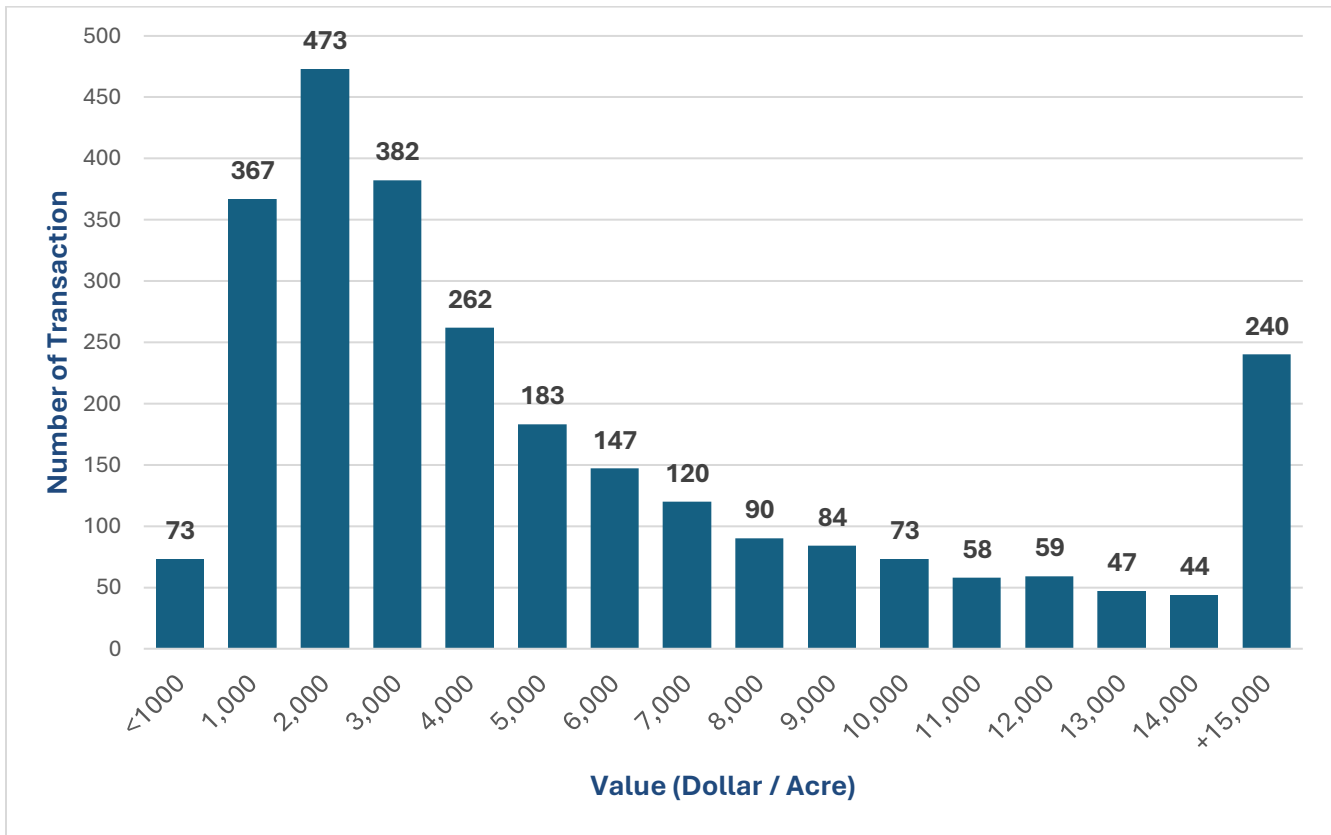


Figure 2: Value Per Acre by Transaction Volume, 2021.

Figure 3 delineates the transaction volumes segmented by parcel size for the year 2021, focusing exclusively on parcels over 20 acres. The transactions involving land parcels sized between 20 and 39 acres constituted 44.2% of the total, with 1,193 transactions recorded. It was observed, as may be expected, that as land size increases, the number of land transactions decreases. The parcel range of 100-199 acres recorded 359 transactions, making the bar in the figure appear larger than the previous bar. However, this is because the range of acres per sale is different. Considering the 100-199 acre range, it shows a decreasing trend. The second most active size range was between 40 and 59 acres, accounting for 20.7% of transactions, or 560 in total. Parcels exceeding 500 acres represented 0.7% of the market activity, totaling 18 transactions.

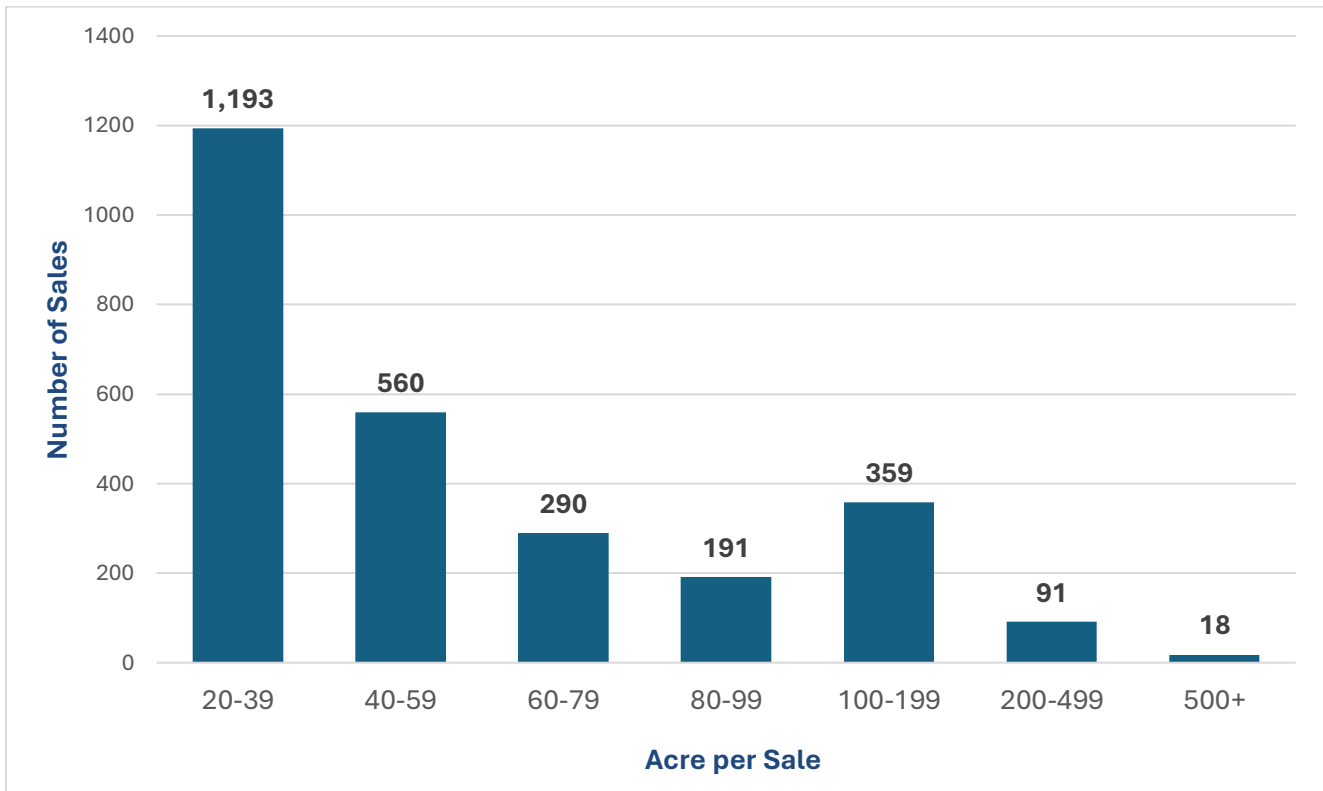


Figure 3: Parcel Size and Sales Volume, 2021.

In 2021, Figure 4 witnessed a significant uptick in land transaction activity relative to the previous year. Specifically, the number of transactions escalated by approximately 40.4%, demonstrating a robust increase from 1,992 transactions in 2020 to 2,702 transactions in 2021.

Additionally, the total acreage involved in these transactions (noted in parentheses) increased by roughly 42.7%, rising from 129,536 acres in 2020 to 184,785 acres in 2021. This substantial growth in both the volume of transactions and the total acreage traded underscores a marked expansion in market activity within the year.

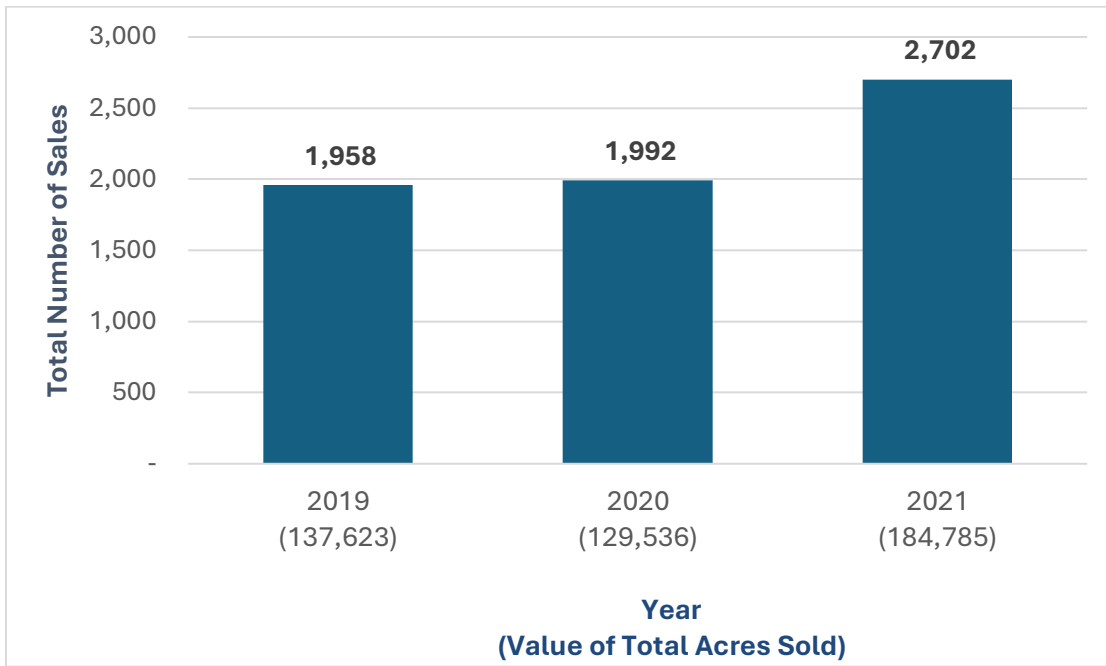


Figure 4: Annual Number of Sales and Acres Sold, 2019-2021.

## Section 2: Regional Overview

The analysis of regional averages was conducted using Agricultural Statistics Districts (ASD), as defined by the USDA. These districts are groups of contiguous counties with similar agricultural properties (USDA NASS 2018). For this report, each ASD is detailed in the map and table below (see fig. 5). Table 1 shows the average and median sale prices per acre within each district. As with all types of real estate, the values of individual parcels vary based on a range of factors, both seen and unseen, such as soil quality, influence from nearby populations and urban areas, recreational and natural features, and location-specific attributes.



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

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

According to Table 1, from 2019 to 2020, the statewide average value of land per acre rose by 14.3 percent, increasing from \$4,841 to \$5,533. The Southeastern district was particularly notable, where the average dollar per acre surged by 26.5%, climbing from \$3,717 in 2019 to \$4,701 in 2020. The Northern district followed, with a 20.5% increase from \$7,964 to \$9,600.

Between 2020 and 2021, the average value per acre rose to \$6,175, marking a 11.6% increase from the previous year. At the district level, the Western district saw a large mean increase of 26.7%, followed closely by the Eastern and Central districts, which experienced increases of 23.8% and 21.5%, respectively. Moreover, while the mean values in both the Northern and Southeastern districts were positive, the median values decreased by -5.3% and -11.9%, respectively, indicating a greater deviation in the dollar per acre figures in these districts compared to previous years.

Table 1: Average and Median Per Acre Sales Prices by District, 2019-2021.

| District | Year |      |      | % Change |         |
|----------|------|------|------|----------|---------|
|          | 2019 | 2020 | 2021 | 2019-20  | 2020-21 |
|          |      |      |      |          |         |

|                     |        |         |         |          |      |       |
|---------------------|--------|---------|---------|----------|------|-------|
| <b>Central</b>      | Mean   | \$5,534 | \$5,747 | \$6,985  | 3.8  | 21.5  |
|                     | Median | \$3,988 | \$4,142 | \$4,772  | 3.9  | 15.2  |
| <b>Eastern</b>      | Mean   | \$4,156 | \$4,818 | \$5,963  | 15.9 | 23.8  |
|                     | Median | \$3,054 | \$3,396 | \$3,976  | 11.2 | 17.1  |
| <b>Northern</b>     | Mean   | \$7,964 | \$9,600 | \$10,389 | 20.5 | 8.2   |
|                     | Median | \$7,073 | \$8,780 | \$8,313  | 24.1 | -5.3  |
| <b>Southeastern</b> | Mean   | \$3,717 | \$4,701 | \$4,866  | 26.5 | 3.5   |
|                     | Median | \$2,222 | \$2,953 | \$2,601  | 32.9 | -11.9 |
| <b>Southern</b>     | Mean   | \$3,478 | \$3,524 | \$4,298  | 1.3  | 22.0  |
|                     | Median | \$2,400 | \$2,541 | \$2,711  | 5.9  | 6.7   |
| <b>Southwestern</b> | Mean   | \$3,990 | \$4,554 | \$4,824  | 14.1 | 5.9   |
|                     | Median | \$3,243 | \$3,500 | \$3,495  | 7.9  | -0.1  |
| <b>Western</b>      | Mean   | \$5,756 | \$5,851 | \$7,413  | 1.7  | 26.7  |
|                     | Median | \$4,505 | \$4,823 | \$5,779  | 7.1  | 19.8  |
| <b>Total</b>        | Mean   | \$4,841 | \$5,533 | \$6,175  | 14.3 | 11.6  |
|                     | Median | \$3,523 | \$3,928 | \$4,210  | 11.5 | 7.2   |

Table 2 describes the number of all land transactions for each ASD by year, without removing outliers. From 2019 to 2021, the total transactions were 2,319, 2,403, and 3,153, respectively. The percentages in parentheses in the total row indicate the differences compared to the figures after outlier removal. In 2021, removing outliers reduces the transactions by 16.7%, resulting in 2,702 transactions, which is the figure used throughout this report for that year. The figures for 2020 and 2019 follow the same pattern.

When examining the total transactions by district, in 2021 the Eastern district saw an increase of 65.7% compared to the previous year, while the Southwestern district and Southern district experienced increases of 58.3% and 54.1%, respectively. In contrast, the Northern district showed a mere 0.3% increase, distinguishing it from the other districts.

Table 2: Transaction volume by ASD, 2019-2021<sup>2</sup>

| District | Number of Recorded Transactions |      |      |
|----------|---------------------------------|------|------|
|          | 2019                            | 2020 | 2021 |
|          |                                 |      |      |

<sup>2</sup> These values represent the original data from the Virginia Department of Taxation.



|   |                 |                 |                 |
|---|-----------------|-----------------|-----------------|
| <b>Central</b>                          | 579             | 681             | 823             |
| <b>Eastern</b>                          | 213             | 166             | 275             |
| <b>Northern</b>                         | 294             | 387             | 388             |
| <b>Southeastern</b>                     | 209             | 177             | 205             |
| <b>Southern</b>                         | 301             | 281             | 433             |
| <b>Southwestern</b>                     | 512             | 496             | 785             |
| <b>Western</b>                          | 211             | 215             | 244             |
| <b>Total<br/>(Difference<br/>Ratio)</b> | 2,319<br>(15.6) | 2,403<br>(17.1) | 3,153<br>(16.7) |

Table 3 presents the trends in agricultural land sales and acres sold by district in Virginia for 2021. The Southwestern district recorded the highest number of transactions with 706, followed by the Central and Southern districts with 684 and 417 transactions respectively. The third column indicates the average acreage of farmland sold annually for each district from 2019 to 2020. The total acreage reached 184,785 acres, which represents a 38.3% increase from the average of 133,579 acres during 2019-2020.

In terms of district-specific growth, the Southwestern district saw the largest increase, with acreage expanding from 26,562 acres in 2019-2020 to 45,940 acres, a significant rise of 73.0%. This was followed by the Southern District, which increased by 55.2%. In contrast, the Western district experienced a modest decrease of 0.03% in acreage.

Table 3: Agricultural Land Sales Trends by District, 2021<sup>3</sup>.

| <b>District</b>     | <b>No. of 2021 Sales</b> | <b>2021 Total Acres Sold</b> | <b>Average Annual Acres Sold 2019-2020</b> | <b>% Change in 2021 from 2019-2020 Average</b> |
|---------------------|--------------------------|------------------------------|--|--|
| <b>Central</b>      | 684                      | 45,636                       | 35,577                                     | 28.3   |
| <b>Eastern</b>      | 220                      | 16,181                       | 10,999                                     | 47.1   |
| <b>Northern</b>     | 290                      | 16,368                       | 13,620                                     | 20.2   |
| <b>Southeastern</b> | 184                      | 17,429                       | 13,458                                     | 29.5   |
| <b>Southern</b>     | 417                      | 27,751                       | 17,880                                     | 55.2   |
| <b>Southwestern</b> | 706                      | 45,940                       | 26,562                                     | 73.0   |
| <b>Western</b>      | 201                      | 15,480                       | 15,485                                     | -0.03  |

<sup>3</sup> Final data obtained through selection and validation process

|              |       |         |         |      |
|--------------|-------|---------|---------|------|
| <b>Total</b> | 2,702 | 184,785 | 133,579 | 38.3 |
|--------------|-------|---------|---------|------|

## Section 3: Virginia Real Estate Class Trends (H2)

Figure 6 and Table 4 provide a comprehensive overview of all documented real estate transactions in Virginia from 2012 to 2021, as reported in the annual Virginia Assessment/Sales Ratio Studies. These documents analyze sale frequencies across the six land classes defined by the Virginia Department of Taxation, which include 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), and agricultural land over 100 acres (Class 6).

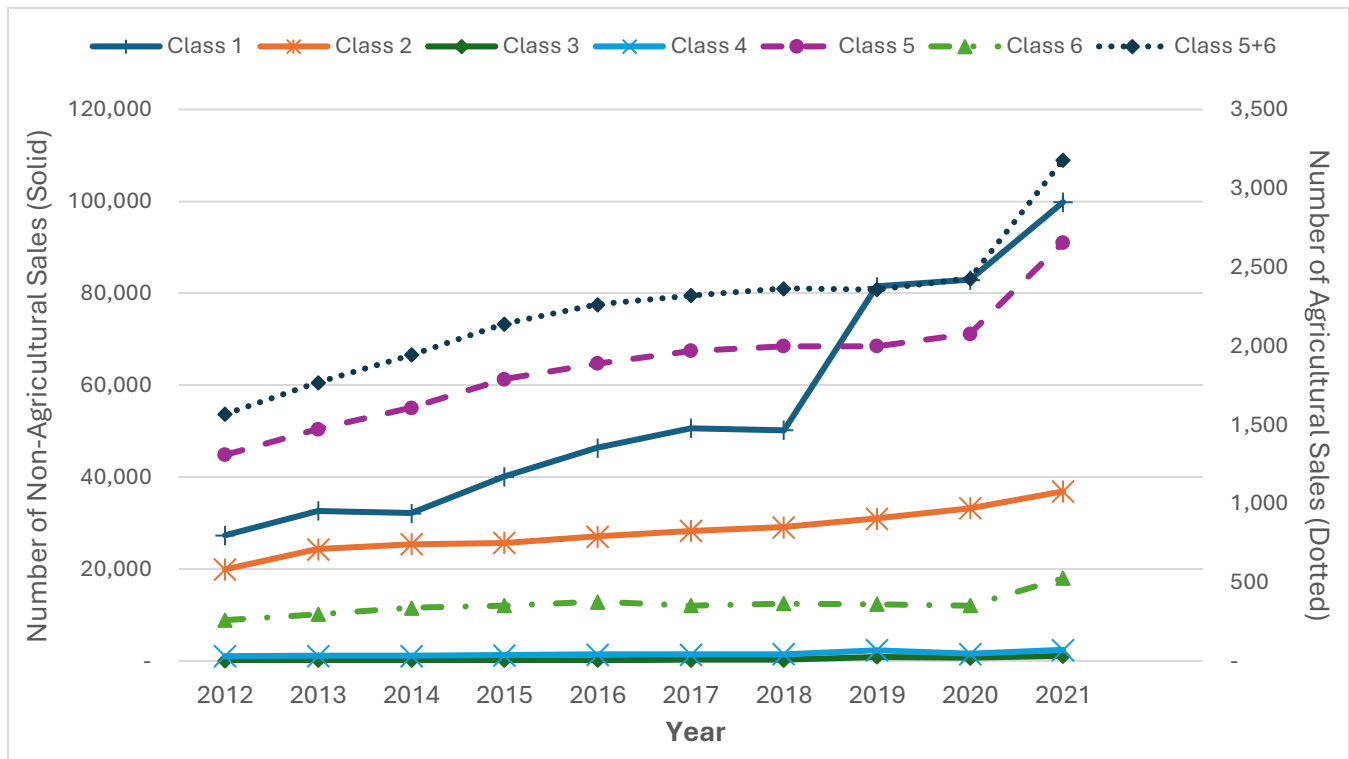


Figure 6: Total Sale Trends by Property Class, 2012-2021.

Table 4 shows the volume of land transactions for Property Classes 1 through 6 in Virginia over a ten-year period from 2012 to 2021. The total number of land sales transactions in Virginia has been on a consistent upward trend, with 49,976 transactions in 2012, 77,265 in 2016, and 143,432 in 2021.

The first column, Property Classification, provides descriptions for each class category. Classes 5 and 6 represent agricultural land, categorized by size into 20-100 acres and over 100 acres, respectively. Additionally, the combined figures for Classes 5 and 6 are displayed in the first row of the report. The combined transactions for agricultural land began around 3% in 2012, gradually decreased to 2.9% by 2016, and further dropped to 2.0% in 2020. However, there was a slight increase to 2.2% in 2021. Breaking it down, Class 5 rose from 1.6% in 2020 to 1.9% in 2021, and Class 6 also saw a rise from 0.3% to 0.4% over the same period.

This trend is more visually presented in Figure 6, which features three dotted lines representing Classes 5, 6, and the combined Classes 5+6. While the absolute numbers differ significantly from the non-agricultural classes,

examining the slopes reveals a sharp increase from 2020 to 2021. Table 6. Number of transactions and percent of total transactions by real estate class.

Table 4: Total number of sales by property class, 2012-2021

| Property Classification                   | 2012   | 2013   | 2014   | 2015   | 2016   | 2017   | 2018   | 2019    | 2020    | 2021    |
|---|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|
| <b>Class 1</b>                            | 27,340 | 32,627 | 32,158 | 40,133 | 46,349 | 50,653 | 50,203 | 81,510  | 82,896  | 99,846  |
| <b>Single-family residential urban</b>    | 54.7%  | 54.4%  | 52.9%  | 57.8%  | 60%    | 61.1%  | 60.2%  | 69%     | 68.6%   | 69.6%   |
| <b>Class 2</b>                            | 19,929 | 24,307 | 25,371 | 25,678 | 27,092 | 28,342 | 29,131 | 30,975  | 33,273  | 36,900  |
| <b>Single-family residential suburban</b> | 39.9%  | 40.6%  | 41.8%  | 37%    | 35.1%  | 34.2%  | 34.9%  | 26.2%   | 27.5%   | 25.7%   |
| <b>Class 3</b>                            | 108    | 149    | 174    | 192    | 186    | 205    | 206    | 878     | 677     | 1,093   |
| <b>Multi-family residential</b>           | 0.2%   | 0.3%   | 0.3%   | 0.3%   | 0.2%   | 0.3%   | 0.3%   | 0.7%    | 0.6%    | 0.8%    |
| <b>Class 4</b>                            | 1,033  | 1,090  | 1,121  | 1,279  | 1,376  | 1,413  | 1,469  | 2,340   | 1,569   | 2,413   |
| <b>Commercial and industrial</b>          | 2.1%   | 1.8%   | 1.8%   | 1.8%   | 1.8%   | 1.7%   | 1.8%   | 2%      | 1.3%    | 1.8%    |
| <b>Class 5</b>                            | 1,307  | 1,470  | 1,606  | 1,789  | 1,888  | 1,969  | 1,998  | 1,997   | 2,076   | 2,655   |
| <b>Agricultural 20-100 acres</b>          | 2.6%   | 92.5%  | 2.6%   | 2.6%   | 2.4%   | 2.4%   | 2.4%   | 1.7%    | 1.7%    | 1.9%    |
| <b>Class 6</b>                            | 259    | 297    | 336    | 351    | 374    | 351    | 365    | 361     | 352     | 525     |
| <b>Agricultural over 100 acres</b>        | 0.5%   | 0.5%   | 0.6%   | 0.5%   | 0.5%   | 0.4%   | 0.4%   | 0.3%    | 0.3%    | 0.4%    |
| <b>Total</b>                              | 49,976 | 59,940 | 60,766 | 69,422 | 77,265 | 82,933 | 83,372 | 118,061 | 120,843 | 143,432 |
|   | 100%   | 100%   | 100%   | 100%   | 100%   | 100%   | 100%   | 100%    | 100%    | 100%    |
| <b>Class 5+6 Total</b>                    | 1,566  | 1,767  | 1,942  | 2,140  | 2,262  | 2,320  | 2,363  | 2,358   | 2,428   | 3,180   |
|   | 3.1%   | 3%     | 3.2%   | 3.1%   | 2.9%   | 2.8%   | 2.8%   | 2%      | 2%      | 2.2%    |

Source: "Virginia Sales/Assessment Ratio Study," Virginia Department of Taxation, 2021.

## Summary and Conclusions (H2)

This report provides a comprehensive analysis of the agricultural land market in Virginia for 2021, utilizing actual transaction data reported to the Virginia Department of Taxation. Despite the challenges posed by the COVID-19 pandemic, Virginia's agricultural sector demonstrated resilience. The data, comprising 2,702 arm's-length transactions, highlights significant trends and market behaviors. A critical observation is the 11.6% increase in the average dollar per acre from 2020 to 2021, reaching \$6,175, with notable variations in transaction volumes across different value ranges. The report underscores the market's robustness, particularly in lower price brackets, and a substantial increase in both the volume and acreage of transactions, reflecting an expanding market activity.

Regional analysis, based on Agricultural Statistics Districts, reveals diverse trends in land values and transaction volumes across Virginia. While districts like the Southeastern and Northern saw notable increases in average land

value per acre, the Western, Eastern, and Central districts experienced significant growth rates, indicating a broad trend of rising land values statewide. The data also shows substantial increases in transaction volumes in most districts, with the Southwestern district leading in both transaction numbers and acreage sold. This regional perspective provides a nuanced understanding of the agricultural land market's dynamics within the state.

In conclusion, Virginia's 2021 agricultural land market demonstrated strong growth and resilience amidst the ongoing impacts of the pandemic. The detailed analysis of transaction data offers valuable insights into market trends, highlighting a general increase in land values and significant regional variations. This report serves as a crucial resource for understanding historical trends and informing future market assessments, although it emphasizes the importance of local appraisals for specific land valuations. The findings underscore the need for continued monitoring and analysis to adapt to evolving market conditions and support informed decision-making in the agricultural sector.

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