Land Values Methodology and Quality Measures

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Scope and Purpose: Land values are estimated annually in August using data collected on the Agricultural Land Values survey. Estimates are published for the United States and by State, except Alaska and Hawaii, and include the value per acre of all farm real estate, cropland, and pasture. Value per acre estimates are also published for States with a prevalence of both irrigated and non-irrigated cropland. In addition, the publication contains estimates for the total value of all farm real estate by State, except Alaska and Hawaii, and for the United States.

Survey Timeline: Data collection is conducted by mail and phone interview from the end of April through early -June. The reference date for the Agricultural Land Values Survey is April 1. Regional Field Offices conduct editing and analysis from early May though the end of data collection. Once editing is complete, the data are summarized. Survey results are reviewed, and State and National estimates are established and published by August.

Sampling: The target population for the Agricultural Land Values Survey is all US farms and ranches (excluding Alaska and Hawaii) with at least one acre of agricultural land and $1,000 or more in actual or potential agricultural sales. The Agricultural Land Values sampling frame comprises all active operations in the contiguous 48 states on NASS's List Frame that have at least one acre of total land, pastureland, and/or cropland and at least $1,000 of farm value of sales. A stratified sample is drawn using state and county group as strata. County groups are created using 2022 Census of Agriculture county average land value per acre as a measure of size. The sample size for the Agricultural Land Values survey is approximately 28,503.

Data Collection: All Regional Field Offices (RFO) use the same standardized questionnaire for data collection. For consistency across modes, the paper version is considered the master questionnaire and the Computer Assisted Self Interview (CASI), mobile Computer Assisted Telephone Interview (mCATI), and Computer Assisted Telephone Interview (CATI) instruments are built to model the paper questionnaire. The questionnaire content and format are evaluated annually through a specifications process where requests for changes are evaluated and approved or disapproved. Input may vary from question wording or formatting to a program change involving the deletion or modification of current questions or addition of new ones. If there are significant changes to either the content or format proposed, a NASS survey methodologist will pre-test the changes for usability. Prior to the start of data collection, all modes of instruments are reviewed, and CASI, mCATI, and CATI instruments are thoroughly tested.

All federal data collections require approval by the Office of Management and Budget (OMB). NASS must document the public need for the data, apply sound statistical practice, prove the data does not already exist elsewhere, and ensure the public is not excessively burdened. The questionnaires must display an active OMB number that gives NASS the authority to conduct the survey, a statement of the purpose of the survey and the use of the data being collected, a response burden statement that gives an estimate of the time required to complete the form, a confidentiality statement that the respondent's information will be protected from disclosure, and a statement saying that response to the survey is voluntary and not required by law.

Sampled operations receive a cover letter with the questionnaire mailing explaining the survey and providing instructions for completing the survey (via CASI) on the internet. The letter also notifies them that they will be contacted for survey purposes only if they do not return the questionnaire by mail or complete the survey on the web. All modes of data collection, except face-to-face enumeration, are utilized for each survey. Data collection is coordinated for any sampled operations that are in multiple on-going surveys.

Survey Edit: As survey data are collected and captured, data are edited for consistency and reasonableness using automated systems. The edit logic ensures administrative coding follows the methodological rules associated with the survey design. Relationships between data items on the current survey are verified. Some data items in the current survey are compared to data items from earlier surveys to ensure certain relationships are logical. The edit will determine the status of each record to be either "dirty" or "clean" (i.e., failing or passing the edit requirements for consistency and reasonableness). Records that fail edit requirements must be updated or must be certified by an analyst to be exempt from the failed edit requirement. Only records that pass edit requirements are eligible for final summary.

Analysis Tools: Edited data are processed through an interactive analysis tool which displays data for all reports by item. The tool provides scatter plots, tables, charts, and special tabulations that allow the analyst to compare an individual record to similar records. Outliers and unusual data relationships become evident, and RFO and Headquarters (HQ) staff review them to determine if they are correct. The tool allows comparison to an agricultural operation's previously reported data to detect large changes in the operation. Data found to be in error are corrected, while accepted data are retained.

Non-sampling Errors: Non-sampling errors are present in any survey process. These errors include reporting, recording, and editing errors. Steps are taken to minimize these errors, such as comprehensive interviewer training, validation and verification of processing systems, application of detailed computer edits, and evaluation of the data via the analysis tools.

Estimators: Response to the Agricultural Land Values Survey is voluntary. Some producers refuse to participate in the survey, others cannot be located during the data collection period, and some submit incomplete reports. These nonrespondents must be accounted for if accurate estimates of cash rental rates are to be made. Nonresponse adjustments are made through reweighting techniques applied to the data from reporting farms and ranches.

Each farm and ranch in the sample has an initial sampling weight. This is the inverse of the sampling fraction. For example, if a stratum has 1,000 farms in the population and 200 are sampled for this survey, each sampled farm has a weight of 5. In other words, each sampled farm represents 5 farms. The nonresponse adjustment occurs by stratum as the bounded strata represent homogeneous groupings of similar sized farms. The adjustment is also performed by individual item on the questionnaire, so adjustments for item nonresponse (partial reports) and unit nonresponse (refusals and inaccessibles) are done in a single calculation. Using the previous example, if 180 of the original 200 respond, the weights of the 180 will be adjusted to 1,000 divided by 180, or 5.56.

Point estimates, called direct expansions, are calculated by multiplying the reported value by the nonresponse adjusted weight and summing to a stratum total. A variance estimate is also computed at the stratum level. Totals and variances are additive across strata to form a state estimate, and states are additive to a National estimate. Ratio estimates are also computed for many items. For example, cropland value per acre can be estimated as a ratio of cropland value to cropland acres. Ratio estimates use the reweighted estimator described above for the numerator and denominator. Both the numerator and denominator must be complete for that record to be included in the ratio estimator.

Estimation: When all samples are accounted for, all responses fully edited, and the analysis material reviewed, each RFO executes summaries that generate state level totals and ratios. Since all RFOs conduct identical surveys, the State data can be summarized and National survey point estimates, or indications, computed. RFOs are responsible for performing a detailed review of the survey data for States within their regions. Any irregularities revealed by the analysis must be investigated and, if necessary, resolved. The summary results provide multiple ratio indications for each data series being estimated. RFOs interpret the survey indications and submit State recommendations to NASS headquarters, providing justification in cases where recommendations deviate from survey results.

For the National estimates, NASS assembles a panel of statisticians to serve as the Agricultural Statistics Board (ASB) which reviews the National results and establishes the National estimates. Since larger sample sizes yield more precise results, NASS employs the "top-down" approach by determining the National estimates first and reconciling the State recommendations to the National estimate. Using the acreage for each type of land for each State as a weight, State land value estimates are weighted to the National estimate. The ASB also enjoys an advantage in being able to examine results across States and compare the State recommendations. The same estimators used in the State summaries are produced by the National summary. The ASB follows the same approach the RFOs do in determining the National estimate. The

historical relationship of the survey estimates to the official estimate is evaluated over time to determine accuracy and bias using tables and graphs. Each ASB member completes an independent interpretation of the survey results which are shared with the other members, and a consensus is reached. Often the State recommendations weighted by acreage do not equal the National estimate. ASB members must reexamine the State results and revise some States to make the product of the State estimates agree with the National estimate.

Survey Methodology for Land Values Prior to 2025: Prior to 2025, land values data were collected annually by NASS as part of the June Area Survey. More information on the methodology and quality measures for land values in previous survey cycles can be found on the NASS Methodology and Quality Measures webpage for Land Values at: https://www.nass.usda.gov/Publications/Methodology_and_Data_Quality/Land_Values/09_2025/landqm25.pdf

Quality Metrics for Land Values

Purpose and Definitions: Under the guidance of the Statistical Policy Office of the Office of Management and Budget (OMB), the United States Department of Agriculture's National Agricultural Statistics Service (NASS) provides data users with quality metrics for its published data series. The metrics tables below describe the performance data for the survey contributing to the publication. The accuracy of data products may be evaluated through sampling and non-sampling errors. The measurement of error due to sampling in the current period is evaluated by the coefficient of variation for each estimated item. Non-sampling error is evaluated by response rates.

Sample Size is the number of observations selected from the population to represent a characteristic of the population. Operations that did not have the item of interest or were out of business at the time of data collection have been excluded.

Response rates are the proportion of the above sample that completed the survey.

Coefficient of Variation provides a measure of the size for the standard error relative to the point estimate and is used to measure the precision of the results of a survey estimator.

Survey Sample Size and Response Rates: To assist in evaluating the performance of the estimates in the *Land Values* report, the sample size and response rates are displayed.

Agricultural Land Values and Technology Use Survey Sample Size and Response Rate – Region, State, and United States: 2025 and 2026

Region and State	Sample size		Response rate	
	2025	2026	2025	2026
	(number)	(number)	(percent)	(percent)
Northeast	2,948	4,156	32.9	36.7
Connecticut	242	383	33.1	38.1
Delaware	238	378	20.6	22.5
Maine	236	379	29.7	41.7
Maryland	235	386	36.2	34.7
Massachusetts	245	364	37.1	40.4
New Hampshire	229	375	36.7	35.5
New Jersey	235	381	27.7	26.8
New York	427	437	33.7	42.6
Pennsylvania	375	382	34.4	39.5
Rhode Island	245	328	33.5	36.3
Vermont	241	363	37.3	45.2
Lake	2,267	1,941	35.4	38.4
Michigan	562	479	32.4	37.6
Minnesota	1,062	884	35.1	37.0
Wisconsin	643	578	38.6	41.2
Corn Belt	5,252	4,456	34.5	35.3
Illinois	1,057	858	33.3	34.8
Indiana	909	862	31.6	37.1
Iowa	1,064	950	35.5	36.8
Missouri	1,065	911	36.1	31.7
Ohio	1,157	875	35.5	36.2
Northern Plains	4,002	3,504	33.9	32.6
Kansas	1,066	1,049	32.1	34.6
Nebraska	1,058	923	28.4	33.0
North Dakota	960	758	38.2	31.0
South Dakota	918	774	37.8	31.0
Appalachian	2,558	2,498	35.4	38.2
Kentucky	660	564	34.4	37.2
North Carolina	563	472	30.7	34.7
Tennessee	728	687	37.4	39.6
Virginia	320	382	37.2	39.8
West Virginia	287	393	39.7	39.4

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Agricultural Land Values and Technology Use Survey Sample Size and Response Rate – Region, State, and United States: 2025 and 2026 (continued)

Region and State	Sample size		Response rate	
	2025	2026	2025	2026
	(number)	(number)	(percent)	(percent)
Southeast	1,394	1,601	35.3	35.9
Alabama	359	380	36.5	31.3
Florida	286	370	31.8	34.9
Georgia	505	475	33.9	38.1
South Carolina	244	376	40.6	38.6
Delta	1,331	1,385	36.1	34.4
Arkansas	572	518	35.3	40.3
Louisiana	239	383	35.1	28.5
Mississippi	520	484	37.3	32.6
Southern Plains	2,413	1,908	32.5	34.1
Oklahoma	966	766	31.6	35.6
Texas	1,447	1,142	33.1	33.0
Mountain	4,815	5,332	41.3	36.2
Arizona	570	808	35.3	33.7
Colorado	576	579	41.1	34.7
Idaho	853	787	36.9	39.0
Montana	1,041	957	42.7	34.4
Nevada	292	424	37.3	37.3
New Mexico	581	655	40.1	32.4
Utah	664	740	50.8	41.2
Wyoming	238	382	47.1	37.7
Pacific	1,495	1,722	39.9	37.0
California	643	616	40.1	35.7
Oregon	422	558	42.7	42.1
Washington	430	548	36.7	33.2
United States	28,475	28,503	35.8	35.8

Quality Metrics for Land Values – Region, State, and United States: 2025 and 2026

Region and State	Coefficient of variation					
	Farm real estate		Cropland		Pasture	
	2025	2026	2025	2026	2025	2026
	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)
Northeast	7.4	8.2	7.3	9.3	10.5	11.2
Connecticut	32.1	40.2	23.9	7.9	35.1	20.9
Delaware	25.9	33.2	17.0	12.0	33.6	28.1
Maine	31.7	28.1	10.9	12.4	31.8	22.1
Maryland	12.5	9.3	4.8	12.5	26.4	9.6
Massachusetts	21.5	19.2	23.8	23.8	25.2	21.4
New Hampshire	20.3	16.3	29.4	29.8	22.3	16.7
New Jersey	19.1	17.3	12.6	19.8	30.0	19.5
New York	13.7	12.8	12.2	16.6	14.4	14.9
Pennsylvania	13.7	17.0	12.2	18.9	18.0	26.2
Rhode Island	70.8	27.6	28.0	24.3	36.0	13.3
Vermont	23.2	29.2	5.4	10.0	16.8	16.1
Lake	5.3	4.8	3.9	4.3	8.6	11.2
Michigan	10.2	12.0	7.0	7.0	24.1	28.2
Minnesota	8.1	6.8	5.6	6.2	9.9	9.4
Wisconsin	7.0	5.5	6.4	8.6	18.1	18.2
Corn Belt	3.0	3.3	2.7	3.2	6.1	4.1
Illinois	4.3	7.1	4.4	5.4	25.2	15.8
Indiana	9.2	5.9	7.6	8.3	11.4	7.6
Iowa	6.1	5.7	5.3	3.2	14.4	4.8
Missouri	5.6	7.1	7.9	6.2	6.9	5.8
Ohio	5.5	5.3	4.8	12.2	6.3	9.6
Northern Plains	6.9	4.8	4.0	4.4	7.4	4.5
Kansas	20.2	7.6	9.9	8.2	6.9	5.0
Nebraska	12.5	12.1	8.7	10.2	16.0	9.4
North Dakota	5.7	6.1	5.2	5.0	7.6	5.9
South Dakota	9.0	11.8	7.1	10.7	9.7	9.3
Appalachian	5.2	18.6	7.6	16.6	6.7	10.8
Kentucky	9.5	12.3	10.7	7.0	8.7	30.2
North Carolina	11.1	41.0	14.0	31.7	9.4	23.0
Tennessee	11.5	9.0	8.7	11.6	18.9	9.7
Virginia	8.6	18.7	12.6	17.5	14.1	13.6
West Virginia	14.2	9.5	15.9	10.9	22.6	12.1

See footnote(s) at end of table.

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Quality Metrics for Land Values – Region, State, and United States: 2025 and 2026 (continued)

Region and State	Coefficient of variation					
	Farm real estate		Cropland		Pasture	
	2025	2026	2025	2026	2025	2026
	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)
Southeast	49.9	10.0	8.6	10.6	22.2	12.1
Alabama	15.0	15.2	17.9	29.7	9.5	14.2
Florida	21.5	18.4	15.5	15.5	19.1	20.8
Georgia	8.7	9.9	7.2	13.0	22.6	13.6
South Carolina	32.2	29.7	16.5	22.7	18.8	15.0
Delta	10.7	7.0	13.1	12.0	9.2	8.1
Arkansas	8.7	10.7	10.5	14.3	10.3	12.3
Louisiana	25.0	14.1	28.9	14.6	19.4	11.1
Mississippi	7.4	9.8	6.4	12.0	6.2	13.5
Southern Plains	9.2	8.8	10.1	11.7	9.5	11.0
Oklahoma	10.9	12.8	7.3	8.7	8.2	16.6
Texas	11.5	11.5	13.3	11.9	11.6	13.2
Mountain	13.3	10.9	30.2	17.8	28.8	14.5
Arizona	43.1	28.3	13.1	48.7	18.5	31.1
Colorado	14.5	31.1	27.0	46.6	58.2	21.4
Idaho	14.3	16.1	11.8	14.3	23.8	20.8
Montana	13.6	11.1	10.4	14.3	15.5	7.2
Nevada	78.3	29.4	16.3	26.8	33.9	37.4
New Mexico	24.2	20.4	32.3	25.5	28.3	20.1
Utah	24.1	19.9	39.0	27.5	36.9	52.0
Wyoming	41.2	15.0	35.7	37.4	27.6	16.3
Pacific	16.0	19.5	25.8	14.0	21.9	24.0
California	14.6	37.1	22.9	12.6	26.2	28.9
Oregon	30.1	18.7	15.2	16.9	43.2	21.8
Washington	20.0	27.2	40.3	40.2	43.7	20.9
United States	37.3	3.8	5.4	3.2	6.3	8.1

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- Economics, Statistics, and Market Information (ESMIS) – National Agricultural Library (NAL) website houses NASS's and other agency archived reports at https://esmis.nal.usda.gov. All email subscriptions containing reports will be sent from https://esmis.nal.usda.gov. To receive the reports via e-mail, you will have to go to the website, create a new account and subscribe to the reports. You should whitelist notifications@esmis.nal.usda.gov in your email client to avoid the emails going into spam/junk folders.

For more information on NASS surveys and reports, call the NASS Agricultural Statistics Hotline at (800) 727-9540, 7:30 a.m. to 4:00 p.m. ET, or e-mail: nass@usda.gov.

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