



# Tenure, Ownership, and Transition of Agricultural Land Methodology and Quality Measures

ISSN:

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Released August 31, 2015, by the National Agricultural Statistics Service (NASS), Agricultural Statistics Board, United States Department of Agriculture (USDA).

**Scope and Purpose:** The 2014 Tenure, Ownership, and Transition of Agricultural Land (TOTAL) Survey is a comprehensive study of all land, including non-operator landlords of agricultural land. This survey is a follow on component of the Census of Agriculture program. NASS conducted the TOTAL survey in collaboration with the Economic Research Service (ERS).

The TOTAL survey collected information about both farmers and ranchers who rent agricultural land to other farmers and ranchers, as well as agricultural landlords who do not farm. The survey covers land ownership income, expense, debt, asset, demographic and other landlord characteristics to provide detailed information from all agricultural land owners.

**Survey Timeline:** The TOTAL survey data collection began in January 2015 and concluded in April 2015 with further analysis and review continuing until the results were published on August 31, 2015.

**Sampling:** NASS used two versions of the TOTAL survey. One focused on operator landlords and the other on the non-operator landlords. Both versions identified 25 core states, based on the highest cash receipts by state over a three year period. The core states were: Alabama, Arkansas, California, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Mississippi, Missouri, Nebraska, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, Washington, and Wisconsin. The remaining 23 states surveyed were combined at a regional level so that regional estimates could be published. Alaska and Hawaii were not surveyed.

**Operator Landlord** – The target population for the TOTAL Operator Landlord survey was all agricultural establishments with more than \$1,000 in agricultural sales (or potential sales). NASS used a dual frame approach, consisting of list frame and area frame components, to provide complete coverage of this target population. From this population, a subset of operations rent out land to others.

NASS maintains a list of farm and ranch operators, known as the list frame. NASS is constantly seeking new operations from outside list sources confirmed to be qualifying farms before being added to the list. A profile, known as control data, of each operation is maintained which indicates what the farm has historically produced and a general indication of size. This information allows NASS to define list-frame sampling populations that are specific to each survey and employ advanced and more efficient sample designs.

The TOTAL Operator Landlord list sample was selected based on a calculated Farm Value of Sales (FVS). All farms on the list frame with an estimated FVS of \$1,000 or more were eligible. The value of sales control data need not be exact as it is used to stratify similar list operations into homogeneous groups.

NASS utilized the Sequential Interval Poisson (SIP) sampling method to select the TOTAL Operator Landlord sample. In a SIP sample design, each operation is assigned a Permanent Random Number (PRN) between 0 and 1 from a uniform distribution. A sample can be defined as all operations falling within a specified range of PRNs. This provides a mechanism to control overlap across multiple surveys. Target samples sizes by Farm Value of Sales (FVS) strata determined the probability of selection for each operation.

The area frame contains all land in the United States (except Alaska) and is therefore complete for the TOTAL operator landlord program. The land is stratified according to intensity of agriculture using satellite imagery. Land in each stratum is divided into segments of roughly one square mile. Segments are optimally allocated and sampled to effectively measure

crops and livestock. Annually, NASS conducts the June Area Survey and conducts face-to-face interviews of every individual who operates or owns land within a sampled area segment. All farms and ranches found operating in these segments were checked to see if they were included in the list-frame TOTAL operator landlord population. Farms and ranches that were not on the list frame were eligible for the TOTAL operator landlord survey so that the target population is completely represented.

The U.S. sample size for the TOTAL operator landlord survey was 41,205. Each sampling unit was assigned a sampling weight which was used to create the survey estimates.

***Non-operator Landlord*** – The target population for the TOTAL non-operator landlord survey is all landowners who rent out agricultural land, but do not operate land themselves. These types of operations are not commonly maintained in the NASS list or area frames. In order to build a frame, NASS used its area frame to determine sampling units.

The area frame contains all land in the United States (except Alaska) and is therefore complete for the TOTAL non-operator landlord program. The land is stratified according to intensity of agriculture using satellite imagery. Land in each stratum is divided into segments of roughly one square mile. Segments are optimally allocated and sampled to effectively measure crops and livestock. Annually, NASS conducts the June Area Survey and conducts face-to-face interviews of every individual who operates or owns land within a sampled area segment.

Approximately 15,000 June Area segments along with administrative information were used to identify these landlord only entities. Entities on the frame without a valid address or without positive acres were excluded from the sampling population. After the list of landlord only operations was built, a stratified, simple random sample was drawn. The TOTAL strata were based on the area frame design strata, which is stratified by land use. The majority of samples in a state were allocated to the cultivated land use strata. All records were included in the sample for states with 500 or fewer records in the sampling population. Each operation was assigned a sampling weight which is used to create the survey estimates.

The U.S. sample size was 20,176 for the TOTAL landlord only survey. Each sampling unit was assigned a sampling weight which was used to create the survey estimates.

**Data Collection:** For consistency across modes, the paper version was considered the master questionnaire and the web and Computer Assisted Telephone Interview (CATI) instruments are built to model the paper instrument. ERS played a significant role in the development of questionnaires. Questionnaire content and format were evaluated by NASS and ERS through a specifications process, where requests for changes were evaluated and approved or disapproved. When significant changes to either the content or format were proposed, a NASS survey methodologist pre-tested the changes for usability. Prior to the start of data collection, all modes of instruments were reviewed and web and CATI instruments were 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, show the design applies sound statistical practice, ensure the data do not already exist elsewhere, and show that the public is not excessively burdened. The TOTAL survey questionnaires displayed an active OMB number that gave NASS the authority to conduct the survey, as well as a statement of the purpose of the survey and the use of the data being collected. The questionnaires included a response burden statement that gave 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 required by law.

In addition to asking the specific economic and cost of production questions, all survey instruments collected information to verify the sampled unit, determine any changes in the name or address, identify any partners to detect possible duplication, verify the operation still qualifies for the target population, and identify any additional operations operated by the sampled operator.

***Operator Landlord*** – The operator landlord questionnaire, along with a pre-survey letter, was mailed to respondents in late December 2014. Mail, web, telephone and face-to-face interview modes of data collection were utilized for the operator landlord survey. Respondents who had failed to return their survey by the end of January 2015 were mailed an

additional survey at that time. In late February 2015, NASS began face to face enumeration. Data collection continued into late April 2015.

**Non-operator Landlord** – The landlord only questionnaire, along with a pre-survey letter, was mailed to respondents in late December 2014. Mail, web, telephone, and face-to-face interview modes of data collection were utilized for the landlord only survey. Respondents who had failed to return their survey by the end of January 2015 were mailed an additional survey at that time. In the middle of February 2015, NASS began phone interview follow-up with non-respondents. In early March 2015, NASS began face to face enumeration to attempt data collection on non-respondents. Data collection continued into late April 2015.

Since the non-operator landlord sample was area based, it is possible that the same landowner appeared in multiple segments. In order to reduce the burden on the respondent, NASS identified these owners and collected only one questionnaire. Data from the complete report was replicated onto other reports for the same owner prior to the non-response adjustment mentioned later.

**Survey Edit:** As survey data were collected and captured, they were edited for consistency and reasonableness using automated systems. Reported data were first edited as a “batch” of data when first captured. The edit logic ensures administrative coding follows the methodological rules associated with the survey design. Relationships between data items on the current survey were verified. The edit determined the status of each record to be either “dirty” or “clean”. Dirty records were either updated or certified by an analyst to be accurate. Corrected data were reedited interactively. Only clean records were eligible for analysis tools and summary.

**Analysis Tool:** Edited economic and cost of production data were processed through an interactive analysis tool that displays data for all reports by questionnaire item. The tool provided various scatter plots, tables, charts, and special tabulations that allowed the analyst to compare an individual record to other similar records within their state and region. These tools made outliers and unusual data relationships evident and Regional Field Office and Headquarters staff reviewed them to determine if they were correct. Suspect data found to be in error were corrected, while data found to be correct were kept.

**Nonsampling Errors:** Nonsampling errors are present in any survey process. These errors include reporting, recording, editing, and imputation errors. Steps were taken to minimize the impact of these errors, such as questionnaire testing, comprehensive interviewer training, validation and verification of processing systems, detailed computer edits, and the analysis tool.

**Nonresponse Adjustment:** Some producers refused to participate in the survey, others could not be located during the data collection period, and some submitted incomplete reports. These nonrespondents were accounted for in order to make accurate estimates as described below for each of the two versions. Item level nonresponse was accounted for by imputing data where there were missing values. NASS used a multivariate imputation algorithm to impute the missing data.

**Operator Landlord** – Unit level non-response was accounted for using calibration. Calibration is a weighting technique used in survey sampling to adjust the survey weights for sampled elements so that the weighted sum of a set of benchmark variables equals a pre-determined set of values for the population. The input to the calibration algorithm used for the TOTAL operator landlord survey was the weights generated from the sampling procedures. Sampling weights were calculated based on numerous factors so that the sample allocation could be representative of the entire population of farms at the state level for the 25 leading cash receipts states and at the regional level for all other states. Due to survey nonresponse and the possibility of disproportionate responses across different farm types and economic sales classes, weights were adjusted through a calibration algorithm. Calibration adjusts the sampling weights so that the expanded data will match several known commodity, livestock, and farm number published totals. This ensured that the expense data collected accurately represented the expense breakdowns for all farm types and farm sizes as well as cover the expenses for the entire target population.

**Non-operator Landlord** – Unit level non-response was accounted for using a single variable calibration technique. Calibration is a weighting technique used in survey sampling to adjust the survey weights for sampled elements so that the

weighted sum of a set of benchmark variables equals a pre-determined set of values for the population. The input to the calibration algorithm used for the TOTAL non-operator landlord survey is the weights generated from the sampling procedures. Due to survey nonresponse weights were adjusted through a calibration algorithm. Calibration for the Landlord Only survey adjusted the sampling weights in two phases.

The first phase multiplied the sampling weight by the ratio of acres owned inside the segment to all owned acres rented out. The acres owned inside the segment was obtained geospatially. The all owned acres rented out component was obtained from the survey response.

The second phase multiplied our adjusted sampling weight from the first phase by the ratio of non-operator landlord acres target to the sum of reported non-operator landlord acres at a state and strata level. The landlord only acres target was established as acres rented from others minus acres rented to others from the 2012 Ag Census. The reported landlord only acres were summed across state and strata levels to reflect the amount actually reported by respondents. This ensures that the data collected will accurately represent the estimates of the entire target population.

**Estimators:** The TOTAL survey utilized direct expansions for all survey indications. For both the list and area frame respondents, direct expansions are calculated by summing the reported or imputed values weighted by the calibration weights. Variance estimates are computed for all expansions. The all landlord direct expansion and variance are the sum of the estimates from the operator landlord and non-operator landlord portions of the TOTAL survey.

**Outliers:** NASS conducted a formal review of outliers found in the data for the 25 core states. Outliers may be caused by aging control data resulting in misstratification, data errors, or the nonresponse and calibration adjustments to the sampling weight.

**Operator Landlord** – A preliminary calibration and summary were run and any individual record accounting for 0.5 percent of the national expansion for total expenses or 2.5 percent of a regional expansion for total expenses were tagged as an outlier. After verifying the data had not been misrecorded or mishandled, background information on these outliers was compiled and presented to a National Outlier Board. This Board is a team of NASS and ERS analysts that meets to discuss the national outliers and form a consensus on a course of action. Most outliers trace back to unique situations that do not exist in the target population as often as a large calibrated sample weight indicates. The Board looked at other reports of the same type and sales class as the reported data on the outlier. The Board examined the weights of the comparable reports and most often overrode the outlier's weight with the median weight of the comparable reports. After the extreme outliers were addressed, the Board reviewed the national totals by expense category following the same methodology and, when necessary, overrode the outlier's weight with the median weight of the comparable reports. Finally, Headquarters staff examined outliers found at the state level for the published expense categories. A determination was made as to whether a weight adjustment is justified. Adjustments were not made to all outliers, but they are reviewed closely for accuracy. Once all adjustments were made, the calibration program was executed again to create the final set of weights for summary purposes.

**Non-operator Landlord** – A preliminary calibration and summary were run and any individual record accounting for 1.0 percent of the national unexpanded estimate for value of land and buildings, or 5.0 percent of a regional unexpanded estimate for value of land and buildings, or 10.0 percent of the state unexpanded estimate for value of land and buildings, or 2.0 percent of the state unexpanded estimate for six other key published variables were tagged as an outlier. These unexpanded outliers were determined to be very large and unique operations that were not representative of others within their state. Most of the weights for these records were adjusted to the result of non-response adjustment phase one (see Non-Response Adjustment). If, one of the records identified as an outlier in this stage was a replicated record, the weight was set to zero on all replicates. Therefore, no additional non-response adjustment was applied to these records. Next, another preliminary calibration and summary were run and any individual record accounting for 1.0 percent of the national expansion for value of land and buildings, or 5.0 percent of a regional expansion for value of land and buildings, or 10.0 percent of the state expansion for value of land and buildings, or 2.0 percent of the state expansion for six other key published variables were tagged as an outlier. These expanded outliers were adjusted to the 1<sup>st</sup> quantile weight of other records within their state and strata as long as at least four other records existed. If less than five records existed within a particular state and strata, two strata were merged together and calibration was re-run and the aforementioned adjustment protocol was followed.

**Estimation:** HQ statisticians executed a summary that generated core state, regional, and national level indications for operator and non-operator landlords. RFO and HQ statisticians are responsible for performing a detailed review of their survey results. Any irregularities that were revealed by the summary were investigated and, if necessary, resolved.

There are several types of data that NASS published for this survey. This includes the number of acres rented out, types of acres rented out, acres under conservation easement, rights sold and leased, disposal of land, along with other acreage data. Rights leased and sold, disposal of land, and land acquisition are available for all land owners. Acreage data is also published using categorical variables such as the type of rental agreement and how often the lease is renewed. Financial data such as total production expenses and rent received are also published. The accompanying coefficient of variation (CV) for each data items is also published. Values represented in dollars are rounded to the nearest \$1000.

## **Selected Terms and Definitions**

**Assets:** Assets include the physical resources and financial assets associated with the operation of rented land. Assets are the sum of the value of land and buildings, other assets as of December 31, 2014, and the share rent value of all commodities produced, sold, delivered or removed from the rented land as of December 31, 2014. Assets are available for non-operator landlords. See Value of Land and Buildings and Other Assets.

**Acres Rented Out:** This land area includes owned acres rented out by non-operator landlords and operator landlords and acreages subleased by operator landlords.

**Acres Owned and Rented to Others:** This land area includes owned acres rented out by non-operator and operator landlords.

**Capital Expenses:** These are expenditures used for purchasing long-term items required for the production of rental income. Capital expense items include costs for buildings, land improvement, equipment and machinery, land purchased and rented out in 2014, orchard and vineyards, oil, gas rights, and all other capital purchases. Capital expenses on owned acreage rented out are available for all landlords.

**Cash Rent:** Cash rent is a fixed, predetermined dollar amount received by landlords for the use of rented land. In addition to the amount received for land rented out, this includes the amount received for any land an operator may have subleased to others. Cash rent is summarized together with share rent. See Rent Received.

**Cash Rental Agreement:** A cash rental agreement is where a tenant leases land and pays cash. See Cash Rent. Acres rented out under this agreement are available for tenants 1, 2, and 3.

**Conservation Easements:** Conservation Easements are a legal agreement to place restrictions on the property between the land owners and a government agency or a qualified land conservation organization (called a land trust) to ensure a specific conservation goal is met. The conservation easement is part of the title for the land and includes rights that are otherwise held with the landowner. Conservation easements place (usually) permanent restrictions on the land. These restrictions may prohibit development or subdivision and/or prevent plowing or drainage (e.g. tilling), for example. The landowner, however, still owns the land and can use or sell it for purposes in agreement with the easement, such as farming, ranching, timber production, or hunting. The land itself remains in private ownership and the landowner still retains all other rights and responsibilities associated with being a property owner. Some examples of conservation goals include maintaining water quality, protecting wildlife habitat, and managing lands to ensure that they are always suitable for agriculture or forestry. These data are available for acres rented out and is not included rights leased or sold.

**Count of Non-operator Landlords:** The count of non-operator landlords represents the number of individual representatives of corporations, trusts, partnerships, individual land owners, or other type of ownership. If the same individual landlord represents more than one type of ownership, then the individual is only counted once. For instance, if the same individual owns land as an individual and is the representative of a corporation—the individual is only counted once.

In some instances, two or more parts of an aggregate item may be applicable to the same individual. In such cases, counts of the sub-items do not add to the counts of the aggregate item. For instance, a landlord who rents out both pasture and cropland is counted once for each item. However, the same landlord is still only counted once for all acres rented to others which aggregates pasture, cropland, and other land uses.

**Count of Operator Landlords:** The count of operator landlords represents the number of principal operators (or person answering the questionnaire). In some instances, two or more parts of an aggregate item may be applicable to the same individual. In such cases, counts of the sub-items do not add to the counts of the aggregate item. For instance, a landlord who rents out both pasture and cropland would be included as a landlord count of one.

**Cropland:** Cropland is land used for producing crops. Cropland includes land in field crops, nurseries, land in hay, land in government programs such as CRP, and land in orchards and vineyard. Cropland is available for acres owned and rented out by all landlords.

**Debt Not Secured by Real Estate:** This is the type of debt where assets other than real estate are used as collateral in obtaining a loan. Other assets include machinery, tractors, trucks, other equipment, fertilizer, feed, seed, livestock, poultry, and breeding stock. This debt also includes money borrowed for use as working capital. These data are available separately for non-operator landlords.

**Debt Secured by Real Estate:** This is the type of debt where real estate such as land, building or tenant dwelling(s) was used as collateral in obtaining a loan. These data are available for separately for non-operator landlords.

**Depreciation Expense:** Depreciation allows the expensing of capital purchases over multiple years. This expense item is excluded from total expenses and total capital expenses.

**Development Rights:** Development rights are the property rights associated with a landowner's right to develop or subdivide a property. Development rights are more likely to be permanently transferred through a sale or donation, than leased, although long term leases (99 year leases) do occur. State and local governments and non-profit organizations, especially in the Northeast, obtain development rights as a means to ensure land remains in agricultural use or to achieve conservation priorities. The transfer of development rights is in some cases referred to as a conservation easement. See Conservation Easement and Rights Leased or Sold. Acreage with the development rights sold are available separately for non-operator landlords. They are also included in other rights sold for land owned and rented out by non-operator landlords and all land owners.

**Family Corporation:** A Family Corporation is a corporation in which all shareholders are close family relatives. Family Farm Corporations provide easier entry and exit for family members who enter and leave the landlord business, resulting in better continuity of ownership. Family corporations are sometimes established to pass farm assets along to the next generation. Another advantage for family corporations over family farms is income tax savings. Acreage data for family corporations are available for non-operator landlords. Other data for family corporations are summarized with nonfamily corporations and trusts for non-operator landlords.

**Farm Related Income:** This income category includes government payments, federal and livestock insurance indemnities, royalty or lease payments associated with the energy production (natural gas, oil, wind turbines), and other income. See Other Income. Farm related income is available for non-operator landlords.

**Flexible or Hybrid Rental Agreement:** These agreements are equivalent and are a hybrid of cash and share rental agreements. The landowner receives both a cash payment and a share of the crop value. The exact terms depend on the agreement between a landlord and their tenant(s). Acres rented out for this agreement are available for tenants 1, 2, and 3.

**Free Rental Agreement:** A free rental agreement is where a landlords rents land to a tenant and receives no payment for the use of the land. Acres rented out for this agreement are available for tenants 1, 2, and 3.

**Gas Rights:** See Mineral Rights.

**Government Payments:** Government payments consist of direct payments as defined by the 2014 Farm Bill, payments from Conservation Reserve Program (CRP), Wetlands Reserve Program (WRP), Farmable Wetlands Program (FWP), and Conservation Reserve Enhancement Program (CREP), loan deficiency payments, disaster payments, other conservation programs, and all other federal farm programs under which payments were made directly to farm operators. Commodity Credit Corporation (CCC) proceeds, State and local government agricultural program payments, and federal crop insurance payments were not tabulated in this category. The landlord's share of government payments depends on the rental agreement with their tenant(s). Government payments are summarized in farm related income. See Farm Related Income.

**Household Assets:** Household assets include the financial resources for the principal landlord's household. Household assets are deposits, securities, cash value of life insurance, off-farm operator dwellings, accounts receivable, and cash on hand held by the operator and members of his/her household on December 31, 2014. These data are available for the principal landlords of individual and partnerships. See Principal Landlord. The count for these data is the number of principal landlords with an individual and/or partnership ownership arrangement.

**Household Debt:** Household debt includes the financial obligations for the principal landlord's household. This includes debt on items like mortgages and automobiles. Any debt on the acres rented out is excluded. These data are available for the principal landlords of individual and partnerships. See Principal Landlord. The count for these data is the number of principal landlords with an individual, or partnership, or both types of ownership arrangement.

**Individual Ownership:** Individual ownership identifies acreage owned by one principal landlord. These acreage data are available separately for non-operator landlords. In some instances, data for individual ownership are combined with partnership data.

**Insurance Indemnities:** Indemnities are insurance compensation for the loss of a covered item. Non-operator landlords were asked for the dollar compensation for the loss of crops and livestock. These payments are included in the data reported for farm related income for non-operator landlords. See Farm Related Income.

**Landlord Characteristics:** Landlord characteristics are social, demographic, and financial descriptions of landlords. For principal landlords, this includes: sex, age, race, education level, current work status, primary occupation, the value of household assets, the value of household debt, the number of persons living in their households, if retired from farming/ranching, and Spanish, Hispanic, or Latino origin. See Principal Landlord. The count for these data is the number of principal landlords with an individual and/or partnership agreement.

**Like-kind Land Exchanges:** This is a transaction or series of transactions that allow for the disposal of land and the acquisition of other land without generating a current tax liability from the sale of the first land asset. Data for these exchanges are included in the summarized data for land transfers to a non-relative for all landlords and landowners.

**Mineral Rights:** These are the property rights associated with the subsurface mineral resources. The mineral rights include all organic and inorganic substances in the soil, excluding sand, limestone, gravel and subsurface water. Mineral rights typically include hydrocarbons such as oil and gas. Mineral rights are often sold or leased to mining or drilling companies, but can also be sold to speculators or investment companies. These acreage data are available for land owned and rented out by non-operator landlords and all land owners.

**Multiple Ownership:** Multiple ownership identifies cases where non-operator landlords represent more than one type of ownership. In these cases, data cannot be broken out by a specific type of ownership such as corporation or trust.

**Nonfamily Corporation:** A Nonfamily Corporation is a corporation in which all shareholders are not necessarily close family relatives. Acreage for nonfamily corporations is available for non-operator landlords. Other data for nonfamily corporations are summarized with family corporations and trusts. These ownership data are only available for non-operator landlords.

**Non-operator Landlord:** Non-operator landlords are individuals, partnerships, corporations, trusts or other entities that rent out owned land for agricultural purposes, but did not operate a farm or ranch in 2014. The summary data for non-

operator landlords were made based on indications data from the Non-operator Landlord version of TOTAL. For the purposes of this survey, landlords are either operator or non-operator.

**Number of Tenants:** For the purpose of this publication, the number of tenants is a count of the number of leases or rental arrangements made by landlords. In cases when multiple landlord respondents each listed the same tenant, the tenant is counted for all respondents who rented land to that tenant.

**Operating Expenses:** Operating expenses are the sum of the ownership expenses and production expenses paid by operator and non-operator landlords on acres owned and rented out. Operating expenses exclude capital expenses. See Production Expenses and Ownership Expenses. This expense is summarized for acres owned and rented out.

**Operator Landlord:** Operator landlords are farming and ranching operations that rent out land for agricultural purposes and did operate a farm or ranch in 2014. The summary data for operator landlords were based on indications from the Operator Landlord version of TOTAL. For the purposes of this survey, landlords are either operator or non-operator.

**Other Assets:** Other assets include crops owned and stored or off the farm, livestock and poultry owned, production inputs such as feed, chemicals, and fertilizers, tractors, machinery and other equipment, and other non-land assets as of December 31, 2014. The market value of the landlord's share of these items is reported. Other assets exclude the value of land and buildings and are available for non-operator landlords.

**Other Income:** Other income includes the sales of forest products, income from recreational activities such as hunting and fishing, tax rebates for land preservation, and enrollment in private conservation programs. Other income is summarized with farm related income. See Farm Related Income.

**Other Land:** Other land is all agricultural land excluding cropland and pasture. These data are available for agriculture land owned and rented to others.

**Other Ownership:** This items includes land ownership arrangements other than individual, partnership, corporation, and trusts. Municipal ownership arrangements and otherwise unspecified LLC arrangements were included here. Other ownership data are available separately for non-operator landlords.

**Other Races:** This category represents all principal landlords that reported races other than white. Principal landlords who reported multiple races are included in other races.

**Other Rights:** Other rights are all rights on agricultural land excluding oil and gas rights. These acreage data are available for land owned and rented out by non-operator landlords and all landowners.

**Ownership Arrangements:** Ownership arrangements are the ways non-operator landlords own the land. These arrangements include individual ownership, partnerships, corporation, trusts and other arrangements such as limited liability companies and municipalities.

**Ownership Expenses:** Ownership expenses are the sum of the interest and fees on debt secured by real estate and not secured by real estate, and taxes paid on owned land and other property such as livestock, machinery, and other farm production items. Ownership expenses are available for acres owned and rented out for all landlords.

**Partnership Ownership:** Partnerships are business arrangements between two or more landlords. Where more than one individual owned a share in land, the distinction between partnership ownership and individual ownership was made based on how the respondent chose to characterize their ownership. In some instances, data for individual ownership are combined with partnership data.

**Pastureland:** Pastureland includes cropland pasture, woodland pasture, other pasture and rangeland and these types of land that are in government programs. These data are available for acres owned and rented to others.



**Principal Landlord:** This is the main non-operator landlord for individual and partnership ownerships. Demographic data for principal landlords are available separately by sex, race, age, and education.

**Production Expenses:** Production expenses are the sum of landlord's cost for inputs such as chemicals, fertilizer, feed and livestock, fuels, oils and lubricants, repairs and maintenance, insurance for the farm business, cash wages for labor, other operating expenses such as custom work, veterinary services, utilities, marketing and storage, transportation and leasing of machinery and vehicles, and other general expenses. In TOTAL, these are the sum of production expenses for owned land rented out. Production expenses are operating expenses minus ownership expenses.

**Race of Principal Landlord:** Race is a group of people who share similar and distinct physical characteristics. Data were collected for American Indian (including Alaska Native), Asian, Black or African American, Native Hawaiian and Other Pacific Islander, and White operators.

**Recreational Rights (hunting, etc.):** Recreational Rights are the rights to use property for the purpose of recreation. Recreational rights are probably more likely to be leased rather than sold. Recreational rights include rights to build camps and access to camps and recreational areas. The lease or sale of recreational rights provide the two parties the assurance of limited use by specifying who is using the land for recreational activities. These acreage data are published together with other rights for land owned and rented out by non-operator landlords and all land owned.

**Rent Received:** Rent received is the sum of share and cash rent payments on acres rented out. These data are available for operator and non-operator landlords.

**Rights Leased or Sold:** A landowner's property can be thought of as a bundle of rights, including the surface, subsurface, and the air above the property. These rights can be separated through sale or lease. Data are available for oil, gas and mineral rights leased and other rights sold or leased on acreage owned and rented out by non-operator landlords and all land owners. These rights all represent a portion of the land's total value.

**Royalty and Lease Payments:** When minerals are produced from a leased property, the owner is usually paid a share of the production income. This money is known as a "royalty payment". The amount of the royalty payment is specified in the lease agreement. It can be a fixed amount per ton of minerals produced or a percentage of the production value. Other terms are also possible. Lease payments are paid to landowners who rent their land for wind turbines and solar panels. Non-operator landlords were asked to report both of these together on the questionnaire. These payments are summarized in farm related income. See Farm Related Income.

**Share Rental Agreement:** A share rental agreement is a method of paying rent, where the owner receives a share of the crop, livestock (or product, such as milk or wool) as payment for use of land, buildings, equipment, livestock, etc. Acres rented out under this agreement are available for tenants 1, 2, and 3.

**Share Rent:** Share rent income received in 2014 is summarized together with cash rent as rent received. Share rent owed is considered an asset. See Share Rental Agreement and Rent Received.

**Spanish, Hispanic, or Latino Origin:** Principal landlords of Spanish, Hispanic, or Latino origin are found in all of the racial groups. See Principal Landlord.

**Tenant:** The tenant is the individual or other entity who utilizes the land rented from a landlord. Data for the years rented to a tenant, the acres rented to a tenant, and the type of rental agreement are available for tenants 1, 2, and 3. Data on whether the tenant was related to landlord, whether the lease is written, whether the lease payments can be adjusted, and how often the lease is renewed are also available for the 3 tenants that rent the most acreage. Information for Tenant 1, 2, and 3 is the first tenant a landlord reported and not necessarily the one that rents the most acreage.

Information on acres published based on the length of time a landlord has rented to a tenant is divided into two different ways. Tenant 1 information is broken into three groups (0-4 years, 5-9 years, and 10 years or more). Tenant 2 and 3 information is broken into two groups (0-9 years and 10 years or more). This was done in an effort to publish as much specific data as possible.

**Tenure:** Tenure is the name given to the legal regime in which real property (for example, land) is held or occupied.

**Total Debt:** This is the sum of debt secured and not secured by real estate. Total debt on acres owned and rented out is available for all landlords.

**Trust:** A Trust is either an agreement by one party to hold ownership of the land for another party, or a trust can be a non-profit organization that either purchases and owns the land outright or purchases conservation easements to protect the land for conservational purposes. A trust is an entity created at the direction of an individual in which one or more persons (trustees) hold the individual's property subject to certain duties to use and protect it for the specified purposes and beneficiaries. Most trusts are created by the execution of a written Declaration of Trust which establishes the trust and spells out the terms and conditions upon which it will be conducted. A trust may be created for the financial benefit of the person creating the trust, a surviving spouse or minor children, other specified beneficiaries, or a charitable purpose. Acreage for trusts is available for non-operator landlords. Other data for trusts are summarized with family corporations and nonfamily corporations.

**Value of Land and Buildings:** Market value of land and buildings refers to the amount the land and buildings would sell for under current market conditions. This value also includes the value of oil gas and mineral rights, and orchard trees, vineyards, nursery trees, and trees grown for wood crops. The value may include the value of subleased land for operator landlords. If the value of land and buildings was not reported, it was imputed using the methodology described previously. (See non-response). These data are available for acres rented out.

**Wind Rights:** Wind Rights are the rights to use land to capture wind energy from the air (wind) above. A landowner's property can be thought of as a bundle of rights, including the surface, subsurface, and the air above the property. However, these rights can be separated through sale or lease. Wind rights typically allow the installation of one or more wind turbines and access to the equipment via a road. Wind rights are most often sold or leased to developers or utility companies. These acreage data are available separately for non-operator landlords.

**Will:** A will is a legal instrument in which a person specifies how his/her estate will be managed and distributed after their death.

**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 nonsampling error. 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 and the percent of the estimate from respondents.

**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 rate** is the proportion of the sample that completed the survey. This calculation follows Guideline 3.2.2 of the Office of Management and Budget Standards and Guidelines for Statistical Surveys (Sept 2006).

**Coefficient of variation** is a measure of the relative amount of error associated with a sample estimate. Specifically, it is the standard error of a point estimate divided by that estimate, generally multiplied times 100 so that it can be reported as a percentage. This relative measure allows the reliability of a range of estimates to be compared. For example, the standard error is often larger for large population estimates than for small population estimates, but the large population estimates may have a smaller CV, indicating a more reliable estimate. Every estimate for the TOTAL project has a corresponding CV published with it. NASS has identified the following index to use when evaluating coefficient of variation for TOTAL.



High Reliability Estimate. Coefficient of Variation (CV) less than 15 percent.



Medium Reliability Estimate. Coefficient of Variation (CV) between 15 percent and 29.9 percent



Low Reliability Estimate. Coefficient of Variation (CV) 30 percent or higher. Caution should be used when using this estimate in any form. Please consult NASS for more information or guidance.

**Tenure Ownership, and Transition of Agricultural Land Sample Size and Response Rate – Region, State, and United States: 2014**

Region and state	Sample size		Response rate	
	Operator	Non-operator	Operator	Non-operator
	(number)	(number)	(percent)	(percent)
<b>Northeast</b> .....	2,292	1,065	67.8	57.8
Pennsylvania .....	1,538	315	65.5	58.4
Other States .....	754	749	72.5	57.7
<b>Appalachian</b> .....	3,024	1,886	79.3	67.6
Kentucky .....	1,323	287	77.6	69.7
North Carolina .....	1,150	1,091	79.6	68.6
Other States .....	551	507	82.9	64.3
<b>South</b> .....	7,017	2,771	72.3	63.5
Alabama .....	1,173	354	83.2	61.9
Arkansas .....	1,326	163	71.0	49.1
Florida .....	1,354	526	64.5	60.3
Georgia .....	1,563	430	71.3	64.7
Mississippi .....	1,168	742	75.4	70.2
Other States .....	433	535	67.2	64.5
<b>Midwest</b> .....	12,240	6,354	75.1	70.6
Illinois .....	1,531	1,489	75.7	65.5
Indiana .....	1,511	768	73.7	66.0
Iowa .....	1,614	1,179	82.3	78.4
Michigan .....	1,672	262	69.6	71.8
Minnesota .....	1,449	961	80.6	79.2
Missouri .....	1,469	655	70.9	60.3
Ohio .....	1,578	597	67.0	68.0
Wisconsin .....	1,416	416	81.6	78.6
<b>Plains</b> .....	10,261	6,091	65.6	58.1
Kansas .....	1,836	1,280	69.6	60.2
Nebraska .....	1,673	976	69.3	62.0
North Dakota .....	1,558	864	65.7	68.9
Oklahoma .....	1,427	425	62.9	65.2
South Dakota .....	1,802	637	55.1	68.9
Texas .....	1,965	1,723	70.0	49.4
<b>West</b> .....	6,371	1,942	75.2	60.9
California .....	2,087	275	81.8	63.6
Idaho .....	1,432	263	71.5	58.9
Washington .....	1,440	411	75.3	56.0
Other States .....	1,412	996	68.9	62.4
United States .....	41,205	20,176	72.2	63.7

## Access to NASS Reports

For your convenience, you may access NASS reports and products the following ways:

- All reports are available electronically, at no cost, on the NASS web site: <http://www.nass.usda.gov>
- Both national and state specific reports are available via a free e-mail subscription. To set-up this free subscription, visit <http://www.nass.usda.gov> and in the “Follow NASS” box under “Receive reports by Email,” click on “National” or “State” to select the reports you would like to receive.

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@nass.usda.gov](mailto:nass@nass.usda.gov).

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