Appendix A.
Census of Agriculture Methodology

The purpose of a census is to enumerate all objects with a defined characteristic. For the census of agriculture, that goal is to account for "any place from which $1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year." To do this, NASS creates a Census Mail List (CML) of agricultural operations that potentially meet the farm definition, collects agricultural information from those operations, reviews the data, corrects or completes the requested information, and combines the data to provide information on the characteristics of farm operations and farm producers at the national, State, and county levels. In this appendix, these census processes are described.

THE CENSUS POPULATION

The Census Mail List

The National Agricultural Statistics Service (NASS) maintains a list of farmers and ranchers from which the CML is compiled. The goal is to build as complete a list as possible of agricultural places that meet the farm definition. The CML compilation begins with the list used to define sampling populations for NASS surveys conducted for the agricultural estimates program. Each record on the list includes name, address, telephone number, and email plus additional information that is used to efficiently administer the census of agriculture and agricultural estimates programs.

NASS builds and improves the list on an ongoing basis by obtaining outside source lists. Sources include State and federal government lists, producer association lists, seed grower lists, pesticide applicator lists, veterinarian lists, marketing association lists, and a variety of other agriculture-related lists. NASS also obtains special commodity lists to address specific list deficiencies. These outside source lists are matched to the NASS list using record linkage programs. Most names on newly acquired sources are already on the NASS list. Records not on the NASS list are treated as potential farms until NASS can confirm their existence as a qualifying farm. Staff in NASS regional and field offices routinely contact these potential farms to determine whether they meet the farm definition. For the 2022 Census of Agriculture, NASS made a concerted effort to work with community-based organizations not only to improve list coverage for minorities but also to increase census awareness and participation.

List building activities for developing the 2022 CML started in 2019 by updating list information from respondents to the 2017 Census of Agriculture. Between 2017 and 2022, NASS conducted a series of National Agricultural Classification Surveys (NACS) on over 2.1 million records, which included nonrespondents from the 2017 census and newly added records from outside list sources. The NACS report forms collected information that was used to determine whether an operation met the farm definition. If the definition was met, the operation was added to the NASS list and subsequently to the CML. Addressees that were nonrespondents to a NACS were also added to the CML and identified with a special status code.

Measures were taken to improve name and address quality. Additional record linkage programs were run to detect and remove duplicate records both within each State and across States. List addresses were processed through software programs that utilize the United States Postal Service's National Change of Address System and the Locatable Address Conversion System to improve mail delivery. Records on the list with missing or invalid phone numbers were matched against a nationally available telephone database to obtain as many phone numbers as possible. To reduce costs, operations with characteristics that indicated they were unlikely to be farms, according to the farm definition, were removed from the list.

The official CML for the 2022 Census of Agriculture was established on September 3, 2022. The list contained 2,879,343 records. Of these, 2,079,333 records were thought to meet the NASS farm definition and 800,010 were potential farm records, which included NACS nonrespondents, other records added to the CML by the NASS regional field offices after the record linkage process, and late adds to the CML that were not included in any previous NACS or State screening survey.

Not on the Mail List (NML)

Extensive efforts are directed toward developing a CML that includes all farms in the U.S. However, some farms are not on the list, and some agricultural operations on the list are not farms. NASS uses its June Area Survey (JAS) to

quantify the number and types of farms not on the CML. The records in the JAS that are not on the CML are said to be in the Not-on-the-Mail List (NML) domain. If a JAS record in the NML domain is determined to be a farm during the census, it is an NML farm. The NML farms are used to measure coverage associated with the grown crops, farm numbers, and inventories of cattle. Sampled segments in the JAS are personally enumerated. Each operation identified within a segment boundary is known as a tract.

The 2022 JAS sample was increased to improve the farm counts for operations that produced specialty commodities or had socially disadvantaged or minority producers. The total JAS sample consisted of 14,015 segments of which 4,933 were additional ACES segments. This set of additional segments is referred to as the Agricultural Coverage Evaluation Survey (ACES) segments. The ACES segments were selected using a multivariate sampling design that targeted specific items at the U.S. level. The 2022 JAS consisted of sample segments from all States, with the exception of Alaska where NASS does not maintain an area frame.

During the JAS/ACES enumeration process, each tract is identified as either agricultural or non-agricultural. Each JAS/ACES agricultural tract is identified as a farm or non-farm in June based on the farm definition of $1,000 of sales or potential sales of agricultural products. Non-agricultural tracts are further classified into categories: with farm potential, with unknown farm potential, or with no farm potential. The names and addresses collected in the 2022 JAS/ACES were matched to the CML. Those from the 2022 JAS/ACES that did not match were determined to be in the NML domain and sent a yellow census report form so that they could be differentiated from the green report form sent to those addressees on the CML. Instructions on the census report form directed any respondent who received duplicate forms to complete the CML form and to mail all duplicate forms back together. Those who returned a CML and an NML form had been misclassified as NML and were removed from the NML domain.

The initial NML mailout consisted of 41,273 records. A total of 40,775 NML records were analyzed, of which 1,913 records were confirmed to be NML and in-scope.

The farm/nonfarm status of each NML domain operation was determined based on the reported data in the census form. An operation in the NML domain that was determined to be a farm is referred to as an NML farm. Characteristics of NML farms and their producers provided a measure of the undercoverage of farms present in the CML.

The percentage of farms not represented on the CML varied by State. In general, NML farms tended to be small in acreage, production, and sales of agricultural products. Farm operations were missing from the CML for various reasons, including the possibility that the operation started after development of the CML, the operation was so small that it did not appear in any agriculture-related source list, or the operation was misclassified as a nonfarm prior to census mailout. The CML was used with the NML in a capture-recapture framework to represent all farming operations across all States in the JAS sample.

DATA COLLECTION OUTREACH AND PROMOTIONAL EFFORTS

NASS planned and executed a multi-phase strategic communications campaign for the 2022 Census of Agriculture, to increase the level of awareness and response among all U.S. agricultural producers.

- Phase 1 ran from April 2021 − June 2022. It raised awareness about the census and list building, encouraged producers to sign up in response to NASS mailings and at community, association, and other stakeholder meetings where NASS partners reached out.

- Phase 2 ran from July 2022 − October 2022. It notified farm producers and agricultural organizations that the census would be mailed in November and encouraged communications regarding the census.

- Phase 3 ran from November 2022 – May 2023. It focused on census data collection with messaging urging response to remind producers that it was not too late to respond.

- Phase 4 ran from August 2023 – February 2024. It thanked producers for their participation and NASS partners for their support and informed everyone of the February 2024 data release plan.

The communications campaign focused on these primary areas: partnership building, local-level outreach, public relations, media relations, paid media, social media and some paid advertising. Some external support was provided by a private communications agency (i.e. primarily assisted with design and paid advertising).

The unifying force behind the 2022 communications campaign was the theme “Your Voice. Your Future. Your Opportunity.” This was accompanied by supporting messages and artwork that created a consistent look and feel for all census communications. All messages and materials served the purpose of inspiring action: Sign Up to Be Counted - Show the Value of Your Work - *Grow Your*

Farm Future - Shape Farm Policy/Programs - Respond to the Census of Agriculture - Be counted - The Census of Agriculture is Your Voice, Your Future, Your Opportunity.

Partnership and Local-Level Outreach

At the national level, NASS officials met with leaders from dozens of agricultural organizations, State Departments of Agriculture, and other USDA agencies to successfully secure their support in promoting the census among their constituencies. Stakeholders partnered with NASS to promote the 2022 Census of Agriculture through publications (e.g. newsletters), special mailings, speeches, social media, websites, and other communications. In addition, through grassroots-level outreach and efforts, NASS partnered with a number of community-based organizations to reach minority and limited-resource farmers and ranchers. National-level outreach was encouraged and mirrored at the regional, State, and local levels. Among the highlights of these partnership efforts was the production of multiple television and radio public service announcements featuring the U.S. Secretary of Agriculture, State secretaries, directors, and commissioners of agriculture and leaders from community-based organizations.

Coverage of American Indian and Alaska Native Farm Producers

To maximize coverage of American Indian and Alaska Native agricultural producers, special procedures were followed in the census. A concerted effort was made to get individual reports from every American Indian and Alaska Native farm or ranch producer in the country. If this was not possible within some reservations, a single reservation-level census report was obtained from knowledgeable reservation officials. These reports covered agricultural activity on the entire reservation. NASS staff reviewed these data and removed duplication with any data reported by American Indian or Alaska Native producers who responded on an individual census report form. Additionally, NASS obtained, from knowledgeable reservation officials, the count of American Indian and Alaska Native producers (on reservations) who were not counted through individual census report forms, but whose agricultural activity was included in the reservation-level report form.

Table D, **American Indian and Alaska Native Producers:** 2022 provides the number of producers (1) reported as American Indian or Alaska Native in the race category, either as a single race or in combination with other races, on the individual census report forms (for up to four per farm) and (2) identified as American Indian or Alaska Native producers farming on reservations by reservation officials. The count from the individual report forms is summarized in the "Individually reported" column. It includes up to four producers on or off reservations. The "Other" column provides counts of producers on reservations as reported by a reservation or tribal official. The "Total" column is simply a sum of the "Individually reported" and the "Other" columns. Tables in other parts of the publication count the reservation-level reports as single farms.

Public Relations

In the public relations arena, NASS worked with internal and external, national, regional, and local stakeholders to equip them with communications tools and resources to deliver the census communications message to their audiences. NASS utilized its Intranet, the Partner Tools section on the census webpage, and a regularly scheduled, newsletter-type email update to deliver materials to staff across its 12 regions, other USDA agencies and external stakeholders. The materials included but were not limited to: customizable news releases, public service announcement scripts, and a PowerPoint template; Secretary of Agriculture video public service announcements, and drop-in advertisements; informational, instructional, and testimonial videos; website buttons and banners; brochures in multiple languages; social media posts; flyers; posters; FAQ sheets, talking points, and more. In addition, at the national level, NASS issued six news releases during data collection (three more were produced before data collection to inform and prepare producers) citing department and agency spokespeople, published half a dozen timely and relevant pieces to the USDA blog highlighting the census, and conducted three social media campaigns. These public relations efforts at the national and local-levels helped ensure that NASS' message about the census was continually in the media, including print and online publications, a variety of social media, radio, and some television programs. Media outlets included both those specializing in agriculture and more general outlets.

Paid Media

With a very limited budget, NASS was able to apply a small portion of funds toward paid advertising. For the 2022 Census of Agriculture, NASS strategically advertised in regional print publications, online, and with national agriculture news services (i.e., TV, radio) to bolster reach both in general and within geographically specific, previously under-represented populations and lower response areas.

DATA COLLECTION

Method of Enumeration

Data collection was accomplished primarily by mail, Computer-Assisted Self Interview (CASI) on the Internet, and personal enumeration for special classes of records in the census operations. Personal enumeration (interviewing) involved the use of both Computer-Assisted Telephone Interview (CATI) and Computer-Assisted Personal Interview (CAPI) data collection instruments. Enumerators at the five NASS Data Collection Centers conducted CATI data collection. In addition, enumerators under contract with NASS through the National Association of State Departments of Agriculture (NASDA) conducted phone and personal interviews with respondents. For the 2022 Census of Agriculture, NASS implemented a pre-notification strategy to increase awareness, improve overall responses, and encourage respondents to report early to avoid continued correspondence. All records with an e-mail address received an e-mail message marketing the improved web form and announcing the census mail packets were coming.

Report Forms

Four versions of report forms were used for the 2022 Census of Agriculture:

- General form (22 - A100)
- Hawaii form (22 - A101)
- American Indian form (22 - A300)
- Farm Status form (22 - A400)

The general form facilitated reporting crops and livestock most commonly grown and raised in the U.S. The short form expedited reporting specific crops or livestock for pre-identified farms and ranches in the U.S. The Hawaii form targeted crops and livestock specifically grown or raised on farms and ranches in Hawaii. The American Indian form focused on crops and livestock for farms and ranches on reservations in Arizona, New Mexico, and Utah. All report forms allowed respondents to write in specific commodities that were not prelisted on their report form.

Report Form Mailings

Census data collection began on November 22, 2022. Nearly all producers on the CML received a letter inviting them to report online. They received a unique survey code and instructions for completing their census online. The letter encouraged producers to report online early to avoid receiving mail and phone follow-up. Approximately 3 million mail packets were mailed in December 2022. Each packet contained a cover letter, instruction sheet, a labeled report form, and a return envelope. The Census Bureau's National Processing Center (NPC) in Jeffersonville, IN was contracted to perform mail packet preparation, initial mailout, and two follow-up mailings to nonrespondents.

The initial mailout was followed by a thank-you reminder correspondence in January 2023. This pressure-sealed envelope reminded respondents of the approaching deadline and that they could report online. First follow-up mail packets were mailed in mid-February 2023 to approximately 1.5 million nonrespondents. Second follow-up mail packets were mailed in mid-March 2023 to approximately 1 million nonrespondents. A final mailing went to approximately 800,000 non-respondents. This mailing included a drastically reduced four-page questionnaire designed to primarily determine if the operation was a farm or not in business.

Nonresponse Follow-up

Operating concurrently with NPC's mail data collection efforts, NASS Data Collection Centers targeted selected groups of census nonrespondents for telephone enumeration. NASS regional field offices targeted selected groups of census nonrespondents for in-person enumeration. These efforts were referred to as:

- Must Case Follow-up
- American Indian Producer Follow-up
- National Nonresponse Follow-up
- Not on Mail List (NML) Follow-up

Must Case Follow-up. Must cases are known large or unique operations, the absence of which could have significantly affected the accuracy of census results. For the 2022 Census of Agriculture, 125,697 records were categorized as Must cases. Each active Must operation was accounted for by mail receipt, phone interview, or personal enumeration; if an operation was no longer in business, its nonfarm status was documented. Call centers conducted CATI calling of nonrespondent Must cases from March 2023 through May 2023, after the initial and first follow-up mailings. Following the CATI calling, the remaining nonresponse Must cases were assigned to regional field offices for personal enumeration. Because of the potential importance of Must cases, they were all accounted for and therefore not eligible for nonresponse weighting adjustment.

American Indian Producer Follow-up. The American Indian report form (22-A300) was mailed to all operations in Arizona, New Mexico and Utah thought to have an American Indian producer. It was included in the initial

mailout, but due to poor mail response, a personal enumeration data collection strategy was utilized with no additional mail follow-up. A concerted effort was made to get individual reports from every American Indian farm producer in the country. If this was not possible within a reservation, a single reservation-level census report was obtained from knowledgeable reservation officials. These reports covered agricultural activity on the entire reservation. NASS staff reviewed these data and removed any duplicate data reported by American Indian producers from that reservation who responded on an individual census report form. Additionally, NASS obtained, from knowledgeable reservation officials, the count of American Indian farm producers (on the reservations) who were not counted through individual census report forms, but whose agricultural activity was included in the reservation-level report form.

National Nonresponse Follow-up (Excludes Must Records). In April 2023, a group of records that were not part of other nonresponse data collection efforts were identified for additional phone contacts. In total, 82,237 records with specified demographics and/or eligibility for Census Special Studies (follow-ons) were made available for nonresponse Computer-Assisted Telephone Interviews (CATI).

Not-on-the-Mail List (NML) Follow-up. To account for farming operations not on the CML, NASS used its 2022 JAS sample from the NASS area frame, augmented with the ACES segments. Because the NASS area frame covers all land in the U.S. with the exception of Alaska, it includes all farms. As previously described, NASS conducted a record linkage operation between the CML records and the records from the 2022 JAS/ACES. Those 2022 JAS records that did not match records on the CML were designated as "Not-on-the-Mail List" (NML) records. These records were mailed a yellow census form so that it could be differentiated from the green forms mailed to CML records. The NML records were mailed at the same time as the census mailing and received the same follow-up procedures as the census mailing through the first follow-up in mid-February 2023. Beginning in March 2023, CATI was used for nonresponse follow-up for NML nonrespondents.

REPORT FORM PROCESSING

Data Capture

The Census Bureau's National Processing Center (NPC) in Jeffersonville, IN was contracted to process returned mail packets. NASS staff on site at the NPC provided technical guidance and monitored NPC processing activities. All report forms returned to the NPC were immediately checked in, using bar codes printed on the mailing label, and removed from follow-up report form mailings. All forms with any data were scanned and an image was made of each page of a report form. Optical Mark Recognition (OMR) was used to capture categorical responses and to identify the other answer zones in which some type of mark was present.

Data entry operators keyed data from the scanned images using OMR results that highlighted the areas of the report forms with respondent entries. The keyer evaluated the contents and captured pertinent responses. Ten percent of the captured data were keyed a second time for quality control. If differences existed between the first keyed value and the second, an adjudicator handled resolution. The decision of the adjudicator was used to grade the performance of the keyers, who were required to maintain a certain accuracy level.

The images and the captured data were transferred to NASS's centralized network and became available to NASS analysts on a flow basis. The images were available for use in all stages of review.

Editing Data

Captured data were processed through a computer formatting program that verified that records were valid – that the record ID number was on the list of census records, that the reported counties of operation and production were valid, and other related criteria. Rejected records were referred to analysts for correction. Accepted records were sent to a complex computer batch edit process. Each execution of the computer edit in batch mode consisted of records from only one State and flowed as the data were received from NPC, the NASS Computer-Assisted Self Interview (CASI), or the Computer-Assisted Telephone Interview (CATI) applications.

The computer edit determined whether a reporting operation met the qualifying criteria to be counted as a farm (in-scope). The edit examined each in-scope record for reasonableness and completeness and determined whether to accept the recorded value for each data item or take corrective action. Such corrective actions included removing erroneously reported values, replacing an unreasonable value with one consistent with other reported data, or providing a value for an item omitted by the respondent. To the extent possible, the computer edit determined a replacement value. Strategies for determining replacement values are discussed in the next section. Operations failing to meet the qualifying criteria for being classified as a farm were categorized as out-of-scope for the census. Records that NASS had reason to believe might have been erroneously classified as out-of-

scope (indications of recent and/or significant agricultural activity reported on NASS surveys, for example) were referred to analysts for verification.

The edit systematically checked reported data section-by-section with the overall objective of achieving an internally consistent and complete report. NASS subject-matter experts had previously defined the criteria for acceptable data. Problems that could not be resolved within the edit were referred to an analyst for intervention. Prior to the census mail-out, NASS established a group of analysts in a Census Editing Unit in the National Operations Center in St. Louis, MO who examined the scanned images, consulted additional sources of information, and determined an appropriate action. Regional field office analysts also participated using an interactive version of the edit program to submit corrected data and immediately re-edit the record to ensure a satisfactory solution.

Farm Status Form Editing

From the CML, 883,732 records were selected to receive a Farm Status form as a final follow-up form; this form was derived from the full census report form by selecting a subset of the questions on the full form. Since these questions were also asked on the general form, the edit was able to treat the Farm Status form responses as though they were incomplete general forms, as described in the previous paragraphs.

Imputing Data

The edit determined the best value to impute for reported responses that were deemed unreasonable and for required responses that were absent. If an item could not be calculated directly from other current responses, the edit determined whether acreage, production, or inventory items had been reported for that farm on a recent NASS crop or livestock survey. For producers who had not changed in five years, demographics such as race and gender were taken from the previous census. Administrative data from the Farm Service Agency were used for a few items, such as Conservation Reserve Program acreage. When deterministic edit logic and previously-reported data sources were unable to provide a current value, data from a reporting farm of similar type, size, and location were considered. In cases where automated imputation was unable to provide a consistent report, the record was referred to an analyst for resolution.

Separate system processes were established to efficiently provide data from a similar farm to the edit when donor imputation was required. The farm characteristics used to define similarity between a recipient record and its donor record were determined dynamically by the edit logic. Euclidean distance was used for similarity computations, with each contributing similarity characteristic scaled appropriately. The most similar farm based on this criterion (the "nearest neighbor") was identified and returned to the edit for use as a donor. The calculated distance between the centroids of the principal counties of production of the donor and recipient was always included as one of the measures of similarity.

To provide donors to the automated edit, a pool of successfully edited records was maintained for each section of the report form. These donor pools began with 2017 census data, reconfigured to emulate 2022 data and then edited using 2022 logic. Data from the 2020 Census Content Test were similarly remapped and edited before being added to the original donor pools. As 2022 records were successfully processed, they were added to the donor pools, which maintained the most recent data for each farm. Donor pools were updated approximately every other week, as determined by edit processing schedules. After several updates, all initial data records were dropped, leaving only 2022 records in the donor pools. After each update, donor pool records were grouped into strata containing farms in the same State of similar type and size, using a data-driven algorithm to define strata. Certain American Indian farms were treated as a separate group, effectively having their own donor pool.

In response to each donor request issued by the edit, a dedicated system process would search the appropriate stratum and respond with the most similar donor, while giving preference to more recent donors. In relatively rare instances where it was unable to provide a donor, the donor selection process issued an appropriate failure message to the edit. Imputation failures occurred for several different reasons. The requirement that an imputed value be positive could have ruled out all available donors, as could have the necessity for the donor record to satisfy a particular constraint – say, that the donor record has cattle, but no milk cows. In general, an imputation failure occurred if there were no satisfactory donors in the same profile as the report being edited. Records with imputation failures were either held until more records were available in the donor pool or referred to an analyst. In addition, when such a failure occurred in finding a donor for expenditure data, donor pool averages were provided in lieu of an individual donor, wherever possible. This "failover" utility was first introduced for the 2012 census imputation process, and significantly reduced the number of imputation failures among the expenditure and labor variables. During the early stages of editing, records requiring imputation for production (and hence yields) of field crops or hay, land values, or certain expenditure variables, were set aside or "parked." These records were edited when the donor pools contained only 2022 records, ensuring that 2022 data were

used in the imputations for the variables.

After receiving a donor's data, the edit substituted the values into the edited record. In many cases, the donor record's data value was scaled using another data field specified in the edit logic. In such cases, the size of the auxiliary field's value in the edited record, relative to its value in the donor record, was used to appropriately scale the donor record's value for the field to be imputed. The imputed data were then validated by the same edit logic to which reported data were subject. Since imputation was conducted independently for each occurrence, reports requiring multiple imputations may have drawn from multiple donors.

As was done for the 2017 Census, for records reporting three or more persons as producers, a different imputation process was used for certain items (specifically the items in question 3) in the Personal Characteristics Section. Records with one or two persons reported as producers had these data edited and imputed using the decision logic table edit and donor pool imputation process. Records with three or more persons reported as producers, and for which it was determined that these data were inconsistent or missing, had these data imputed using a fully conditional specification method. During the edit for records reporting three or more producers, the items needing imputation were marked, and the record was flagged. At the end of the data collection period, the data for these records (both the items needing to be imputed and the other variables needed by the model) were pulled and run through the imputation program. The resulting imputed values were loaded back to the records, and the records were made available for review.

Data Analysis

The complex edit ensured the full internal consistency of the record. Successfully completing the edit did not provide insight as to whether the report was reasonable compared to other reports in the county. Analysts were provided an additional set of tools, in the form of listings and graphs, to review record-level data across farms. These examinations revealed extreme outliers, large and small, or unique data distribution patterns that were possibly a result of reporting, recording, or handling errors. Potential problems were investigated and, when necessary, corrections were made, and the record interactively edited again.

When NASS summarizes data from the census of agriculture, each individual report is typically assigned to a single “principal” county. The principal county is the county in which the majority of an operation’s agricultural products are produced, as reported by the producer. For large operations that have significant production in multiple counties, their reports may be broken up into multiple source counties to more accurately summarize the data. Similarly, for large farms operating in more than one State, separate report forms are completed by State in order to assign the proper portion of the farm’s total agricultural production to each State in which the farm operates.

ACCOUNTING FOR UNDERCOVERAGE, NONRESPONSE, AND MISCLASSIFICATION

Although much effort has been expended making the CML as complete and accurate as possible, it does not include all U.S. farm operations, resulting in list undercoverage. Additionally, some farm operations on the CML did not respond to the census, despite numerous contact attempts. Finally, although each operation was classified as a farm or a nonfarm based on their census responses, some were misclassified; that is, some nonfarms were classified as farms and some farms were classified as nonfarms. NASS’s goal is to produce agricultural census totals for publication at the county level that are fully adjusted for these factors: list undercoverage, nonresponse, and misclassification.

In 2017, NASS used a series of models based on a subset of the responding census and all the JAS records in a capture-recapture framework to separately adjust for undercoverage, nonresponse, and misclassification. For the 2022 Census of Agriculture, the capture-recapture methodology was extended to model the probability of capture with a single model, thereby allowing the utilization of all census responses and JAS records in the adjustments. To implement capture-recapture methods, two independent samples are required. The 2022 Census of Agriculture (based on the CML) and the 2022 JAS (based on the area frame) were those two samples. Historically, NASS has been careful to maintain the independence of the CML and the area frame. Thus, the Census of Agriculture and the JAS were assumed to be independent after accounting for heterogeneity in the capture probabilities based on characteristics of records.

For a farm to be identified as a farm, and thus captured by the census, it must be on the CML, respond to the census report form, and be classified as a farm on the form. Thus, the capture probability π_C is of interest:

$\pi_C = \pi(\text{CML, Responded, Farm on Census}|\text{Farm})$

Two types of classification error can occur. First, a farm can be misclassified as a nonfarm. This type of misclassification is accounted for in determining the probability of capture π_C. The second type of classification

error results when a response to the census is classified as a farm operation when it does not meet the definition of a farm. That is, some farms on the CML may be misclassified from their census report response and may be nonfarms. To account for the misclassification of nonfarms as farms, the probability of a farm on the census being classified correctly must be estimated; that is,

$\pi_{CCFC} = \pi$(Farm | Farm on Census)

where *CCFC* represents Correct Census Farm Classification. To adjust for undercoverage, nonresponse, and misclassification, each CML record classified as a farm based on its response to the census report form was given a weight of the ratio of the estimated probability of correct classification of a farm on the census and the estimated probability of capture $(\hat{\pi}_{CCFC}/\hat{\pi}_C$ where the hat symbol ($\hat{}$) denotes an estimate). To estimate the number of farms with a given set of characteristics, the weights of CML records responding as farms on the census and having that set of characteristics were summed.

This estimator is referred to as the capture-recapture estimator (*CR*):

$$CR = \sum_{i \in F} \frac{\hat{\pi}_{CCFC,i}}{\hat{\pi}_{C,i}}$$

where *F* is the set of all CML records classified as farms based on their responses to the census report form.

To estimate these probabilities $(\hat{\pi}_C$ and $\hat{\pi}_{CCFC})$, the records in the 2022 JAS sample were matched to the 2022 CML using probabilistic record linkage allowing the records only on the CML, JAS, and on both the CML and JAS to be identified. All CML records and JAS tracts were used to estimate the capture-recapture probabilities jointly.

Resolving Farm Status

The farm status based on census responses to either the CML or NML census data collection and the response on the JAS agreed in most cases; these records are referred to as having resolved farm status. However, in other cases, a record was identified as a farm (nonfarm) on the JAS and as a nonfarm (farm) on the CML or the NML. Such records are said to have conflicting or unresolved farm status. An operation identified as a farm is referred to as in-scope; an operation identified as a nonfarm is referred to as out-of-scope. From the set of matched records, two groups with conflicting farm status were identified: 1) in-scope JAS records that were out-of-scope on the census and 2) census in-scope and JAS out-of-scope records. The records with conflicting farm status were sent to NASS regional field offices for review. In each case, efforts were made to determine whether (1) the status had changed between June and December when the census was conducted, (2) the JAS farm status was correct, (3) the census farm status was correct, (4) the records were incorrectly matched, or (5) the farm status could not be resolved.

The probability that an operation is a farm was estimated for census and JAS by using a conditional logistic model. Only those records identified as a farm based on either their JAS response or their Census response were used to develop the model for estimating the probability a record is associated with a farm. Operations with matching farm status were considered as certain if the farm status agreed between the JAS and the CML. If the status between the JAS and CML was conflicting, then the operation was treated as uncertain during the modeling stages. Characteristics of the operations were considered as potential covariates in the model. Variable selection was conducted using a stepwise algorithm to maximize the conditional likelihood. The probability of being a farm is estimated for each record classified as a farm based on their JAS or census response. The estimated probability is used as a weight in all subsequent modeling.

Capture Probabilities

Recall that, for a farm to be identified as a farm, and thus captured, by the census, it must be on the CML, respond to either the census or JAS report form and, based on that response, be classified as a farm. Therefore, the probability of capture π_C may be written as

$\pi_C = \pi$(CML, Responded, Farm on Census|Farm)
$= \pi$(CML|Farm)π(Responded|CML, Farm)π(Farm on Census|CML, Responded, Farm)

Terms in the probability of capturing a farm depend on characteristics of the farm. These terms, as well as the corresponding terms associated with a farm being captured by the JAS, were jointly estimated from a single model. Using all Census and JAS data, model variables were selected by applying a stepwise variable selection algorithm and expert opinion. Estimation was based on a conditional weighted likelihood. The events of a farm being included in the CML, the JAS or both were included in the likelihood. The event of a farm not being included in either the JAS or the CML was excluded from the likelihood but was accounted for through the model's capture-recapture properties. Although the probability of capture is estimated for both CML and JAS records, only CML records with a census response are given a census weight; records with only a JAS response are not given a census weight or used further to produce census estimates.

Because Alaska is not included in the JAS and thus has no area frame, the Alaskan agricultural operations were not

included in the capture-recapture process. No adjustments were made for undercoverage or misclassification. To account for nonresponse, the CML records were divided into three groups: (1) the Must records, (2) the Criteria Records, and (3) the remaining CML records. The must records received a weight of one, thereby receiving no adjustment for nonresponse. The probability of response for each of the other two groups was the proportion of responders within the group. Each record within the group was then given a weight equal to the reciprocal of the probability of response.

Misclassification

An operation is misclassified if: (1) it meets the definition of a farm but is classified as a nonfarm on the census or (2) it does not meet the definition of a farm but is classified as a farm on the census. The first type of misclassification is accounted for when modeling the probability of capture. An adjustment is still needed for the misclassification of nonfarms as farms. As with farm status and capture, the probability of this misclassification depends on an operation's characteristics. Thus, a conditional logistic model was developed. Given that a farm on the CML was classified as a farm in the census, the probability of its being a farm was modeled based on its characteristics.

CALIBRATION

Each operation identified as being in-scope on the CML was given a weight equal to the probability of misclassifying a nonfarm as a farm on the census divided by the probability of capture. This weight accounted for undercoverage, nonresponse, and both types of misclassification.

The record weighting processes were initially applied at the State level to produce adjusted estimates of farm numbers, land in farms, and for 64 different categories of characteristics of the farm operation or the farm producer -- value of agricultural sales (10); age (2); female; race (3); Hispanic origin; 4 sales categories for each of 10 major commodities (40); and farm type groups (7). The State-level number of farms and land in farms were two additional adjusted estimates, resulting in 66 categories. To reduce the intercensal variation at the State level, the State targets were smoothed by averaging the 2022 estimates from capture-recapture and the published 2017 State estimates.

These State estimates were general purpose in that they did not provide any control over expected levels of commodity production of the individual farm operation. As a result of this limitation, the procedures could have over-adjusted or under-adjusted for commodity production. To address this, a second set of variables, known as commodity targets, was added to the calibration algorithm. These targets were commodity totals from administrative sources or from NASS surveys of nonfarm populations (e.g., USDA Farm Service Agency program data, Agricultural Marketing Service market orders, livestock slaughter data, cotton ginning data). The introduction of these commodity coverage targets strengthened the overall adjustment procedure by ensuring that major commodity totals remained within reasonable bounds of established benchmarks.

Each State was calibrated separately. The calibration algorithm addressed commodity coverage. The algorithm was controlled by the 65 State farm operation coverage targets and the State commodity coverage targets. Because calibration targets are estimates subject to uncertainty, NASS allowed some tolerance in the determination of the adjusted weights. Rather than forcing the total for each calibration variable computed using the adjusted weights to equal a specific amount, NASS allowed the estimated total to fall within a tolerance range.

To ensure that all subdomains for which NASS publishes summed to their grand total, integer weights were produced by a discrete calibration algorithm. This eliminated the need for rounding individual cell values and ensured that marginal totals always added correctly to the grand total. If a weight was initially not in the interval [1,6], it was trimmed so that it was in that interval. That is, adjusted weights less than 1 were set to 1, and those greater than 6 were set to 6. The remaining non-integer weights were then rounded sequentially to reduce the distance of the estimated totals from the targets.

Calibration adjustments began with the computation of a priority index for each record. The priority index was the absolute value of the gradient of the relative error associated with increasing or decreasing a record's weight by one. The record with the highest priority index was then selected as a candidate to increase or decrease its weight by one to reduce the cumulative distance from the targets as measured by the relative error. If the new value produced an improvement and satisfied the range restrictions, the weight was updated and new priorities were assigned; otherwise, the record with the next highest priority index was processed. This process was iteratively performed until convergence was attained. Because census data collection was assumed to be complete for very large and unique farms, their weights were set to 1 during the calibration adjustment process. For all other farms, the final census record weights were forced to be an integer number in the interval [1, 6]. The calibration process considered all targets simultaneously through the priority index. Although calibration was seldom able to adjust

weights so that all State targets were met, all targets were brought collectively as close to the targets as possible.

The proportions of selected census data items that were due to coverage, response, and classification adjustments are displayed in Tables A and C.

DISCLOSURE REVIEW

After tabulation and review of the aggregates, a comprehensive disclosure review was conducted. NASS is obligated to withhold, under Title 7, U.S. Code, any total that would reveal an individual's information or allow it to be closely estimated by the public. Farm counts are not considered sensitive and are not subject to disclosure controls. Cell suppression was used to protect the cells that were determined to be sensitive to a disclosure of information.

Based on agency standards, data cells were determined to be sensitive to a disclosure of information if they failed either of two rules. The threshold rule failed if the data cell contained less than three operations. For example, if only one farmer produced turkeys in a county, NASS could not publish the county total for turkey inventory without disclosing that individual's information. The dominance rule failed if the distribution of the data within the cell allowed a data user to estimate any respondent's data too closely. For example, if there are many farmers producing turkeys in a county and some of them were large enough to dominate the cell total, NASS could not publish the county total for turkey inventory without risking disclosing an individual respondent's data. In both of these situations, the data were suppressed and a "(D)" was placed in the cell in the census publication table. These data cells are referred to as primary suppressions.

Since most items were summed to marginal totals, primary suppressions within these summation relationships were protected by ensuring that there were additional suppressions within the linear relationship that provided adequate protection for the primary. A detailed computer routine selected additional data cells for suppression to ensure all primary suppressions were properly protected. These data cells are referred to as complementary suppressions. These cells are not themselves sensitive to a disclosure of information but were suppressed to protect other primary suppressions. A "(D)" was also placed in the cell of the census publication table to indicate a complementary suppression. A data user cannot determine whether a cell with a (D) represents a primary or a complementary suppression.

Regional field office analysts reviewed all complementary suppressions to ensure no cells had been withheld that were vital to the data users. In instances where complementary suppressions were deemed critically important to a State or county, analysts requested an override, and a different complementary cell was chosen.

CENSUS QUALITY

The purpose of the census of agriculture is to account for "any place from which $1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year." To accomplish this, NASS develops a CML that contains identifying information for operations that have an indication of meeting the census definition, develops procedures to collect agricultural information from those records, establishes criteria for analyst review of the data, creates computer routines to correct or complete the requested information, and provides census estimates of the characteristics of farms and farm producers with associated measures of uncertainty.

It is not likely that either the CML includes all operations that meet the definition of a farm or that all those that do meet the definition of a farm respond to the census inquiry. The goal is to publish data with a high level of quality. The quality of a census may be measured in many ways. One of the first indicators used is a measure of the response to the census data collection as it has generally been thought that a high response rate indicates more complete coverage of the population of interest. This is a valid assumption if the enumeration list, the CML here, has complete coverage of the population of interest. In the case of the census of agriculture, the definition requiring advance knowledge of sales makes achieving a high level of coverage difficult. To ensure that the census of agriculture is as complete as possible, records are included that might not meet the census definition of a farm – in fact, almost 50 percent more records than the anticipated number of qualifying farm operations were included in the 2022 CML. A second indicator of quality then is the coverage of the farm population by the CML. Other indicators of quality relate to the accuracy and completeness of the data, and the validity of the procedures used in processing the data.

In some cases, NASS was able to produce measures of quality – such as the response rate to the data collection, the coverage of the census mail list, and the variability of the final adjusted estimates. In other cases, measures were not produced but descriptions of procedures that NASS used to reduce errors from the procedures were subsequently provided.

Census Response Rate

The response rate is one indicator of the quality of a data

collection. It is generally assumed that if a response rate is close to a full participation level of 100 percent, the potential for nonresponse bias is small, although this has been questioned in the literature. The response rate for the 2022 Census of Agriculture CML was 61.0 percent, as compared with the 2017 Census of Agriculture's response rate of 71.8 percent and 74.6 percent for the 2012 Census of Agriculture.

The 2022 Census of Agriculture's response rate used the fourth response rate formula (RR4) from the American Association of Public Opinion Research's Response Rate Standard Definitions manual:

$$RR4 = \frac{C_{adj}}{C_{adj} + R + NC + O + Replicated + e(U)}(100)$$

where
C_{adj} = number of fully and partially completed records, excluding replicated records
R = number of explicit refusals
NC = number of non-contacted operations known to be eligible
O = number of other types of nonrespondents
Replicated = number of replicated records
U = number of operations of unknown eligibility
$e(U)$ = estimated number of operations of unknown eligibility assumed to be eligible

Records were classified into the above variables based on the combination of their active status (AS) codes, in-scope status, and replication status. Active status refers to the eligibility status of records for selection on the CML. All replicated records were considered a form of nonresponse and were classified into other nonrespondents; in-scope status was considered immaterial.

Certain active status classifications indicated records of unknown agricultural status. These classifications included records to be removed from the CML but had data from outside sources indicating agricultural activity, new records from outside data sources, nonrespondents and refusals to the NACS, records for regional office handling only, and records with Farm Service Agency or Conservation Reserve Program data on operations that are not owned by the principal producer. These records were stratified (grouped) based on their probabilities of being in-scope had they responded. The estimated number of in-scope nonrespondents was calculated for the *h*th stratum (group) by the following formula:

$$e(U_h) = \left(\frac{C_{in-scope,h}}{C_h}\right)U_h$$

where
$e(U_h)$ = estimated number of operations of unknown eligibility assumed to be eligible in the *h*th group
$C_{in-scope,h}$ = the number of completed and in-scope census records in the *h*th group
C_h = the number of completed census records in the *h*th group
U_h = number of operations of unknown eligibility in the *h*th group

Census Coverage

As a side-product of the statistical adjustment used to account for undercoverage, nonresponse of farms on the CML, and misclassification of responses to the census, the proportion of the adjustments due to each of those factors can be derived. The percentage of final census estimates due to adjustments for undercoverage, nonresponse, and misclassification as well as the total percent adjustment for selected items are displayed in Tables A and C.

MEASURED ERRORS IN THE CENSUS PROCESS

NASS uses statistical procedures in compiling the CML, in its data collection procedures, in data editing and processing, and in compiling the final data. Additionally, it uses statistical procedures to both measure errors in the various processes when adjusting for those errors in the final data. One example is the statistical process used to account for undercoverage, nonresponse of farms on the CML, and misclassification of responses to the census. The basis of the undercoverage adjustment is the capture-recapture procedure that uses the area sample enumeration from the JAS. The largest contributors to error in the census estimates are due to the adjustments for nonresponse, undercoverage, misclassification, and integer calibration.

Variability in Census Estimates due to Statistical Adjustment

In conducting the 2022 Census of Agriculture, efforts were initiated to measure error associated with the adjustments for farm operations that were not on the CML; for farm operations that were on the CML but did not respond to the census report form; for farms and nonfarms that were misclassified as nonfarms and farms, respectively; and for integer calibration. These error measurements were developed from the standard error of the estimates at the national, State, and county levels and were expressed as coefficients of variation (CVs) at the national and State levels and as generalized coefficients of variation (GCVs) at the county levels.

The standard error of an estimate is an estimate of the

standard deviation of the sampling distribution of the estimator. In each case, standard errors were computed using an approach based on a delete-a-group jackknife methodology. To conduct the jackknifing, $k = 10$ mutually exclusive and exhaustive groups of records were formed. The groups were selected using a stratified random design so that each group reflected capture status by the CML and the JAS. Based on estimated weights for records in each group, a delete-a-group jackknife estimator of the variance would account for the uncertainty associated with modeling the capture-recapture probabilities and the uncertainty due to integer calibration. Therefore, the weights within each jackknife group were computed using the group-specific models and calibrated to match group-specific targets. For a given data item *i*, such as the number of farms, the estimate was computed at the specified geographical level, such as nation, State, or county, using the weights obtained for group *j*. Estimates of the variance and standard error associated with the estimator T_i are then, respectively,

$$\sigma_i^2 = \frac{k-1}{k}\sum_{j=1}^{k}\left(T_i^{(j)} - \sum_{l=1}^{k}\frac{T_i^{(l)}}{k}\right)^2; \quad SE(T_i) = \sqrt{\sigma_i^2}$$

Ten (10) calibration-adjusted jackknife groups were used to provide standard errors for 2022 State and national estimates (i.e., $k=10$). For the estimate of the number of farms with a given set of characteristics, only the CML records with those characteristics were used to obtain the overall estimate as well as the estimates from each calibrated jackknife group.

Note that the calibrated jackknife groups were only constructed once, and different subsets of the records were used to compute estimates and standard errors for the data items.

The CV is a measure of the relative amount of error associated with the sample estimate:

$$\mathrm{CV}_i = \frac{SE(T_i)}{T_i}100\%$$

where $SE(T_i)$ is the standard error of the capture-recapture estimate for data item *i*. 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. For county-level estimates, a generalized coefficient of variation (GCV) was determined for each estimate within a State. A generalized variance function relates a function of the variance of an estimator to a function of the estimator. Within a State, the standard error of an estimate for a data item was often found to be linearly related to the estimate of that item with an intercept of zero. Based on this modeled relationship, the GCV is the slope of the line relating the standard error to the estimate, multiplied times 100 to represent the GCV as a percentage.

The standard error is the product of the CV (or GCV for county estimates) and the estimate divided by 100. As an example, if the GCV for a State is 25 percent and a county's estimate is 4, then the standard error is 25(4)/100 = 1. The standard error of an estimated data item from the census provides a measure of the uncertainty associated with that estimated data item due to the possible outcomes of the census collection, including incompleteness of the CML, nonresponse to the census, misclassification either as a farm or as a nonfarm, and the integer calibration. With 95 percent confidence, an estimate is within two standard errors of the true value being estimated. For this example, with 95 percent confidence, the estimate of 4 is within 2(1) = 2 of the true county value.

Note: The standard errors and consequently, the CVs tend to be substantially smaller than those reported for the 2017 Census of Agriculture. For 2017, the model of the probability of capture incorporated information from the approximately 40,000 respondents to the 2017 JAS and the census records matching a JAS record. In contrast, the models for the 2022 Census of Agriculture relied on information from the approximately 1 million responding CML records and the 2022 JAS, some of which were on both the CML and the JAS. The large increase in the number of records used in the modeling process led to a major decrease in the measures of uncertainty (standard errors and CVs).

Table B presents the fully adjusted estimates with the coefficient of variation for selected items.

NONMEASURED ERRORS IN THE CENSUS PROCESS

As noted in the previous section, errors can be introduced from adjustments for coverage, nonresponse, and misclassification and from integer calibration. These errors are measurable. However, nonsampling errors are imbedded in the census process that cannot be directly measured as part of the design of the census but must be contained to ensure an accurate count. Extensive efforts were made to compile a complete and accurate mail list for the census, to elicit response to the census, to design an understandable report form with clear instructions, to minimize processing errors through the use of quality control measures, to reduce matching error associated with the capture-recapture estimation process, and to minimize

error associated with identification of a respondent as a farm operation (referred to as classification error). The weight adjustment and tabulation processes recognize the presence of nonsampling errors; however, it is assumed that these errors are small and that, in total, the net effect is zero. In other words, the positive errors cancel the negative errors.

Respondent and Enumerator Error

Incorrect or incomplete responses to the census report form or to the questions posed by an enumerator can introduce error into the census data. Steps were taken in the design and execution of the Census of Agriculture to reduce errors from respondent reporting. Poor instructions and ambiguous definitions lead to misreporting. Respondents may not remember accurately, may estimate responses, or may record an item in the wrong cell. To reduce reporting and recording errors, the report form was tested prior to the census using industry-accepted cognitive testing procedures. Detailed instructions for completing the report form were provided to each respondent. Questions were phrased as clearly as possible based on previous tests of the report form. Computer-assisted telephone interviewing software included immediate integrity checks of recorded responses so suspect data could be verified or corrected. In addition, each respondent's answers were checked for completeness and consistency by the complex edit and imputation system.

Processing Error

Processing of each census report form was another potential source of nonsampling error. All mail returns that included multiple reports, respondent remarks, or that were marked out of business and report forms with no reported data were sent to an analyst for verification and appropriate action. Integrity checks were performed by the imaging system and data transfer functions. Standard quality control procedures were in place that required that randomly selected batches of data keyed from image be re-entered by a different operator to verify the work and evaluate key entry operators. All systems and programs were thoroughly tested before going on-line and were monitored throughout the processing period.

Developing accurate processing methods is complicated by the complex structure of agriculture. Among the complexities are the many places to be included, the variety of arrangements under which farms are operated, the continuing changes in the relationship of producers to the farm operated, the expiration of leases and the initiation or renewal of leases, the problem of obtaining a complete list of agriculture operations, the difficulty of contacting and identifying some types of contractor/contractee relationships, the producer's absence from the farm during the data collection period, and the producer's opinion that part or all of the operation does not qualify and should not be included in the census. During data collection and processing of the census, all operations underwent a number of quality control checks to ensure results were as accurate as possible.

Item Nonresponse

All item nonresponse actions provide another opportunity to introduce measurement errors. Regardless of whether previously reported data, administrative data, the nearest neighbor algorithm, the fully conditional specification method, or manual imputation is used to complete a nonresponse item, some risk exists that the imputed value does not equal the actual value. Previously reported and administrative data were used only when they related to the census reference period. A new nearest neighbor was randomly selected for each incident to eliminate the chance of a consistent bias.

Record Matching Error

The process of building and expanding the CML involves finding new list sources and checking for names not on the list. An automated processing system compared each new name to the existing CML names and "linked" like records for the purpose of preventing duplication. New names with strong links to a CML name were discarded and those with no links were added as potential farms. Names with weak links, possible matches, were reviewed by staff to determine whether the new name should be added. Despite this thorough review, some new names may have been erroneously added or deleted. Additions could contribute to duplication (overcoverage) whereas deletions could contribute to undercoverage. As a result, some names received more than one report form, and some farm producers did not receive a report form. Respondents were instructed to complete one form and return all forms so the duplication could be removed.

Another chance for error came when comparing June Area Survey tract producer names to the CML. Area producers whose names were not found on the CML were part of the measure of list incompleteness, or NML. Mistakes in determining overlap status resulted in overcounts (including a tract whose producer was on the CML) or undercounts (excluding a tract whose producer was not on the CML). All tracts determined to not be on the list were triple checked to eliminate, or at least minimize, any error. NML tract producers were mailed a report form printed in a different color. To identify duplication, all respondents who received multiple report forms were instructed to complete the CML version and return all forms so

duplication could be removed.

Records in the 2022 JAS were matched to the 2022 census using probabilistic record linkage. The records of operations with differing farm status were sent out to be reviewed by NASS regional field offices. If farm status could not be resolved, the probability of an operation being a farm was imputed using a missing data model. The uncertainty associated with this estimate apart from model uncertainty was accounted for, but errors not found through this process were not.

Table A. **Summary of State Coverage, Nonresponse, and Misclassification Adjustments: 2022**

[For meaning of abbreviations and symbols, see introductory text.]

Item	Total	Standard error	Adjustment as percent of total	Percent of total adjustment from coverage	Percent of total adjustment from nonresponse	Percent of total adjustment from misclassification
Farms ..... number	87,887	1,967	41.5	15.9	15.7	10.0
Land in farms ..... acres	27,026,243	653,952	33.3	5.7	9.4	18.3
Farms by size:						
1 to 9 acres ..... farms	4,258	245	56.5	35.2	19.6	1.7
acres	21,894	1,277	57.9	37.2	18.6	2.1
10 to 49 acres ..... farms	21,735	821	51.4	27.8	19.2	4.4
acres	603,887	23,019	50.3	24.0	21.5	4.8
50 to 69 acres ..... farms	6,338	279	43.5	16.6	20.9	6.0
acres	370,033	16,021	43.6	16.6	21.0	6.1
70 to 99 acres ..... farms	9,270	415	40.9	13.9	16.3	10.7
acres	760,715	31,314	40.9	13.9	16.3	10.6
100 to 139 acres ..... farms	8,794	303	39.0	11.8	16.7	10.5
acres	1,022,776	36,812	38.9	11.7	16.7	10.5
140 to 179 acres ..... farms	6,525	181	35.5	10.0	13.4	12.1
acres	1,028,282	29,538	35.5	10.0	13.4	12.1
180 to 219 acres ..... farms	4,752	177	35.5	9.6	13.8	12.1
acres	938,504	35,536	35.4	9.6	13.7	12.1
220 to 259 acres ..... farms	3,462	167	32.6	8.1	12.0	12.4
acres	822,969	39,624	32.6	8.1	12.0	12.5
260 to 499 acres ..... farms	10,122	418	32.8	6.7	10.6	15.4
acres	3,609,358	169,802	32.9	6.5	10.5	16.0
500 to 999 acres ..... farms	6,554	339	35.3	4.6	12.1	18.7
acres	4,525,217	253,545	35.6	4.6	12.3	18.7
1,000 to 1,999 acres ..... farms	3,623	292	40.7	2.6	11.3	26.8
acres	4,935,085	426,453	40.7	2.8	11.9	25.9
2,000 acres or more ..... farms	2,454	202	29.3	1.5	2.2	25.6
acres	8,387,523	615,037	24.5	1.2	1.5	21.7
Irrigated land use:						
Harvested cropland ..... farms	3,597	198	36.7	12.5	16.7	7.5
acres	1,327,170	183,953	16.1	1.0	2.2	12.9
Pastureland and other land ..... farms	249	41	51.0	23.9	22.0	5.1
acres	7,581	(H)	26.4	4.7	12.8	8.9
Market value of agricultural products sold $1,000	14,697,022	370	23.8	4.7	5.0	14.1
Farms by value of sales:						
Less than $1,000 ..... farms	20,473	694	55.5	23.8	20.9	10.8
$1,000	2,671	(Z)	61.8	40.2	19.3	2.3
$1,000 to $2,499 ..... farms	7,021	197	49.3	23.6	21.3	4.4
$1,000	11,596	(Z)	48.8	23.5	20.9	4.4
$2,500 to $4,999 ..... farms	7,148	280	44.9	20.5	18.2	6.2
$1,000	26,104	1	45.0	20.5	18.4	6.2
$5,000 to $9,999 ..... farms	9,623	234	44.7	19.9	17.2	7.6
$1,000	68,958	2	44.5	19.6	16.9	7.9
$10,000 to $19,999 ..... farms	9,673	793	32.5	12.8	11.9	7.9
$1,000	138,776	11	32.3	12.4	11.6	8.3
$20,000 to $24,999 ..... farms	3,337	153	32.4	12.9	11.9	7.5
$1,000	73,900	3	32.3	12.9	11.9	7.5
$25,000 to $39,999 ..... farms	6,772	491	34.5	10.3	11.3	12.9
$1,000	213,819	16	34.7	10.2	11.2	13.3
$40,000 to $49,999 ..... farms	3,353	610	43.0	13.1	14.9	15.0
$1,000	148,992	28	43.1	13.2	14.9	15.0
$50,000 to $99,999 ..... farms	6,735	160	30.3	7.4	9.9	12.9
$1,000	477,481	10	31.1	7.4	10.1	13.7
$100,000 to $249,999 ..... farms	5,328	127	31.7	5.1	8.8	17.8
$1,000	865,637	31	34.0	5.5	9.5	18.9
$250,000 to $499,999 ..... farms	2,828	110	35.3	4.1	19.3	11.9
$1,000	1,014,905	42	36.4	4.2	20.3	11.8
$500,000 to $999,999 ..... farms	2,184	41	30.3	5.4	16.9	8.0
$1,000	1,585,977	67	31.7	5.9	18.2	7.5
$1,000,000 or more ..... farms	3,412	121	22.9	5.1	5.7	12.2
$1,000	10,068,205	301	19.1	3.8	2.4	12.9
Farms by legal status for tax purposes:						
Family or individual ..... farms	77,594	1,894	41.5	17.5	15.7	8.3
acres	20,172,615	516,184	34.4	7.8	11.1	15.5
Partnership ..... farms	4,723	79	43.1	7.1	17.1	18.9
acres	3,339,566	71,021	29.7	3.3	10.4	16.0
Corporation:						
Family held ..... farms	3,176	113	39.7	7.6	14.6	17.5
acres	2,684,483	202,759	28.6	1.3	3.7	23.6
Other than family held ..... farms	513	28	47.6	7.1	17.0	23.5
acres	225,615	26,032	35.2	1.9	9.6	23.8
Other - estate or trust, prison farm, grazing association, American Indian Reservation, etc ..... farms	1,881	72	39.9	10.6	13.8	15.5
acres	603,964	30,668	38.8	5.3	8.7	24.8
Tenure:						
Full owners ..... farms	64,878	1,597	43.7	18.6	16.6	8.6
acres	10,754,887	321,537	38.3	9.4	12.8	16.0
Part owners ..... farms	19,235	502	33.9	4.8	12.4	16.7
acres	14,842,272	602,555	29.8	2.0	6.0	21.8
Tenants ..... farms	3,774	159	42.6	10.1	16.5	16.0
acres	1,429,084	142,682	33.3	6.3	12.1	14.8
Producers characteristics by- [1] (see text)						
Sex of operator:						
Male ..... farms	82,945	1,703	42.0	15.6	16.2	10.3
acres	26,130,725	649,798	33.5	5.5	9.5	18.5
Female ..... farms	52,810	1,084	42.6	17.0	16.4	9.1
acres	12,754,117	328,414	33.8	6.7	10.2	17.0
Primary occupation:						
Farming ..... farms	61,096	1,458	37.5	13.2	14.2	10.0
Other ..... farms	95,556	1,693	47.0	14.8	18.8	13.4

See footnote(s) at end of table.

--continued

Table A. **Summary of State Coverage, Nonresponse, and Misclassification Adjustments: 2022** (continued)

[For meaning of abbreviations and symbols, see introductory text.]

Item		Total	Standard error	Adjustment as percent of total	Percent of total adjustment from coverage	Percent of total adjustment from nonresponse	Percent of total adjustment from misclassification
Producers characteristics by- [1] (see text) - Con.							
Hispanic, Latino, or Spanish origin	farms	1,211	174	44.8	14.6	16.5	13.6
	acres	286,682	70,291	33.1	4.5	7.9	20.7
Race:							
American Indian or Alaska Native	farms	624	67	41.5	13.3	12.3	15.9
	acres	196,457	36,772	42.2	6.7	10.7	24.9
Asian	farms	357	16	35.6	17.2	16.4	1.9
	acres	48,817	6,089	32.7	13.5	15.8	3.4
Black or African American	farms	173	14	29.5	14.7	11.7	3.1
	acres	30,829	(H)	19.4	6.1	7.4	6.0
Native Hawaiian or Other Pacific Islander	farms	50	17	36.0	16.0	16.3	3.7
	acres	9,150	3,996	35.8	15.3	11.0	9.5
White	farms	87,061	1,920	41.6	15.9	15.7	9.9
	acres	26,818,796	670,751	33.3	5.7	9.4	18.2
More than one race reported	farms	1,035	86	45.4	10.5	11.1	23.7
	acres	265,207	26,340	41.3	2.4	4.4	34.4
Military service:							
Never served or only on active duty for training in the Reserves or National Guard (see text)	producers	140,751	2,620	43.5	13.9	17.2	12.4
Active duty now or in the past (see text)	producers	15,901	461	41.8	16.4	16.5	8.9
All producers by age group [1]:							
Under 25 years	farms	2,761	261	59.6	15.0	33.1	11.5
25 to 34 years	farms	12,331	501	59.4	18.8	23.8	16.8
35 to 44 years	farms	19,791	489	51.5	13.2	22.9	15.4
45 to 54 years	farms	24,156	657	46.3	13.6	19.4	13.3
55 to 64 years	farms	38,483	1,160	41.3	14.3	15.3	11.6
65 to 74 years	farms	37,072	565	38.1	14.4	13.5	10.1
75 years and over	farms	22,058	589	34.0	14.0	10.8	9.3
Net cash farm income of operations:							
Farms with gains of- [2]							
Less than $1,000	farms	2,523	107	40.7	19.6	15.0	6.1
	$1,000	1,214	(Z)	39.2	19.8	14.5	4.9
$1,000 to $4,999	farms	7,208	300	38.3	16.3	15.4	6.5
	$1,000	20,253	1	37.9	15.7	15.2	7.0
$5,000 to $9,999	farms	5,335	156	34.6	12.9	13.2	8.5
	$1,000	38,895	1	34.4	12.6	12.9	8.9
$10,000 to $24,999	farms	7,694	348	34.0	9.7	10.6	13.7
	$1,000	125,356	6	33.7	9.3	10.3	14.1
$25,000 to $49,999	farms	5,230	304	30.7	8.4	10.9	11.4
	$1,000	185,421	11	30.6	8.4	10.8	11.5
$50,000 or more	farms	11,870	233	28.9	5.5	10.6	12.8
	$1,000	5,623,023	151	21.6	4.0	3.9	13.7
Farms with losses of-							
Less than $1,000	farms	3,018	146	46.4	22.6	18.3	5.4
	$1,000	1,495	(Z)	46.7	22.9	18.2	5.6
$1,000 to $4,999	farms	12,565	313	48.8	22.9	18.3	7.6
	$1,000	36,762	1	49.2	23.2	18.4	7.7
$5,000 to $9,999	farms	10,165	335	49.0	21.6	19.2	8.2
	$1,000	73,851	2	48.8	22.0	19.2	7.6
$10,000 to $24,999	farms	12,991	422	48.0	21.0	19.3	7.7
	$1,000	206,657	6	47.8	20.6	19.4	7.9
$25,000 to $49,999	farms	5,571	216	48.7	16.5	18.6	13.6
	$1,000	192,510	7	48.9	16.2	18.6	14.1
$50,000 or more	farms	3,717	187	47.3	9.4	16.6	21.3
	$1,000	507,912	26	46.1	6.5	11.9	27.7
Livestock and poultry:							
Cattle and calves inventory	farms	43,543	1,380	36.4	19.5	10.0	7.0
	number	4,004,872	128,202	42.1	10.7	9.2	22.1
Beef cows inventory	farms	39,000	1,140	34.6	17.9	9.7	7.1
	number	1,968,954	68,667	38.1	10.3	8.2	19.6
Milk cows inventory	farms	1,704	52	35.6	19.1	9.8	6.7
	number	63,882	1,983	23.1	3.7	7.8	11.6
Hog and pigs inventory	farms	2,244	587	49.4	20.1	19.0	10.2
	number	3,290,751	322,565	37.1	9.0	2.9	25.2
Layers inventory	farms	9,421	406	50.2	22.4	22.1	5.6
	number	11,474,121	935,574	4.3	1.1	2.1	1.1
Broilers sold	farms	966	59	52.6	23.2	22.1	7.3
	number	316,092,128	4,557,809	44.0	29.3	10.5	4.3
Aquaculture sold	farms	56	3	21.4	10.8	6.1	4.5
	$1,000	11,526	3	0.1	0.1	(Z)	0.1
Selected crops harvested:							
Corn for grain	farms	11,665	424	31.3	3.0	7.1	21.2
	acres	3,015,286	118,193	19.3	0.9	3.7	14.6
Durum wheat for grain	farms	-	-	-	-	-	-
	acres	-	-	-	-	-	-
Other spring wheat for grain	farms	-	-	-	-	-	-
	acres	-	-	-	-	-	-
Winter wheat for grain	farms	2,894	399	23.5	3.3	8.3	11.9
	acres	471,565	93,408	15.4	0.8	2.4	12.2
Sorghum for grain	farms	329	41	38.6	3.3	8.3	27.0
	acres	29,547	4,982	27.9	1.9	4.9	21.1
Soybeans for beans	farms	16,167	1,500	31.8	6.6	25.0	0.2
	acres	5,744,995	522,086	26.4	4.7	20.9	0.9
Rice	farms	248	13	16.1	4.2	9.9	2.0
	acres	152,285	9,169	14.0	4.7	7.6	1.7
Cotton	farms	347	127	26.8	2.3	3.8	20.7
	acres	356,345	119,026	14.8	0.5	0.7	13.6

See footnote(s) at end of table.

--continued

Table A. **Summary of State Coverage, Nonresponse, and Misclassification Adjustments: 2022** (continued)

[For meaning of abbreviations and symbols, see introductory text.]

Item		Total	Standard error	Adjustment as percent of total	Percent of total adjustment from coverage	Percent of total adjustment from nonresponse	Percent of total adjustment from misclassification
Selected crops harvested: - Con.							
Peanuts	farms	32	18	28.1	3.6	2.4	22.2
	acres	11,381	4,195	18.1	2.3	0.6	15.3
Barley	farms	89	9	38.2	7.7	13.0	17.6
	acres	2,853	182	32.9	4.3	8.3	20.4
Oats	farms	335	46	69.0	34.4	18.2	16.3
	acres	7,207	93	60.2	19.6	11.8	28.7
Forage - land used for all hay and haylage, grass silage, and greenchop	farms	42,724	1,655	35.0	21.9	12.3	0.8
	acres	3,079,498	92,101	34.3	18.0	13.6	2.7
Land in vegetables (see text)	farms	1,388	63	41.5	19.3	15.0	7.2
	acres	16,384	390	7.2	(Z)	(Z)	7.1
Potatoes	farms	200	25	28.0	7.6	7.4	13.0
	acres	7,937	14	0.2	(Z)	(Z)	0.2
Tomatoes in the open	farms	590	64	42.2	19.9	15.8	6.5
	acres	377	34	25.6	14.8	9.0	1.8
Sweet corn (see text)	farms	330	24	40.0	14.4	14.5	11.1
	acres	1,210	124	18.1	8.1	7.7	2.3
Lettuce	farms	211	21	38.4	22.2	14.2	1.9
	acres	51	6	32.5	19.5	11.5	1.5
Land in orchards (see text)	farms	1,559	115	50.2	21.2	24.5	4.6
	acres	16,145	578	29.7	10.7	10.7	8.3
Apples	farms	533	48	51.2	23.1	24.6	3.5
	acres	1,403	110	20.7	7.0	6.1	7.6
Grapes (including muscadine) (see text)	farms	422	57	53.1	19.8	28.8	4.5
	acres	1,962	405	32.2	10.1	16.1	6.1
Oranges	farms	-	-	-	-	-	-
	acres	-	-	-	-	-	-
Almonds	farms	15	2	66.7	20.6	41.0	5.1
	acres	3	1	66.7	25.2	37.3	4.2
Land in berries	farms	853	85	50.2	20.4	23.4	6.3
	acres	1,218	152	51.1	7.7	21.5	21.9

[1] Data were collected for a maximum of four producers per farm.
[2] Farms with total production expenses equal to market value of agricultural products sold, government payments, and farm-related income are included as farms with gains of less than $1,000.

Table B. **Reliability Estimates of State Totals: 2022**

[For meaning of abbreviations and symbols, see introductory text.]

Item		Total	Coefficient of variation (percent)
Farms	number	87,887	2.2
Land in farms	acres	27,026,243	2.4
Farms by size:			
1 to 9 acres	farms	4,258	5.8
	acres	21,894	5.8
10 to 49 acres	farms	21,735	3.8
	acres	603,887	3.8
50 to 69 acres	farms	6,338	4.4
	acres	370,033	4.3
70 to 99 acres	farms	9,270	4.5
	acres	760,715	4.1
100 to 139 acres	farms	8,794	3.4
	acres	1,022,776	3.6
140 to 179 acres	farms	6,525	2.8
	acres	1,028,282	2.9
180 to 219 acres	farms	4,752	3.7
	acres	938,504	3.8
220 to 259 acres	farms	3,462	4.8
	acres	822,969	4.8
260 to 499 acres	farms	10,122	4.1
	acres	3,609,358	4.7
500 to 999 acres	farms	6,554	5.2
	acres	4,525,217	5.6
1,000 to 1,999 acres	farms	3,623	8.1
	acres	4,935,085	8.6
2,000 acres or more	farms	2,454	8.2
	acres	8,387,523	7.3
Irrigated land use:			
Harvested cropland	farms	3,597	5.5
	acres	1,327,170	13.9
Pastureland and other land	farms	249	16.4
	acres	7,581	(H)
Market value of agricultural products sold	$1,000	14,697,022	2.5
Farms by value of sales:			
Less than $1,000	farms	20,473	3.4
	$1,000	2,671	4.7
$1,000 to $2,499	farms	7,021	2.8
	$1,000	11,596	2.7
$2,500 to $4,999	farms	7,148	3.9
	$1,000	26,104	3.6
$5,000 to $9,999	farms	9,623	2.4
	$1,000	68,958	2.5
$10,000 to $19,999	farms	9,673	8.2
	$1,000	138,776	7.9
$20,000 to $24,999	farms	3,337	4.6
	$1,000	73,900	4.4
$25,000 to $39,999	farms	6,772	7.3
	$1,000	213,819	7.7
$40,000 to $49,999	farms	3,353	18.2
	$1,000	148,992	18.6
$50,000 to $99,999	farms	6,735	2.4
	$1,000	477,481	2.2
$100,000 to $249,999	farms	5,328	2.4
	$1,000	865,637	3.6
$250,000 to $499,999	farms	2,828	3.9
	$1,000	1,014,905	4.2
$500,000 to $999,999	farms	2,184	1.9
	$1,000	1,585,977	4.2
$1,000,000 or more	farms	3,412	3.5
	$1,000	10,068,205	3.0
Farms by legal status for tax purposes:			
Family or individual	farms	77,594	2.4
	acres	20,172,615	2.6
Partnership	farms	4,723	1.7
	acres	3,339,566	2.1
Corporation:			
Family held	farms	3,176	3.6
	acres	2,684,483	7.6
Other than family held	farms	513	5.4
	acres	225,615	11.5
Other - estate or trust, prison farm, grazing association, American Indian Reservation, etc	farms	1,881	3.8
	acres	603,964	5.1
Tenure:			
Full owners	farms	64,878	2.5
	acres	10,754,887	3.0
Part owners	farms	19,235	2.6
	acres	14,842,272	4.1
Tenants	farms	3,774	4.2
	acres	1,429,084	10.0
Producers characteristics by- [1] (see text)			
Sex of operator:			
Male	farms	82,945	2.1
	acres	26,130,725	2.5
Female	farms	52,810	2.1
	acres	12,754,117	2.6
Primary occupation:			
Farming	farms	61,096	2.4
Other	farms	95,556	1.8
Producers characteristics by- [1] (see text) - Con.			
Hispanic, Latino, or Spanish origin	farms	1,211	14.4
	acres	286,682	24.5
Race:			
American Indian or Alaska Native	farms	624	10.8
	acres	196,457	18.7
Asian	farms	357	4.4
	acres	48,817	12.5
Black or African American	farms	173	8.0
	acres	30,829	(H)
Native Hawaiian or Other Pacific Islander	farms	50	33.8
	acres	9,150	43.7
White	farms	87,061	2.2
	acres	26,818,796	2.5
More than one race reported	farms	1,035	8.3
	acres	265,207	9.9
Military service:			
Never served or only on active duty for training in the Reserves or National Guard (see text)	producers	140,751	1.9
Active duty now or in the past (see text)	producers	15,901	2.9
All producers by age group [1]:			
Under 25 years	farms	2,761	9.5
25 to 34 years	farms	12,331	4.1
35 to 44 years	farms	19,791	2.5
45 to 54 years	farms	24,156	2.7
55 to 64 years	farms	38,483	3.0
65 to 74 years	farms	37,072	1.5
75 years and over	farms	22,058	2.7
Net cash farm income of operations:			
Farms with gains of- [2]			
Less than $1,000	farms	2,523	4.2
	$1,000	1,214	6.1
$1,000 to $4,999	farms	7,208	4.2
	$1,000	20,253	3.6
$5,000 to $9,999	farms	5,335	2.9
	$1,000	38,895	3.1
$10,000 to $24,999	farms	7,694	4.5
	$1,000	125,356	4.7
$25,000 to $49,999	farms	5,230	5.8
	$1,000	185,421	6.0
$50,000 or more	farms	11,870	2.0
	$1,000	5,623,023	2.7
Farms with losses of-			
Less than $1,000	farms	3,018	4.8
	$1,000	1,495	5.3
$1,000 to $4,999	farms	12,565	2.5
	$1,000	36,762	2.4
$5,000 to $9,999	farms	10,165	3.3
	$1,000	73,851	3.2
$10,000 to $24,999	farms	12,991	3.3
	$1,000	206,657	3.0
$25,000 to $49,999	farms	5,571	3.9
	$1,000	192,510	3.8
$50,000 or more	farms	3,717	5.0
	$1,000	507,912	5.0
Livestock and poultry:			
Cattle and calves inventory	farms	43,543	3.2
	number	4,004,872	3.2
Beef cows inventory	farms	39,000	2.9
	number	1,968,954	3.5
Milk cows inventory	farms	1,704	3.0
	number	63,882	3.1
Hog and pigs inventory	farms	2,244	26.2
	number	3,290,751	9.8
Layers inventory	farms	9,421	4.3
	number	11,474,121	8.2
Broilers sold	farms	966	6.1
	number	316,092,128	1.4
Aquaculture sold	farms	56	5.6
	$1,000	11,526	23.2
Selected crops harvested:			
Corn for grain	farms	11,665	3.6
	acres	3,015,286	3.9
Durum wheat for grain	farms	-	-
	acres	-	-
Other spring wheat for grain	farms	-	-
	acres	-	-
Winter wheat for grain	farms	2,894	13.8
	acres	471,565	19.8
Sorghum for grain	farms	329	12.5
	acres	29,547	16.9
Soybeans for beans	farms	16,167	9.3
	acres	5,744,995	9.1
Rice	farms	248	5.1
	acres	152,285	6.0

See footnote(s) at end of table.

--continued

Table B. **Reliability Estimates of State Totals: 2022** (continued)

[For meaning of abbreviations and symbols, see introductory text.]

Item		Total	Coefficient of variation (percent)
Selected crops harvested: - Con.			
Cotton	farms	347	36.6
	acres	356,345	33.4
Peanuts	farms	32	57.0
	acres	11,381	36.9
Barley	farms	89	10.0
	acres	2,853	6.4
Oats	farms	335	13.6
	acres	7,207	1.3
Forage - land used for all hay and haylage, grass silage, and greenchop	farms	42,724	3.9
	acres	3,079,498	3.0
Land in vegetables (see text)	farms	1,388	4.5
	acres	16,384	2.4
Potatoes	farms	200	12.4
	acres	7,937	0.2
Tomatoes in the open	farms	590	10.8
	acres	377	9.0
Selected crops harvested: - Con. Land in vegetables (see text) - Con.			
Sweet corn (see text)	farms	330	7.2
	acres	1,210	10.3
Lettuce	farms	211	9.9
	acres	51	10.8
Land in orchards (see text)	farms	1,559	7.4
	acres	16,145	3.6
Apples	farms	533	9.0
	acres	1,403	7.9
Grapes (including muscadine) (see text)	farms	422	13.5
	acres	1,962	20.7
Oranges	farms	-	-
	acres	-	-
Almonds	farms	15	14.1
	acres	3	18.9
Land in berries	farms	853	10.0
	acres	1,218	12.5

[1] Data were collected for a maximum of four producers per farm.
[2] Farms with total production expenses equal to market value of agricultural products sold, government payments, and farm-related income are included as farms with gains of less than $1,000.

Table C. **Summary of Coverage, Nonresponse, and Misclassification Adjustments by County: 2022**

[For meaning of abbreviations and symbols, see introductory text.]

Geographic area	Total (number)	Standard error	Adjustment as percent of total	Percent of total adjustment from coverage	Percent of total adjustment from nonresponse	Percent of total adjustment from misclassification
ALL FARMS (NUMBER)						
State Total						
Missouri	87,887	1,967	41.5	15.9	15.7	10.0
Counties						
Adair	804	27	42.2	13.1	15.4	13.7
Andrew	625	30	34.7	16.0	13.6	5.1
Atchison	430	47	36.3	5.6	13.6	17.1
Audrain	764	75	32.2	9.0	11.2	12.0
Barry	1,299	81	42.2	20.1	16.8	5.2
Barton	782	70	44.0	14.2	12.4	17.5
Bates	1,014	57	41.8	19.4	16.0	6.3
Benton	720	34	41.5	18.2	16.7	6.6
Bollinger	698	74	43.0	14.2	19.1	9.6
Boone	1,120	65	45.2	20.7	18.6	5.9
Buchanan	619	46	36.5	13.4	12.0	11.1
Butler	451	25	43.9	17.4	19.1	7.4
Caldwell	866	41	41.5	17.6	17.8	6.1
Callaway	1,271	62	42.8	13.9	15.2	13.7
Camden	533	56	43.0	14.0	20.8	8.1
Cape Girardeau	994	70	40.3	14.7	12.6	13.0
Carroll	960	101	35.2	9.1	13.1	13.0
Carter	173	18	46.2	15.0	21.4	9.8
Cass	1,314	97	44.6	23.5	15.1	6.1
Cedar	782	59	40.8	15.7	18.1	6.9
Chariton	954	49	35.3	11.5	14.1	9.7
Christian	1,137	38	46.3	23.4	18.7	4.3
Clark	574	92	36.6	9.9	12.0	14.7
Clay	523	19	47.8	24.4	16.3	7.1
Clinton	628	46	40.3	23.4	14.0	2.9
Cole	927	46	35.6	15.5	15.0	5.2
Cooper	753	47	37.6	12.0	15.5	10.1
Crawford	581	39	45.6	21.2	18.5	5.9
Dade	703	42	39.1	16.3	12.7	10.1
Dallas	1,010	58	42.0	17.8	18.0	6.1
Daviess	976	83	40.2	15.5	18.2	6.5
DeKalb	669	60	36.9	15.7	14.6	6.6
Dent	601	43	44.3	18.3	17.3	8.6
Douglas	1,018	67	48.8	19.4	19.8	9.7
Dunklin	291	56	39.5	10.0	9.6	19.9
Franklin	1,657	83	44.6	20.7	18.5	5.4
Gasconade	727	29	41.5	14.3	18.0	9.3
Gentry	629	68	37.2	11.8	10.9	14.4
Greene	1,668	83	45.9	25.7	17.1	3.1
Grundy	564	61	34.2	14.1	11.9	8.3
Harrison	987	147	41.7	12.7	17.2	11.9
Henry	811	55	42.7	12.7	12.2	17.8
Hickory	466	38	41.4	17.5	18.1	5.9
Holt	416	54	41.8	3.8	10.1	27.9
Howard	584	59	35.6	13.1	12.4	10.1
Howell	1,392	64	46.6	19.2	19.7	7.7
Iron	273	34	50.9	19.6	23.4	8.0
Jackson	588	45	48.3	27.1	12.1	9.1
Jasper	1,174	96	42.8	22.4	15.4	5.0
Jefferson	656	62	47.9	23.1	21.0	3.7
Johnson	1,526	75	45.5	16.2	15.3	14.0
Knox	539	76	34.1	6.2	10.8	17.0
Laclede	1,194	92	45.1	21.0	18.0	6.1
Lafayette	1,079	44	39.1	16.4	17.7	5.0
Lawrence	1,599	108	44.8	21.5	14.3	9.0
Lewis	613	47	39.2	13.8	15.0	10.4
Lincoln	1,040	58	43.4	20.6	15.9	6.9
Linn	957	33	40.0	15.3	14.3	10.4
Livingston	785	72	38.6	14.2	14.8	9.7
McDonald	885	63	42.1	16.3	17.4	8.5
Macon	1,258	96	45.8	16.4	20.9	8.5
Madison	331	30	42.0	16.0	11.4	14.6
Maries	736	82	37.6	17.3	14.9	5.4
Marion	553	43	37.4	13.5	15.1	8.9
Mercer	461	42	36.9	11.1	11.0	14.8
Miller	874	66	39.1	16.6	11.9	10.7
Mississippi	175	68	27.4	2.5	6.8	18.1
Moniteau	918	87	35.2	17.5	11.7	6.0
Monroe	846	57	41.0	12.0	17.6	11.4
Montgomery	672	45	39.0	13.8	17.1	8.1
Morgan	871	84	42.1	20.1	16.8	5.3
New Madrid	244	49	36.5	5.2	14.8	16.5
Newton	1,414	57	42.0	19.0	15.9	7.1
Nodaway	1,034	66	32.7	13.0	11.1	8.6
Oregon	678	61	48.7	16.4	22.6	9.7
Osage	1,089	72	39.5	15.8	15.3	8.4
Ozark	607	59	45.5	15.5	20.3	9.7
Pemiscot	195	31	32.3	11.0	19.6	1.7
Perry	736	50	35.6	13.0	14.2	8.3
Pettis	1,066	29	39.6	16.9	12.2	10.5
Phelps	748	48	48.1	18.1	23.6	6.4
Pike	887	73	42.1	14.2	21.0	6.8
Platte	485	54	40.4	16.6	14.3	9.5

--continued

Table C. **Summary of Coverage, Nonresponse, and Misclassification Adjustments by County: 2022** (continued)

[For meaning of abbreviations and symbols, see introductory text.]

Geographic area	Total (number)	Standard error	Adjustment as percent of total	Percent of total adjustment from coverage	Percent of total adjustment from nonresponse	Percent of total adjustment from misclassification
ALL FARMS (NUMBER) - Con.						
Counties - Con.						
Polk	1,380	83	41.9	18.5	14.4	9.0
Pulaski	423	55	41.8	17.4	13.9	10.6
Putnam	574	36	42.5	13.7	14.4	14.3
Ralls	587	32	39.5	14.9	17.2	7.4
Randolph	791	45	42.0	16.8	16.6	8.5
Ray	958	54	40.2	14.1	15.2	10.9
Reynolds	311	39	44.1	19.8	17.2	7.0
Ripley	397	26	46.9	13.7	21.4	11.8
St. Charles	589	53	45.8	16.4	23.5	6.0
St. Clair	676	28	43.8	9.7	14.4	19.7
Ste. Genevieve	587	31	36.8	14.0	14.2	8.6
St. Francois	626	38	45.2	18.0	17.2	10.1
St. Louis	222	21	52.7	23.3	21.3	8.1
Saline	832	68	33.7	5.0	7.1	21.6
Schuyler	411	68	36.3	17.8	11.5	6.9
Scotland	654	52	38.7	10.4	12.1	16.2
Scott	389	33	36.5	11.4	9.3	15.8
Shannon	422	44	46.9	19.3	20.9	6.7
Shelby	576	42	33.5	12.9	13.3	7.3
Stoddard	637	59	39.6	14.9	14.5	10.1
Stone	586	28	44.5	19.2	20.1	5.3
Sullivan	642	21	38.5	10.0	11.2	17.2
Taney	438	29	48.2	16.3	22.7	9.1
Texas	1,309	111	45.7	17.3	18.5	9.9
Vernon	1,241	70	43.4	12.2	12.5	18.7
Warren	534	40	43.6	13.3	21.3	9.0
Washington	372	39	42.2	6.0	11.4	24.8
Wayne	352	46	46.0	16.9	20.8	8.3
Webster	1,609	94	43.7	22.0	16.1	5.5
Worth	388	45	34.5	9.9	12.2	12.5
Wright	1,123	79	41.1	15.7	16.9	8.4
LAND IN FARMS (ACRES)						
State Total						
Missouri	27,026,243	653,952	33.3	5.7	9.4	18.3
Counties						
Adair	249,382	27,998	37.5	4.1	6.6	26.8
Andrew	157,750	11,825	20.9	5.1	11.0	4.8
Atchison	273,607	22,718	16.9	1.4	8.0	7.6
Audrain	329,649	53,152	14.8	2.5	6.3	6.0
Barry	279,279	26,835	34.8	9.9	14.4	10.6
Barton	365,241	51,360	42.9	6.1	9.6	27.2
Bates	426,962	38,886	31.5	7.5	14.5	9.4
Benton	198,779	51,183	32.3	10.0	9.2	13.0
Bollinger	167,603	36,017	39.4	12.0	18.0	9.4
Boone	196,763	31,308	25.9	8.4	11.1	6.4
Buchanan	140,427	15,711	18.9	3.2	6.4	9.3
Butler	250,359	38,205	22.8	6.8	11.4	4.7
Caldwell	218,258	17,624	29.6	6.8	13.3	9.5
Callaway	289,024	35,879	36.2	6.0	11.5	18.7
Camden	147,003	27,021	38.3	12.7	14.9	10.7
Cape Girardeau	255,019	56,382	39.0	7.9	11.6	19.5
Carroll	393,921	34,333	25.5	3.0	8.4	14.1
Carter	70,610	20,190	45.5	9.9	15.8	19.9
Cass	301,581	37,383	34.5	7.6	11.8	15.1
Cedar	223,426	36,418	40.1	8.8	11.4	19.9
Chariton	372,047	17,693	30.0	3.6	7.9	18.6
Christian	174,620	18,466	46.4	14.2	17.7	14.5
Clark	215,798	28,860	24.0	4.3	10.1	9.6
Clay	86,064	17,645	20.6	6.9	6.8	6.9
Clinton	190,097	23,423	19.9	7.3	10.0	2.5
Cole	143,831	16,574	27.3	9.5	10.2	7.6
Cooper	262,105	43,317	34.7	9.1	15.0	10.7
Crawford	194,055	11,159	45.6	15.6	15.3	14.7
Dade	313,523	8,445	35.7	5.8	7.4	22.4
Dallas	166,832	30,987	33.4	11.8	15.1	6.5
Daviess	320,474	39,532	25.5	6.3	12.7	6.5
DeKalb	191,284	32,664	23.0	6.5	9.4	7.2
Dent	203,855	32,134	46.6	10.6	11.6	24.3
Douglas	336,408	21,199	54.0	15.5	18.3	20.2
Dunklin	302,199	81,096	17.2	0.8	1.3	15.1
Franklin	265,858	27,185	39.4	12.3	17.8	9.4
Gasconade	192,365	15,787	39.8	8.8	16.7	14.3
Gentry	268,094	37,933	35.5	4.8	6.7	24.0
Greene	197,605	22,754	39.5	15.6	16.4	7.5
Grundy	214,652	41,119	31.8	7.8	11.0	13.0
Harrison	403,261	51,897	39.4	7.6	15.0	16.8
Henry	362,617	30,287	42.4	3.8	6.5	32.1
Hickory	177,802	19,478	44.8	14.8	15.7	14.3
Holt	220,066	31,428	18.2	1.3	8.2	8.7
Howard	206,874	31,832	30.2	6.6	13.3	10.2
Howell	363,963	46,172	37.6	9.2	10.6	17.8
Iron	84,993	20,925	54.1	14.7	16.8	22.6
Jackson	80,664	5,787	18.7	2.2	1.8	14.7
Jasper	270,662	51,691	38.6	11.0	19.9	7.8

--continued

Table C. **Summary of Coverage, Nonresponse, and Misclassification Adjustments by County: 2022** (continued)

[For meaning of abbreviations and symbols, see introductory text.]

Geographic area	Total (number)	Standard error	Adjustment as percent of total	Percent of total adjustment from coverage	Percent of total adjustment from nonresponse	Percent of total adjustment from misclassification
LAND IN FARMS (ACRES) - Con.						
Counties - Con.						
Jefferson	106,429	32,946	46.3	16.8	19.7	9.9
Johnson	415,874	37,012	39.8	8.1	14.2	17.6
Knox	224,997	22,679	24.4	3.3	7.9	13.2
Laclede	307,082	32,601	45.3	16.1	16.4	12.8
Lafayette	286,192	46,821	14.1	2.7	9.3	2.2
Lawrence	312,640	23,180	41.3	5.4	11.3	24.6
Lewis	220,282	50,169	27.4	5.8	10.9	10.8
Lincoln	218,355	17,536	28.1	6.9	14.6	6.5
Linn	326,008	61,944	39.1	8.3	18.0	12.8
Livingston	286,858	29,686	33.8	6.5	16.8	10.5
McDonald	191,401	28,060	36.2	8.1	9.4	18.6
Macon	432,256	55,881	43.0	6.3	11.6	25.1
Madison	96,231	21,442	45.8	6.9	8.0	30.8
Maries	216,335	42,069	31.8	9.9	10.7	11.2
Marion	193,536	26,600	20.1	3.8	8.2	8.1
Mercer	207,759	27,424	24.8	3.2	4.2	17.4
Miller	242,451	17,499	36.5	10.6	11.5	14.4
Mississippi	260,982	70,444	18.9	0.3	1.2	17.4
Moniteau	189,462	18,680	29.5	11.9	9.8	7.8
Monroe	285,759	22,621	27.6	5.2	13.4	9.0
Montgomery	198,095	22,530	26.5	5.4	14.1	6.9
Morgan	213,322	19,416	39.1	13.2	13.3	12.7
New Madrid	346,144	45,223	16.3	3.0	4.9	8.5
Newton	239,381	19,664	37.8	10.7	11.2	15.8
Nodaway	380,179	39,696	21.8	5.1	10.2	6.5
Oregon	272,656	29,496	44.1	9.0	10.1	25.0
Osage	323,170	48,605	38.7	12.3	15.2	11.2
Ozark	229,631	37,660	45.0	8.8	11.5	24.7
Pemiscot	294,693	66,813	18.9	8.0	8.5	2.5
Perry	193,440	20,675	28.2	5.1	9.2	13.9
Pettis	360,253	29,929	36.5	1.8	2.1	32.6
Phelps	174,422	24,316	47.1	12.9	21.2	13.0
Pike	331,162	45,347	38.9	7.8	18.3	12.7
Platte	147,941	16,163	19.0	5.9	7.6	5.5
Polk	340,780	37,567	42.6	9.7	10.3	22.6
Pulaski	117,115	25,720	40.9	9.9	9.4	21.7
Putnam	295,526	87,650	46.9	6.3	9.2	31.4
Ralls	191,799	37,483	23.7	5.7	13.0	4.9
Randolph	212,214	31,732	35.7	10.0	13.6	12.1
Ray	259,143	22,400	31.7	6.9	13.6	11.2
Reynolds	72,900	42,248	35.3	11.0	12.8	11.5
Ripley	139,907	29,443	36.3	2.6	5.6	28.2
St. Charles	170,588	17,232	34.0	6.0	21.2	6.8
St. Clair	292,065	54,688	46.2	3.6	11.9	30.7
Ste. Genevieve	158,419	29,544	32.8	7.0	11.1	14.7
St. Francois	94,940	15,381	32.7	12.0	13.5	7.2
St. Louis	21,936	6,000	50.8	11.9	25.6	13.3
Saline	426,061	55,421	22.6	0.5	1.9	20.1
Schuyler	143,229	41,868	39.1	12.2	12.2	14.8
Scotland	212,718	12,474	27.2	5.1	9.5	12.6
Scott	213,397	57,087	19.5	2.0	3.9	13.7
Shannon	133,126	12,327	42.5	13.0	14.6	14.9
Shelby	254,810	21,733	27.2	5.8	13.7	7.8
Stoddard	417,349	39,337	15.6	1.7	2.4	11.6
Stone	87,784	38,477	36.3	11.7	13.9	10.8
Sullivan	318,779	17,208	35.0	4.4	5.2	25.3
Taney	100,205	31,143	29.8	8.2	12.6	9.1
Texas	407,913	48,249	42.3	4.2	5.0	33.1
Vernon	495,559	70,919	42.1	7.2	12.6	22.2
Warren	115,250	14,838	33.7	6.1	16.3	11.3
Washington	87,234	16,876	40.3	1.0	8.6	30.7
Wayne	94,567	37,966	40.1	12.3	16.4	11.5
Webster	266,345	31,731	43.1	15.5	14.5	13.2
Worth	148,910	15,665	27.0	5.5	10.5	11.0
Wright	292,986	39,023	37.6	8.5	9.5	19.5
SALES ($1,000)						
State Total						
Missouri	14,697,022	370	23.8	4.7	5.0	14.1
Counties						
Adair	63,050	15	33.0	2.4	9.5	21.1
Andrew	94,804	9	13.2	2.0	7.3	3.9
Atchison	232,619	21	12.2	1.0	5.3	5.9
Audrain	298,064	43	14.2	5.8	6.5	2.0
Barry	560,687	35	25.3	15.6	4.8	4.9
Barton	188,919	17	32.7	23.7	6.5	2.5
Bates	179,856	18	26.8	6.5	14.0	6.3
Benton	151,115	13	47.3	30.1	11.0	6.2
Bollinger	31,373	5	19.6	11.1	5.9	2.7
Boone	137,094	24	8.7	5.2	2.6	0.9
Buchanan	73,148	8	13.8	2.7	8.2	2.8
Butler	163,186	36	13.1	4.2	7.7	1.2
Caldwell	84,368	5	20.0	5.1	12.7	2.2
Callaway	179,711	18	41.0	15.6	20.8	4.6

--continued

Table C. **Summary of Coverage, Nonresponse, and Misclassification Adjustments by County: 2022** (continued)

[For meaning of abbreviations and symbols, see introductory text.]

Geographic area	Total (number)	Standard error	Adjustment as percent of total	Percent of total adjustment from coverage	Percent of total adjustment from nonresponse	Percent of total adjustment from misclassification
SALES ($1,000) - Con.						
Counties - Con.						
Camden	27,322	2	30.5	7.7	7.8	15.0
Cape Girardeau	123,391	35	32.8	5.9	12.7	14.1
Carroll	209,220	26	17.4	2.4	7.8	7.2
Carter	3,662	(Z)	16.6	6.3	6.8	3.5
Cass	140,298	13	20.0	8.4	1.8	9.7
Cedar	64,002	9	33.2	6.3	12.7	14.2
Chariton	202,303	22	28.0	5.2	8.8	14.1
Christian	36,527	2	37.4	17.9	13.0	6.5
Clark	111,245	22	18.0	9.7	3.9	4.4
Clay	53,488	8	24.6	3.7	7.9	13.0
Clinton	104,520	15	10.3	2.9	6.1	1.3
Cole	39,532	5	21.5	4.6	11.7	5.1
Cooper	135,517	32	27.1	2.3	17.5	7.4
Crawford	18,267	2	35.6	15.6	11.5	8.5
Dade	144,472	27	36.2	10.8	10.1	15.3
Dallas	78,306	12	27.4	5.4	16.2	5.9
Daviess	180,499	12	17.3	3.0	4.4	9.9
DeKalb	92,447	13	13.5	3.4	7.1	3.0
Dent	24,173	3	40.7	13.3	12.5	14.9
Douglas	40,460	6	47.6	21.3	13.3	13.1
Dunklin	293,173	84	15.3	0.6	0.6	14.1
Franklin	99,746	20	25.9	6.3	12.8	6.8
Gasconade	31,841	5	33.7	13.0	13.8	6.9
Gentry	207,526	21	15.6	1.3	0.2	14.1
Greene	43,755	5	35.4	10.5	14.3	10.5
Grundy	110,246	30	27.8	13.6	4.6	9.5
Harrison	135,390	18	29.4	6.1	16.1	7.3
Henry	139,733	16	42.5	6.4	10.7	25.4
Hickory	34,341	9	47.0	12.6	26.8	7.6
Holt	186,191	29	11.2	0.8	4.0	6.3
Howard	74,935	9	19.5	3.7	7.2	8.6
Howell	70,550	8	30.6	7.5	13.0	10.1
Iron	4,308	(Z)	30.7	13.9	12.0	4.8
Jackson	40,462	4	13.5	3.6	3.7	6.2
Jasper	117,037	17	21.5	7.8	8.1	5.6
Jefferson	23,696	7	33.0	12.9	13.8	6.4
Johnson	234,691	11	26.4	12.0	9.5	4.9
Knox	145,101	65	25.1	5.7	10.3	9.1
Laclede	62,128	4	38.6	17.7	11.2	9.6
Lafayette	230,639	31	14.7	2.6	9.7	2.4
Lawrence	254,577	20	19.9	2.3	4.5	13.2
Lewis	162,325	33	17.0	6.0	4.2	6.9
Lincoln	116,672	7	9.5	3.4	3.5	2.6
Linn	120,218	43	35.9	7.1	24.0	4.8
Livingston	138,858	14	30.9	4.7	16.8	9.4
McDonald	252,386	35	25.9	19.8	2.7	3.4
Macon	157,078	16	29.2	9.2	9.7	10.3
Madison	22,551	4	27.0	21.4	1.4	4.2
Maries	47,393	7	40.0	12.0	11.3	16.7
Marion	135,794	11	11.5	2.6	6.7	2.2
Mercer	94,568	8	16.3	1.7	0.8	13.8
Miller	155,564	12	33.5	19.5	9.3	4.7
Mississippi	210,042	49	14.6	0.1	0.2	14.4
Moniteau	170,351	15	26.0	16.9	5.9	3.2
Monroe	181,032	17	28.9	7.5	16.4	5.1
Montgomery	100,833	15	19.3	1.8	10.4	7.1
Morgan	408,614	26	43.7	21.9	17.0	4.8
New Madrid	264,700	21	9.2	1.7	1.9	5.5
Newton	588,080	30	19.8	8.3	5.2	6.4
Nodaway	222,952	43	14.8	3.0	8.4	3.4
Oregon	42,071	11	43.7	6.0	8.5	29.2
Osage	112,676	37	23.9	8.5	7.4	8.0
Ozark	41,260	9	45.6	9.8	6.9	28.9
Pemiscot	233,533	46	15.8	7.0	6.8	2.0
Perry	117,667	18	12.9	3.7	6.7	2.5
Pettis	362,647	16	37.4	6.6	3.7	27.0
Phelps	16,230	2	41.0	13.7	17.3	10.1
Pike	166,637	17	30.5	8.8	17.0	4.7
Platte	76,415	7	8.4	2.1	3.4	2.9
Polk	108,884	7	29.2	10.9	8.8	9.5
Pulaski	24,747	2	62.6	11.0	8.7	42.9
Putnam	127,644	20	35.7	2.1	1.7	31.9
Ralls	108,204	29	18.2	4.9	11.2	2.1
Randolph	97,716	20	21.2	7.2	6.1	8.0
Ray	117,848	13	25.3	5.0	13.5	6.9
Reynolds	4,706	3	37.9	9.9	13.4	14.5
Ripley	37,161	3	24.5	2.0	4.0	18.5
St. Charles	107,976	10	22.5	4.5	17.0	1.0
St. Clair	59,965	11	39.7	11.6	17.9	10.2
Ste. Genevieve	52,105	35	37.1	14.1	13.2	9.9
St. Francois	18,289	2	17.7	8.6	5.8	3.3
St. Louis	28,029	4	22.1	15.0	5.2	2.0
Saline	399,523	39	19.3	1.1	1.7	16.5
Schuyler	56,289	15	38.6	21.5	12.5	4.6
Scotland	200,970	37	29.0	6.7	15.0	7.2
Scott	225,415	54	12.9	4.9	1.9	6.1
Shannon	14,211	1	44.5	16.1	15.1	13.3

--continued

Table C. **Summary of Coverage, Nonresponse, and Misclassification Adjustments by County: 2022** (continued)

[For meaning of abbreviations and symbols, see introductory text.]

Geographic area	Total (number)	Standard error	Adjustment as percent of total	Percent of total adjustment from coverage	Percent of total adjustment from nonresponse	Percent of total adjustment from misclassification
SALES ($1,000) - Con.						
Counties - Con.						
Shelby	198,091	14	26.5	9.9	10.0	6.6
Stoddard	369,484	40	10.9	1.8	1.4	7.6
Stone	45,778	11	50.2	22.2	19.2	8.8
Sullivan	183,587	10	12.0	0.6	0.1	11.3
Taney	23,435	3	8.6	6.7	1.1	0.8
Texas	70,406	11	39.5	5.2	9.3	25.1
Vernon	258,922	37	22.1	6.8	4.8	10.5
Warren	47,258	11	21.8	2.0	6.3	13.4
Washington	6,443	3	17.1	7.5	7.4	2.2
Wayne	10,068	3	43.4	13.2	15.8	14.4
Webster	65,579	7	39.6	20.4	12.4	6.7
Worth	48,410	3	23.7	7.0	12.0	4.7
Wright	53,024	6	32.7	10.3	11.6	10.8

Table D. **American Indian or Alaska Native Producers: 2022**

[For meaning of abbreviations and symbols, see introductory text.]

Geographic area	American Indian or Alaska Native farm producers			Geographic area	American Indian or Alaska Native farm producers		
	Total	Individually reported [1]	Other [2]		Total	Individually reported [1]	Other [2]
State Total				**Counties** - Con.			
Missouri	1,689	1,689	-	Lawrence	39	39	-
				Lewis	2	2	-
Counties				Lincoln	6	6	-
				Linn	17	17	-
Adair	19	19	-	Livingston	5	5	-
Andrew	3	3	-	McDonald	67	67	-
Atchison	6	6	-	Macon	16	16	-
Audrain	13	13	-	Madison	2	2	-
Barry	23	23	-	Maries	2	2	-
Barton	62	62	-	Marion	8	8	-
Bates	15	15	-				
Benton	9	9	-	Mercer	4	4	-
Bollinger	15	15	-	Miller	7	7	-
Boone	9	9	-	Moniteau	8	8	-
				Monroe	7	7	-
Buchanan	12	12	-	Montgomery	4	4	-
Butler	24	24	-	Morgan	7	7	-
Caldwell	18	18	-	New Madrid	12	12	-
Callaway	18	18	-	Newton	106	106	-
Camden	10	10	-	Nodaway	5	5	-
Cape Girardeau	8	8	-	Oregon	17	17	-
Carroll	3	3	-				
Carter	4	4	-	Osage	9	9	-
Cass	45	45	-	Ozark	37	37	-
Cedar	15	15	-	Perry	2	2	-
				Pettis	21	21	-
Chariton	21	21	-	Phelps	21	21	-
Christian	10	10	-	Pike	3	3	-
Clark	11	11	-	Platte	16	16	-
Clay	7	7	-	Polk	30	30	-
Clinton	21	21	-	Pulaski	13	13	-
Cole	4	4	-	Putnam	2	2	-
Cooper	31	31	-				
Crawford	10	10	-	Ralls	5	5	-
Dade	17	17	-	Randolph	14	14	-
Dallas	26	26	-	Ray	10	10	-
				Reynolds	8	8	-
Daviess	7	7	-	Ripley	15	15	-
DeKalb	7	7	-	St. Charles	7	7	-
Dent	14	14	-	St. Clair	17	17	-
Douglas	33	33	-	Ste. Genevieve	7	7	-
Dunklin	4	4	-	St. Francois	22	22	-
Franklin	21	21	-	St. Louis	2	2	-
Gasconade	14	14	-				
Gentry	4	4	-	Saline	6	6	-
Greene	27	27	-	Schuyler	10	10	-
Grundy	2	2	-	Scott	1	1	-
				Shannon	19	19	-
Harrison	20	20	-	Shelby	1	1	-
Henry	11	11	-	Stoddard	3	3	-
Hickory	10	10	-	Stone	24	24	-
Holt	1	1	-	Sullivan	12	12	-
Howard	9	9	-	Taney	22	22	-
Howell	30	30	-	Texas	43	43	-
Iron	8	8	-				
Jackson	11	11	-	Vernon	12	12	-
Jasper	57	57	-	Warren	5	5	-
Jefferson	18	18	-	Washington	1	1	-
				Wayne	14	14	-
Johnson	23	23	-	Webster	19	19	-
Knox	1	1	-	Worth	19	19	-
Laclede	19	19	-	Wright	28	28	-
Lafayette	8	8	-				

[1] Data were collected for a maximum of four producers per farm.
[2] Data represent American Indian or Alaska Native farm or ranch producers on reservations who did not report individually. Data obtained by reservation officials.