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,

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

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 (^) 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

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

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 hth 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 hth group
$C_{in\text{-}scope,h}$ = the number of completed and in-scope census records in the hth group
C_h = the number of completed census records in the hth group
U_h = number of operations of unknown eligibility in the hth 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	69,425	6,407	44.0	15.5	16.2	12.2
Land in farms	acres	12,431,190	656,869	33.9	7.5	12.0	14.4
Farms by size:							
1 to 9 acres	farms	4,799	1,646	54.8	21.7	21.9	11.2
	acres	24,664	7,405	55.1	23.4	20.5	11.3
10 to 49 acres	farms	24,349	2,852	51.5	21.7	17.9	11.9
	acres	623,475	59,369	50.3	20.4	17.6	12.4
50 to 69 acres	farms	7,099	539	44.1	15.1	16.3	12.8
	acres	410,777	31,566	44.1	15.1	16.1	12.8
70 to 99 acres	farms	7,257	536	40.5	12.6	13.9	14.0
	acres	601,134	43,407	40.5	12.6	13.8	14.0
100 to 139 acres	farms	7,176	391	38.7	11.7	14.7	12.2
	acres	830,736	46,548	38.5	11.6	14.6	12.2
140 to 179 acres	farms	4,237	210	36.9	10.0	15.3	11.7
	acres	665,353	32,699	36.8	10.0	15.2	11.7
180 to 219 acres	farms	3,017	200	33.7	7.9	16.1	9.7
	acres	595,401	39,373	33.5	7.9	16.0	9.7
220 to 259 acres	farms	1,998	140	33.2	7.1	12.6	13.5
	acres	475,989	33,595	33.3	7.1	12.7	13.6
260 to 499 acres	farms	4,867	382	32.8	6.4	12.9	13.5
	acres	1,692,583	138,536	32.9	6.2	12.9	13.8
500 to 999 acres	farms	2,530	300	37.4	4.2	15.3	17.9
	acres	1,734,783	201,987	38.3	4.1	15.4	18.8
1,000 to 1,999 acres	farms	1,261	124	43.6	5.7	19.5	18.4
	acres	1,727,803	167,498	43.1	5.6	18.8	18.6
2,000 acres or more	farms	835	32	22.3	1.7	2.7	18.0
	acres	3,048,492	74,618	18.8	1.2	2.0	15.6
Irrigated land use:							
Harvested cropland	farms	2,378	1,041	30.3	7.4	14.1	8.8
	acres	81,064	4,583	9.7	1.5	4.0	4.1
Pastureland and other land	farms	232	21	54.3	13.2	23.4	17.7
	acres	2,394	472	58.3	8.7	25.1	24.5
Market value of agricultural products sold	$1,000	8,005,745	479	18.8	3.2	5.0	10.6
Farms by value of sales:							
Less than $1,000	farms	19,270	1,998	63.8	20.6	22.4	20.7
	$1,000	3,045	(Z)	65.1	33.8	19.8	11.5
$1,000 to $2,499	farms	7,913	1,640	51.5	22.4	18.0	11.1
	$1,000	13,018	3	51.3	22.2	18.0	11.1
$2,500 to $4,999	farms	7,391	1,469	44.0	20.8	14.2	9.0
	$1,000	26,393	5	43.6	20.6	14.0	8.9
$5,000 to $9,999	farms	9,011	1,343	41.2	17.6	14.9	8.8
	$1,000	64,328	10	40.8	17.5	14.7	8.7
$10,000 to $19,999	farms	7,382	452	25.2	8.0	10.2	7.0
	$1,000	104,809	6	25.2	8.0	10.3	6.9
$20,000 to $24,999	farms	2,491	132	27.3	8.0	11.7	7.6
	$1,000	55,298	3	27.3	8.0	11.7	7.6
$25,000 to $39,999	farms	4,355	350	31.4	7.8	14.8	8.8
	$1,000	137,081	11	31.5	7.8	14.8	8.9
$40,000 to $49,999	farms	1,835	198	33.4	9.0	15.6	8.8
	$1,000	81,542	9	33.3	9.1	15.4	8.8
$50,000 to $99,999	farms	3,483	281	26.4	5.5	13.3	7.5
	$1,000	244,936	18	27.2	5.7	13.9	7.5
$100,000 to $249,999	farms	2,405	134	28.9	7.1	11.0	10.7
	$1,000	368,994	23	29.0	6.7	11.2	11.1
$250,000 to $499,999	farms	1,166	289	34.9	3.5	20.0	11.4
	$1,000	409,601	107	35.3	3.4	20.0	11.9
$500,000 to $999,999	farms	970	132	34.1	2.7	16.6	14.8
	$1,000	693,367	92	34.0	2.7	15.8	15.5
$1,000,000 or more	farms	1,753	64	18.6	3.2	4.9	10.5
	$1,000	5,803,333	256	13.7	2.4	2.6	8.7
Farms by legal status for tax purposes:							
Family or individual	farms	63,204	5,838	44.1	16.5	15.4	12.2
	acres	9,358,085	575,268	35.4	8.8	11.7	14.9
Partnership	farms	3,430	299	42.3	9.1	22.7	10.5
	acres	2,041,586	83,714	27.2	3.7	11.5	11.9
Corporation:							
Family held	farms	1,789	154	40.9	8.5	20.2	12.2
	acres	756,923	27,883	31.4	4.1	13.8	13.5
Other than family held	farms	436	71	50.2	6.4	25.2	18.5
	acres	125,590	25,093	44.4	3.8	19.2	21.4
Other - estate or trust, prison farm, grazing association, American Indian Reservation, etc	farms	566	87	43.5	11.2	17.2	15.0
	acres	149,006	23,860	34.5	4.6	13.8	16.1
Tenure:							
Full owners	farms	55,671	5,368	46.1	17.6	16.5	12.1
	acres	6,015,982	419,315	41.8	11.7	14.4	15.7
Part owners	farms	11,506	844	33.7	4.4	14.9	14.5
	acres	5,924,025	394,623	25.8	1.8	9.5	14.5
Tenants	farms	2,248	252	42.7	9.3	20.3	13.2
	acres	491,183	46,672	34.6	9.0	14.9	10.8
Producers characteristics by- [1] (see text)							
Sex of operator:							
Male	farms	64,916	5,835	43.8	14.7	16.9	12.3
	acres	11,969,466	623,883	33.7	7.0	12.2	14.5
Female	farms	38,425	3,808	43.3	18.5	19.5	5.2
	acres	5,493,023	250,833	35.5	11.7	18.0	5.8
Primary occupation:							
Farming	farms	43,697	3,659	38.9	13.3	17.9	7.7
Other	farms	75,435	7,538	48.4	15.2	23.2	9.9

See footnote(s) at end of table.

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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	802	95	52.1	11.4	27.2	13.5
	acres	123,134	12,205	41.8	4.3	24.5	13.0
Race:							
American Indian or Alaska Native	farms	235	84	43.0	21.5	15.8	5.7
	acres	41,313	12,322	39.1	8.3	19.1	11.7
Asian	farms	157	36	45.9	12.1	16.8	17.0
	acres	23,877	2,676	58.6	9.3	11.8	37.6
Black or African American	farms	312	91	31.7	9.7	14.4	7.6
	acres	24,044	3,682	14.7	4.2	7.0	3.5
Native Hawaiian or Other Pacific Islander	farms	46	11	47.8	25.6	15.8	6.4
	acres	2,225	1,683	56.9	32.9	14.7	9.2
White	farms	68,804	6,329	44.0	15.6	16.2	12.3
	acres	12,359,082	647,084	33.9	7.5	12.0	14.5
More than one race reported	farms	558	156	40.0	11.7	20.7	7.5
	acres	86,312	35,368	36.6	10.7	17.8	8.1
Military service:							
Never served or only on active duty for training in the Reserves or National Guard (see text)	producers	108,347	10,040	45.0	14.3	21.5	9.1
Active duty now or in the past (see text)	producers	10,785	1,121	44.2	15.7	19.3	9.1
All producers by age group [1]:							
Under 25 years	farms	2,367	577	58.0	15.9	33.0	9.1
25 to 34 years	farms	9,274	1,725	57.7	10.0	34.4	13.4
35 to 44 years	farms	15,551	1,983	50.7	14.4	24.1	12.3
45 to 54 years	farms	19,912	2,216	45.5	13.3	21.7	10.5
55 to 64 years	farms	30,292	2,522	44.8	13.7	22.7	8.3
65 to 74 years	farms	27,042	1,723	39.6	17.7	14.8	7.1
75 years and over	farms	14,694	898	37.7	17.9	14.8	5.1
Net cash farm income of operations:							
Farms with gains of- [2]							
Less than $1,000	farms	2,531	317	46.0	18.7	16.7	10.6
	$1,000	1,215	(Z)	45.3	17.2	17.7	10.4
$1,000 to $4,999	farms	6,523	919	41.9	16.0	15.2	10.7
	$1,000	18,032	3	40.9	15.4	14.9	10.7
$5,000 to $9,999	farms	4,086	516	33.5	10.8	12.7	10.0
	$1,000	29,288	4	32.7	10.6	12.3	9.8
$10,000 to $24,999	farms	5,332	394	30.3	8.2	11.8	10.3
	$1,000	87,025	7	30.2	8.1	11.9	10.2
$25,000 to $49,999	farms	3,210	243	25.8	6.3	10.6	9.0
	$1,000	113,231	8	25.7	6.2	10.7	8.8
$50,000 or more	farms	5,968	514	26.7	3.9	11.9	10.9
	$1,000	2,863,479	175	17.7	2.5	6.0	9.2
Farms with losses of-							
Less than $1,000	farms	3,427	366	51.9	22.4	15.6	13.8
	$1,000	1,752	(Z)	52.3	22.1	15.9	14.3
$1,000 to $4,999	farms	13,137	1,288	52.5	20.7	18.8	13.0
	$1,000	37,828	4	52.6	20.4	19.0	13.2
$5,000 to $9,999	farms	9,735	872	51.9	19.9	17.4	14.6
	$1,000	70,546	6	51.7	19.8	17.5	14.5
$10,000 to $24,999	farms	10,025	822	49.7	19.0	18.8	11.8
	$1,000	155,753	13	49.8	18.6	19.3	11.8
$25,000 to $49,999	farms	3,390	313	47.5	13.5	19.1	14.9
	$1,000	116,029	10	47.3	13.4	19.3	14.6
$50,000 or more	farms	2,061	189	44.1	10.9	19.9	13.3
	$1,000	273,721	26	40.0	9.0	17.6	13.5
Livestock and poultry:							
Cattle and calves inventory	farms	31,060	1,371	36.3	20.2	6.5	9.6
	number	1,876,383	31,551	38.7	15.5	8.8	14.4
Beef cows inventory	farms	28,073	1,124	36.3	20.0	6.7	9.6
	number	914,865	20,777	39.3	17.3	9.0	12.9
Milk cows inventory	farms	1,062	65	25.4	14.7	4.6	6.1
	number	45,904	832	23.4	6.2	8.1	9.2
Hog and pigs inventory	farms	1,564	585	43.9	13.7	14.2	16.1
	number	454,797	229,100	14.9	0.5	1.5	12.9
Layers inventory	farms	8,586	2,053	47.9	17.5	18.2	12.2
	number	5,542,366	1,076,954	10.8	5.6	1.5	3.7
Broilers sold	farms	796	204	23.6	6.1	7.7	9.8
	number	262,581,637	33,530,393	4.4	0.8	0.5	3.1
Aquaculture sold	farms	45	18	33.3	5.0	25.5	2.8
	$1,000	3,497	1	0.4	0.4	(Z)	(Z)
Selected crops harvested:							
Corn for grain	farms	6,291	432	28.7	7.6	12.5	8.5
	acres	1,411,522	64,324	15.2	1.6	5.2	8.4
Durum wheat for grain	farms	-	-	-	-	-	-
	acres	-	-	-	-	-	-
Other spring wheat for grain	farms	-	-	-	-	-	-
	acres	-	-	-	-	-	-
Winter wheat for grain	farms	1,368	157	20.2	2.7	8.8	8.7
	acres	429,697	29,891	11.2	0.7	3.2	7.3
Sorghum for grain	farms	10	2	10.0	0.6	3.0	6.4
	acres	456	108	14.5	0.7	5.8	8.0
Soybeans for beans	farms	6,098	910	23.7	3.6	11.2	9.0
	acres	1,928,881	187,673	16.4	0.8	6.4	9.2
Rice	farms	-	-	-	-	-	-
	acres	-	-	-	-	-	-
Cotton	farms	-	-	-	-	-	-
	acres	-	-	-	-	-	-

See footnote(s) at end of table.

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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	-	-	-	-	-	-
	acres	-	-	-	-	-	-
Barley	farms	16	4	6.2	0.8	2.5	3.0
	acres	1,818	242	1.4	0.2	0.1	1.1
Oats	farms	24	5	20.8	9.7	2.7	8.5
	acres	365	34	6.8	3.4	0.6	2.8
Forage - land used for all hay and haylage, grass silage, and greenchop	farms	37,930	2,546	39.8	20.6	13.2	6.0
	acres	1,792,405	94,278	36.7	15.3	13.6	7.8
Land in vegetables (see text)	farms	2,173	(H)	20.3	6.6	12.8	0.9
	acres	7,186	3,634	10.6	2.6	7.3	0.7
Potatoes	farms	609	491	22.2	8.2	12.4	1.5
	acres	371	206	24.6	6.9	11.1	6.6
Tomatoes in the open	farms	1,072	(H)	16.8	4.8	11.5	0.4
	acres	666	367	9.6	2.2	7.1	0.4
Sweet corn (see text)	farms	786	(H)	17.0	5.4	11.2	0.5
	acres	1,339	666	8.4	2.4	5.7	0.2
Lettuce	farms	329	288	12.5	3.7	8.4	0.3
	acres	125	65	16.0	3.1	12.6	0.2
Land in orchards (see text)	farms	1,309	483	40.7	8.1	17.3	15.4
	acres	4,303	1,031	31.7	5.7	12.4	13.6
Apples	farms	683	249	39.1	7.8	18.0	13.4
	acres	1,276	311	21.9	4.6	8.2	9.1
Grapes (including muscadine) (see text)	farms	327	179	33.6	7.8	13.7	12.1
	acres	525	173	28.6	5.6	8.9	14.1
Oranges	farms	-	-	-	-	-	-
	acres	-	-	-	-	-	-
Almonds	farms	17	6	35.3	11.9	14.1	9.2
	acres	10	1	60.2	12.7	32.9	14.6
Land in berries	farms	965	407	34.2	6.5	16.0	11.7
	acres	986	374	22.7	3.9	11.7	7.2

[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	69,425	9.2
Land in farms ... acres	12,431,190	5.3
Farms by size:		
1 to 9 acres ... farms	4,799	34.3
acres	24,664	30.0
10 to 49 acres ... farms	24,349	11.7
acres	623,475	9.5
50 to 69 acres ... farms	7,099	7.6
acres	410,777	7.7
70 to 99 acres ... farms	7,257	7.4
acres	601,134	7.2
100 to 139 acres ... farms	7,176	5.5
acres	830,736	5.6
140 to 179 acres ... farms	4,237	4.9
acres	665,353	4.9
180 to 219 acres ... farms	3,017	6.6
acres	595,401	6.6
220 to 259 acres ... farms	1,998	7.0
acres	475,989	7.1
260 to 499 acres ... farms	4,867	7.9
acres	1,692,583	8.2
500 to 999 acres ... farms	2,530	11.8
acres	1,734,783	11.6
1,000 to 1,999 acres ... farms	1,261	9.8
acres	1,727,803	9.7
2,000 acres or more ... farms	835	3.9
acres	3,048,492	2.4
Irrigated land use:		
Harvested cropland ... farms	2,378	43.8
acres	81,064	5.7
Pastureland and other land ... farms	232	9.2
acres	2,394	19.7
Market value of agricultural products sold ... $1,000	8,005,745	6.0
Farms by value of sales:		
Less than $1,000 ... farms	19,270	10.4
$1,000	3,045	13.7
$1,000 to $2,499 ... farms	7,913	20.7
$1,000	13,018	20.6
$2,500 to $4,999 ... farms	7,391	19.9
$1,000	26,393	19.8
$5,000 to $9,999 ... farms	9,011	14.9
$1,000	64,328	15.0
$10,000 to $19,999 ... farms	7,382	6.1
$1,000	104,809	6.0
$20,000 to $24,999 ... farms	2,491	5.3
$1,000	55,298	5.4
$25,000 to $39,999 ... farms	4,355	8.0
$1,000	137,081	8.0
$40,000 to $49,999 ... farms	1,835	10.8
$1,000	81,542	10.7
$50,000 to $99,999 ... farms	3,483	8.1
$1,000	244,936	7.4
$100,000 to $249,999 ... farms	2,405	5.6
$1,000	368,994	6.1
$250,000 to $499,999 ... farms	1,166	24.8
$1,000	409,601	26.2
$500,000 to $999,999 ... farms	970	13.6
$1,000	693,367	13.2
$1,000,000 or more ... farms	1,753	3.6
$1,000	5,803,333	4.4
Farms by legal status for tax purposes:		
Family or individual ... farms	63,204	9.2
acres	9,358,085	6.1
Partnership ... farms	3,430	8.7
acres	2,041,586	4.1
Corporation:		
Family held ... farms	1,789	8.6
acres	756,923	3.7
Other than family held ... farms	436	16.3
acres	125,590	20.0
Other - estate or trust, prison farm, grazing association, American Indian Reservation, etc ... farms	566	15.3
acres	149,006	16.0
Tenure:		
Full owners ... farms	55,671	9.6
acres	6,015,982	7.0
Part owners ... farms	11,506	7.3
acres	5,924,025	6.7
Tenants ... farms	2,248	11.2
acres	491,183	9.5
Producers characteristics by- [1] (see text)		
Sex of operator:		
Male ... farms	64,916	9.0
acres	11,969,466	5.2
Female ... farms	38,425	9.9
acres	5,493,023	4.6
Primary occupation:		
Farming ... farms	43,697	8.4
Other ... farms	75,435	10.0

Item	Total	Coefficient of variation (percent)
Producers characteristics by- [1] (see text) - Con.		
Hispanic, Latino, or Spanish origin ... farms	802	11.9
acres	123,134	9.9
Race:		
American Indian or Alaska Native ... farms	235	35.6
acres	41,313	29.8
Asian ... farms	157	23.0
acres	23,877	11.2
Black or African American ... farms	312	29.2
acres	24,044	15.3
Native Hawaiian or Other Pacific Islander ... farms	46	23.7
acres	2,225	75.6
White ... farms	68,804	9.2
acres	12,359,082	5.2
More than one race reported ... farms	558	27.9
acres	86,312	41.0
Military service:		
Never served or only on active duty for training in the Reserves or National Guard (see text) ... producers	108,347	9.3
Active duty now or in the past (see text) ... producers	10,785	10.4
All producers by age group [1]:		
Under 25 years ... farms	2,367	24.4
25 to 34 years ... farms	9,274	18.6
35 to 44 years ... farms	15,551	12.8
45 to 54 years ... farms	19,912	11.1
55 to 64 years ... farms	30,292	8.3
65 to 74 years ... farms	27,042	6.4
75 years and over ... farms	14,694	6.1
Net cash farm income of operations:		
Farms with gains of- [2]		
Less than $1,000 ... farms	2,531	12.5
$1,000	1,215	13.1
$1,000 to $4,999 ... farms	6,523	14.1
$1,000	18,032	14.3
$5,000 to $9,999 ... farms	4,086	12.6
$1,000	29,288	12.1
$10,000 to $24,999 ... farms	5,332	7.4
$1,000	87,025	7.5
$25,000 to $49,999 ... farms	3,210	7.6
$1,000	113,231	7.5
$50,000 or more ... farms	5,968	8.6
$1,000	2,863,479	6.1
Farms with losses of-		
Less than $1,000 ... farms	3,427	10.7
$1,000	1,752	10.3
$1,000 to $4,999 ... farms	13,137	9.8
$1,000	37,828	9.7
$5,000 to $9,999 ... farms	9,735	9.0
$1,000	70,546	8.8
$10,000 to $24,999 ... farms	10,025	8.2
$1,000	155,753	8.1
$25,000 to $49,999 ... farms	3,390	9.2
$1,000	116,029	9.0
$50,000 or more ... farms	2,061	9.2
$1,000	273,721	9.3
Livestock and poultry:		
Cattle and calves inventory ... farms	31,060	4.4
number	1,876,383	1.7
Beef cows inventory ... farms	28,073	4.0
number	914,865	2.3
Milk cows inventory ... farms	1,062	6.1
number	45,904	1.8
Hog and pigs inventory ... farms	1,564	37.4
number	454,797	50.4
Layers inventory ... farms	8,586	23.9
number	5,542,366	19.4
Broilers sold ... farms	796	25.6
number	262,581,637	12.8
Aquaculture sold ... farms	45	39.4
$1,000	3,497	34.5
Selected crops harvested:		
Corn for grain ... farms	6,291	6.9
acres	1,411,522	4.6
Durum wheat for grain ... farms	-	-
acres	-	-
Other spring wheat for grain ... farms	-	-
acres	-	-
Winter wheat for grain ... farms	1,368	11.5
acres	429,697	7.0
Sorghum for grain ... farms	10	16.4
acres	456	23.7
Soybeans for beans ... farms	6,098	14.9
acres	1,928,881	9.7
Rice ... farms	-	-
acres	-	-

See footnote(s) at end of table.

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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	-	-
	acres	-	-
Peanuts	farms	-	-
	acres	-	-
Barley	farms	16	23.0
	acres	1,818	13.3
Oats	farms	24	20.5
	acres	365	9.4
Forage - land used for all hay and haylage, grass silage, and greenchop	farms	37,930	6.7
	acres	1,792,405	5.3
Land in vegetables (see text)	farms	2,173	(H)
	acres	7,186	50.6
Potatoes	farms	609	80.6
	acres	371	55.6
Tomatoes in the open	farms	1,072	(H)
	acres	666	55.2
Selected crops harvested: - Con. Land in vegetables (see text) - Con.			
Sweet corn (see text)	farms	786	(H)
	acres	1,339	49.7
Lettuce	farms	329	87.5
	acres	125	52.1
Land in orchards (see text)	farms	1,309	36.9
	acres	4,303	23.9
Apples	farms	683	36.5
	acres	1,276	24.4
Grapes (including muscadine) (see text)	farms	327	54.7
	acres	525	32.9
Oranges	farms	-	-
	acres	-	-
Almonds	farms	17	36.2
	acres	10	10.2
Land in berries	farms	965	42.2
	acres	986	38.0

[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						
Kentucky	69,425	6,407	44.0	15.5	16.2	12.2
Counties						
Adair	1,074	81	43.7	15.6	13.7	14.4
Allen	906	132	39.6	15.3	13.8	10.5
Anderson	705	86	46.4	18.3	16.5	11.6
Ballard	307	50	37.8	9.4	18.2	10.2
Barren	1,621	103	42.0	18.0	13.7	10.3
Bath	626	71	44.2	16.5	16.6	11.2
Bell	77	29	53.2	14.6	13.7	24.9
Boone	727	146	48.4	19.8	20.5	8.0
Bourbon	846	49	46.9	17.9	21.5	7.5
Boyd	187	17	50.3	18.6	19.3	12.3
Boyle	491	41	43.8	17.4	15.2	11.2
Bracken	557	40	44.7	15.5	22.9	6.3
Breathitt	150	47	54.0	11.0	15.8	27.2
Breckinridge	1,249	153	42.0	15.3	14.1	12.5
Bullitt	420	51	48.3	21.3	17.2	9.8
Butler	648	55	43.1	14.2	16.6	12.3
Caldwell	441	45	38.3	13.3	15.8	9.2
Calloway	821	65	43.2	13.8	17.1	12.4
Campbell	493	68	43.6	19.1	16.2	8.3
Carlisle	248	33	37.1	10.0	12.9	14.2
Carroll	226	30	37.2	8.1	9.8	19.2
Carter	681	64	47.6	19.0	16.3	12.3
Casey	975	58	45.0	18.0	16.1	10.9
Christian	1,095	80	39.7	12.0	13.6	14.1
Clark	804	89	43.7	18.1	15.0	10.6
Clay	178	48	44.4	20.2	15.9	8.3
Clinton	374	47	36.6	15.9	13.8	6.9
Crittenden	512	84	42.0	11.7	14.5	15.8
Cumberland	409	58	48.2	17.8	15.8	14.5
Daviess	974	133	40.5	11.6	19.2	9.7
Edmonson	552	59	44.7	15.0	14.4	15.3
Elliott	310	21	43.5	20.3	14.4	8.9
Estill	349	54	46.4	14.9	11.8	19.7
Fayette	682	76	49.7	13.7	22.1	13.9
Fleming	898	80	42.5	17.3	14.4	10.9
Floyd	61	27	37.7	14.9	12.7	10.1
Franklin	532	98	44.7	15.6	17.9	11.2
Fulton	175	37	43.4	11.5	18.1	13.8
Gallatin	157	23	40.8	18.9	13.7	8.2
Garrard	647	42	42.3	14.3	13.6	14.5
Grant	787	63	47.6	22.8	16.3	8.5
Graves	1,129	113	39.9	11.1	10.8	17.9
Grayson	1,283	77	45.8	17.6	15.9	12.2
Green	902	51	41.5	12.1	16.9	12.4
Greenup	475	64	46.1	15.9	18.8	11.4
Hancock	328	30	45.4	13.2	22.8	9.5
Hardin	1,255	89	44.8	19.8	16.3	8.7
Harlan	37	10	51.4	26.7	19.0	5.7
Harrison	1,051	83	45.5	18.8	17.5	9.2
Hart	1,283	77	48.3	13.5	18.2	16.6
Henderson	438	76	34.5	10.0	16.6	7.9
Henry	719	53	43.3	12.4	16.3	14.6
Hickman	226	35	29.6	7.7	8.4	13.5
Hopkins	623	70	42.4	13.2	15.9	13.3
Jackson	460	49	46.1	13.9	13.2	19.0
Jefferson	264	73	48.1	16.9	18.2	13.0
Jessamine	619	92	46.4	11.1	19.9	15.4
Johnson	199	32	51.3	17.4	13.6	20.2
Kenton	453	63	45.3	20.1	15.8	9.4
Knott	49	10	46.9	8.8	7.2	31.0
Knox	293	60	50.5	19.3	15.5	15.7
Larue	701	65	43.5	14.2	16.5	12.9
Laurel	871	115	46.8	19.8	14.9	12.1
Lawrence	255	39	48.2	20.0	12.2	16.1
Lee	127	39	48.0	13.0	14.5	20.6
Leslie	23	11	56.5	26.9	10.0	19.6
Letcher	71	24	45.1	12.8	11.1	21.2
Lewis	489	65	43.1	15.1	16.0	12.1
Lincoln	984	77	42.5	18.4	13.4	10.7
Livingston	360	57	47.2	13.0	14.7	19.5
Logan	1,017	76	44.9	13.0	14.2	17.7
Lyon	158	21	36.1	19.9	9.6	6.6
McCracken	339	71	43.4	14.0	13.7	15.6
McCreary	171	37	48.0	22.8	16.0	9.2
McLean	346	70	29.2	6.6	13.5	9.1
Madison	1,164	105	47.8	18.9	18.2	10.7
Magoffin	316	53	51.3	22.9	13.8	14.5
Marion	955	54	43.6	14.4	19.9	9.3
Marshall	787	62	45.9	14.1	17.3	14.4
Martin	21	6	52.4	6.2	4.9	41.3
Mason	541	54	40.5	16.9	15.5	8.1
Meade	731	71	45.6	19.1	14.3	12.1
Menifee	213	29	40.4	20.3	13.3	6.8

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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.						
Mercer	978	80	44.9	18.6	15.4	11.0
Metcalfe	799	41	43.6	15.3	13.9	14.4
Monroe	674	53	39.9	15.3	15.9	8.7
Montgomery	528	52	40.3	16.6	13.0	10.7
Morgan	560	67	50.7	22.2	15.3	13.3
Muhlenberg	583	63	46.0	15.5	17.8	12.6
Nelson	1,241	128	46.4	20.2	14.6	11.6
Nicholas	467	51	41.8	19.4	16.1	6.2
Ohio	746	90	39.8	12.6	12.2	15.0
Oldham	410	48	45.9	18.8	17.2	9.9
Owen	674	88	46.7	16.5	18.8	11.4
Owsley	84	19	38.1	12.6	14.3	11.2
Pendleton	878	88	45.8	20.1	18.8	6.9
Perry	53	39	54.7	9.6	16.2	29.0
Pike	66	13	48.5	17.0	13.4	18.1
Powell	165	25	42.4	17.6	12.0	12.8
Pulaski	1,600	103	46.3	17.0	19.6	9.7
Robertson	163	18	34.4	15.8	11.6	7.0
Rockcastle	585	62	43.1	21.1	11.5	10.5
Rowan	277	43	45.5	19.9	16.2	9.4
Russell	639	68	42.1	18.3	16.3	7.5
Scott	781	125	47.4	15.3	18.6	13.5
Shelby	1,350	157	45.0	17.1	17.2	10.7
Simpson	400	61	40.0	15.0	13.9	11.1
Spencer	578	50	45.7	15.8	14.5	15.3
Taylor	663	102	38.0	17.6	11.8	8.6
Todd	551	56	36.5	10.1	13.6	12.8
Trigg	406	34	42.4	8.8	28.4	5.2
Trimble	393	58	39.2	15.1	12.4	11.7
Union	290	46	32.8	10.4	12.6	9.7
Warren	1,530	186	45.8	17.8	13.7	14.4
Washington	998	128	46.5	14.0	17.0	15.5
Wayne	708	49	41.5	17.0	16.5	8.0
Webster	502	97	38.8	10.3	14.7	13.8
Whitley	476	38	46.8	16.5	18.6	11.8
Wolfe	243	34	45.7	19.9	21.3	4.4
Woodford	688	96	46.5	10.0	24.8	11.7
LAND IN FARMS (ACRES)						
State Total						
Kentucky	12,431,190	656,869	33.9	7.5	12.0	14.4
Counties						
Adair	142,751	13,907	37.1	6.1	12.0	19.0
Allen	136,286	12,433	36.2	11.1	10.5	14.6
Anderson	59,410	6,407	35.9	13.5	11.2	11.2
Ballard	93,696	22,647	17.1	2.5	7.5	7.2
Barren	230,539	20,168	35.5	10.5	11.4	13.6
Bath	124,643	15,366	42.6	15.7	18.1	8.8
Bell	20,545	10,772	61.6	13.2	15.7	32.7
Boone	71,293	9,846	45.8	15.1	24.7	5.9
Bourbon	183,749	22,140	43.6	12.1	18.4	13.1
Boyd	23,843	1,449	52.3	13.0	28.5	10.8
Boyle	96,306	4,187	40.3	7.1	20.0	13.2
Bracken	90,102	9,758	46.1	15.0	23.2	7.8
Breathitt	33,617	10,940	54.3	5.5	12.4	36.4
Breckinridge	244,558	38,242	30.1	7.4	11.0	11.7
Bullitt	29,789	7,830	40.4	18.0	15.6	6.9
Butler	172,711	21,902	37.7	8.3	18.4	11.1
Caldwell	122,775	6,316	17.9	4.9	8.0	5.0
Calloway	143,172	24,722	20.5	3.4	7.9	9.2
Campbell	38,744	9,782	39.0	14.0	17.2	7.8
Carlisle	107,565	20,097	21.7	1.6	4.0	16.2
Carroll	44,115	8,325	34.5	5.2	8.5	20.7
Carter	82,568	9,022	39.1	15.0	13.2	10.9
Casey	188,753	26,199	45.2	12.5	16.9	15.8
Christian	345,270	19,465	18.9	3.5	6.4	9.0
Clark	135,849	12,672	44.2	14.3	15.1	14.8
Clay	38,581	12,164	47.2	22.2	15.2	9.8
Clinton	56,133	3,116	29.2	12.1	10.5	6.6
Crittenden	133,842	20,365	25.4	5.3	9.1	11.0
Cumberland	92,797	6,589	50.5	11.5	14.5	24.5
Daviess	271,336	44,298	20.3	1.8	5.3	13.1
Edmonson	86,574	17,771	37.8	8.4	12.3	17.1
Elliott	41,226	3,396	34.2	12.4	13.4	8.4
Estill	49,684	10,001	40.2	11.6	8.7	19.9
Fayette	124,247	7,626	37.9	6.8	15.9	15.2
Fleming	157,806	18,595	39.8	15.5	15.5	8.7
Floyd	6,898	2,452	42.9	11.1	10.6	21.2
Franklin	63,623	6,169	41.4	11.4	17.2	12.8
Fulton	91,864	31,065	18.3	2.1	11.6	4.6
Gallatin	26,928	3,016	41.8	17.2	17.8	6.7
Garrard	108,923	28,668	44.4	13.3	11.3	19.8
Grant	84,737	10,456	40.7	17.7	15.9	7.1
Graves	255,830	20,147	24.1	1.3	3.5	19.3

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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.						
Grayson	232,159	12,240	43.8	13.9	16.4	13.5
Green	145,130	6,448	33.2	8.5	14.2	10.4
Greenup	72,288	10,543	42.7	8.5	14.8	19.3
Hancock	48,270	14,339	42.3	10.1	22.8	9.4
Hardin	188,728	26,706	35.7	9.0	15.9	10.8
Harlan	10,233	3,655	72.7	19.5	46.1	7.0
Harrison	164,233	11,680	45.2	15.2	16.6	13.4
Hart	169,858	13,483	40.5	8.5	15.6	16.4
Henderson	180,679	20,859	12.5	1.2	3.5	7.9
Henry	126,077	5,798	41.1	5.4	16.2	19.5
Hickman	111,590	14,705	6.5	0.5	1.3	4.8
Hopkins	219,888	23,125	41.0	8.8	12.3	20.0
Jackson	77,791	13,362	54.9	13.5	14.4	27.1
Jefferson	13,266	876	44.0	17.4	15.8	10.8
Jessamine	71,771	21,632	28.3	5.3	8.4	14.6
Johnson	24,320	3,997	46.1	13.9	11.6	20.6
Kenton	28,810	6,150	38.1	11.1	9.9	17.1
Knott	9,659	6,727	20.8	4.4	3.2	13.2
Knox	32,034	4,415	51.2	14.7	14.3	22.1
Larue	111,006	7,713	30.9	6.0	14.4	10.4
Laurel	79,761	6,499	41.6	16.7	14.9	10.0
Lawrence	54,526	12,907	50.5	20.7	19.0	10.7
Lee	29,469	3,621	58.5	12.2	13.7	32.5
Leslie	26,893	167	72.9	28.8	35.0	9.1
Letcher	4,912	1,624	39.0	6.4	5.8	26.8
Lewis	123,357	20,614	45.7	14.0	19.1	12.7
Lincoln	147,519	15,862	37.9	13.7	10.7	13.5
Livingston	144,892	38,809	39.6	6.4	11.6	21.6
Logan	266,727	25,752	21.1	4.2	7.0	9.9
Lyon	35,222	23,324	23.9	10.8	6.5	6.6
McCracken	59,709	12,336	31.1	4.4	13.4	13.4
McCreary	17,956	1,183	48.7	20.4	17.3	11.0
McLean	113,120	13,453	15.5	0.7	8.7	6.1
Madison	191,746	12,853	44.1	12.9	17.8	13.5
Magoffin	59,378	28,874	61.6	28.7	18.5	14.4
Marion	168,205	9,087	36.0	8.7	16.8	10.5
Marshall	89,160	23,484	29.4	5.5	6.4	17.6
Martin	9,488	637	55.8	7.3	3.0	45.4
Mason	98,439	19,871	25.4	8.5	11.1	5.8
Meade	126,388	13,089	33.7	9.3	10.1	14.4
Menifee	24,724	12,806	29.4	12.8	8.4	8.2
Mercer	142,272	15,501	41.2	8.2	18.4	14.7
Metcalfe	124,964	13,489	36.5	6.4	13.5	16.6
Monroe	148,753	23,234	33.2	6.6	17.7	9.0
Montgomery	67,199	17,320	27.7	10.0	8.9	8.8
Morgan	90,351	27,066	51.5	18.6	15.4	17.4
Muhlenberg	129,431	28,629	36.4	7.6	12.9	15.9
Nelson	157,488	10,123	30.0	11.4	11.3	7.3
Nicholas	76,674	27,260	31.1	13.0	13.0	5.1
Ohio	138,638	18,495	26.7	3.3	6.1	17.3
Oldham	55,910	10,484	32.9	10.4	7.7	14.8
Owen	136,342	30,200	42.1	11.7	20.1	10.2
Owsley	21,686	1,740	51.4	13.3	21.1	17.0
Pendleton	91,304	15,125	34.5	13.9	14.1	6.5
Perry	13,549	11,407	59.7	5.3	4.1	50.3
Pike	19,397	3,783	58.7	6.8	6.5	45.4
Powell	26,880	7,384	42.9	16.9	14.0	12.0
Pulaski	200,962	15,858	37.6	11.8	11.7	14.1
Robertson	24,757	7,804	34.1	11.9	13.9	8.3
Rockcastle	90,816	16,135	49.1	19.0	16.7	13.4
Rowan	35,111	5,330	40.9	13.6	15.6	11.7
Russell	99,006	11,719	45.9	18.7	15.7	11.5
Scott	114,772	23,892	39.3	10.9	13.2	15.2
Shelby	160,081	10,930	26.2	7.9	9.8	8.4
Simpson	109,458	20,177	18.5	3.8	6.1	8.6
Spencer	58,547	6,281	28.0	7.4	8.3	12.2
Taylor	89,598	14,382	25.9	9.3	9.2	7.4
Todd	187,183	20,690	24.1	3.9	7.7	12.5
Trigg	100,908	5,856	18.7	3.7	11.5	3.4
Trimble	51,335	11,842	34.9	12.9	13.0	9.0
Union	219,151	12,156	10.4	1.0	4.1	5.3
Warren	234,924	24,828	28.2	7.4	7.8	13.1
Washington	148,205	29,622	45.6	11.5	18.1	16.0
Wayne	114,107	24,798	35.4	11.4	14.5	9.4
Webster	184,753	16,270	19.2	3.7	7.6	7.9
Whitley	62,190	10,902	46.3	12.1	18.2	16.0
Wolfe	37,779	13,250	40.0	16.9	19.0	4.2
Woodford	103,650	17,027	33.8	4.0	19.7	10.0
SALES ($1,000)						
State Total						
Kentucky	8,005,745	479	18.8	3.2	5.0	10.6

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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						
Adair	103,297	11	29.7	1.4	6.2	22.1
Allen	76,484	6	29.5	10.3	6.1	13.1
Anderson	13,399	2	38.7	13.9	16.6	8.2
Ballard	99,341	13	5.0	1.2	0.7	3.0
Barren	181,330	13	21.2	3.8	5.1	12.4
Bath	25,205	3	43.2	13.7	16.2	13.3
Bell	1,280	1	32.8	4.5	11.0	17.4
Boone	14,792	2	21.3	6.2	11.9	3.2
Bourbon	250,819	13	28.5	8.4	10.1	9.9
Boyd	1,068	(Z)	26.9	9.9	14.2	2.9
Boyle	54,742	4	37.6	7.2	9.8	20.6
Bracken	12,402	2	34.3	10.4	18.4	5.5
Breathitt	1,391	1	22.6	8.1	6.5	8.0
Breckinridge	117,942	17	10.0	2.0	2.7	5.4
Bullitt	9,360	3	30.9	8.3	16.0	6.7
Butler	63,943	5	15.7	5.1	4.7	5.9
Caldwell	67,377	3	6.0	1.4	2.6	1.9
Calloway	132,115	21	9.0	0.8	0.7	7.5
Campbell	5,781	1	14.1	9.2	4.0	1.0
Carlisle	129,193	23	17.8	1.2	2.7	13.8
Carroll	4,595	(Z)	6.9	1.8	2.9	2.1
Carter	7,897	2	32.2	10.2	16.2	5.8
Casey	48,447	5	29.4	7.3	10.4	11.7
Christian	263,771	15	18.2	3.6	6.3	8.2
Clark	45,348	6	34.8	10.5	15.5	8.8
Clay	3,680	1	17.5	5.3	9.0	3.3
Clinton	48,309	12	23.2	4.8	2.2	16.1
Crittenden	64,544	4	13.0	5.6	3.5	3.9
Cumberland	10,704	2	24.2	6.6	9.0	8.6
Daviess	335,931	36	15.4	0.7	1.5	13.2
Edmonson	59,378	10	18.5	2.7	6.5	9.3
Elliott	3,035	(Z)	18.0	7.5	6.6	4.0
Estill	3,647	2	14.8	4.5	6.8	3.5
Fayette	333,101	13	33.1	4.8	23.7	4.6
Fleming	48,914	17	36.4	13.7	13.5	9.1
Floyd	327	(Z)	13.9	4.1	7.8	1.9
Franklin	20,746	3	38.9	18.5	12.8	7.6
Fulton	87,814	13	21.7	3.4	11.5	6.8
Gallatin	11,322	3	30.2	12.8	11.1	6.3
Garrard	36,926	13	48.0	13.9	12.4	21.7
Grant	9,627	1	36.2	15.6	13.4	7.1
Graves	473,755	98	6.7	0.8	0.8	5.1
Grayson	82,704	13	32.4	7.2	11.8	13.3
Green	78,774	8	27.6	8.0	6.6	13.1
Greenup	6,604	1	22.3	4.4	6.3	11.6
Hancock	26,221	12	46.1	30.0	6.9	9.2
Hardin	81,020	20	22.7	5.7	9.3	7.8
Harlan	577	(Z)	20.6	6.5	3.2	11.0
Harrison	35,290	5	33.3	11.7	12.8	8.8
Hart	51,639	6	25.2	5.4	6.8	13.0
Henderson	149,142	19	9.0	0.6	2.8	5.6
Henry	30,793	2	27.8	6.8	13.0	8.0
Hickman	198,760	28	3.0	0.6	0.2	2.3
Hopkins	211,057	14	23.4	10.4	4.9	8.2
Jackson	6,953	1	31.7	10.0	14.3	7.5
Jefferson	4,380	2	13.9	3.8	8.5	1.6
Jessamine	77,622	7	6.7	1.3	1.5	3.9
Johnson	1,803	1	38.7	6.2	10.2	22.3
Kenton	4,069	1	18.7	8.9	7.6	2.2
Knott	517	(Z)	10.7	2.8	5.7	2.2
Knox	2,684	1	32.1	10.2	11.7	10.2
Larue	60,512	6	23.0	3.0	6.3	13.6
Laurel	16,989	2	30.1	6.3	20.2	3.6
Lawrence	1,902	1	41.6	14.6	16.4	10.6
Lee	948	(Z)	22.5	6.6	13.0	2.9
Leslie	199	(Z)	19.6	9.9	2.1	7.6
Letcher	650	(Z)	27.4	4.7	6.0	16.7
Lewis	16,282	3	23.9	5.8	14.2	3.9
Lincoln	83,497	7	36.8	7.3	26.7	2.9
Livingston	46,594	2	31.3	9.6	6.0	15.8
Logan	225,081	14	8.3	1.3	3.0	3.9
Lyon	11,316	4	13.3	7.4	3.7	2.3
McCracken	38,219	8	13.7	2.4	3.9	7.4
McCreary	1,453	(Z)	30.9	12.6	9.8	8.5
McLean	281,993	39	5.1	0.7	1.4	3.0
Madison	63,620	9	36.4	9.6	8.6	18.2
Magoffin	1,919	1	33.1	11.4	11.7	9.9
Marion	81,642	7	31.7	7.7	10.1	13.9
Marshall	82,886	19	2.7	0.1	(Z)	2.5
Martin	168	(Z)	23.5	4.0	1.7	17.8
Mason	40,963	5	25.1	5.1	14.3	5.7
Meade	55,447	6	14.7	2.8	4.1	7.8
Menifee	2,618	2	14.0	4.9	6.0	3.1
Mercer	57,723	5	36.5	5.1	26.1	5.3
Metcalfe	50,277	13	24.1	2.0	9.5	12.6
Monroe	108,704	9	14.5	4.1	3.2	7.3
Montgomery	15,698	2	25.5	10.1	8.6	6.9

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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.						
Morgan	5,681	1	34.3	12.0	14.6	7.7
Muhlenberg	149,024	55	19.7	5.2	8.7	5.8
Nelson	79,478	7	17.6	6.0	6.8	4.8
Nicholas	31,981	10	35.5	16.1	14.2	5.2
Ohio	172,009	14	7.2	3.2	1.8	2.2
Oldham	35,220	10	44.3	10.7	9.6	24.0
Owen	34,463	6	23.2	6.7	13.0	3.6
Owsley	1,455	(Z)	30.7	8.5	9.2	13.0
Pendleton	10,355	2	22.8	8.8	10.0	4.0
Perry	730	1	15.8	2.8	9.8	3.2
Pike	1,378	(Z)	23.7	3.5	2.0	18.2
Powell	5,196	2	38.6	7.6	19.6	11.4
Pulaski	80,512	6	18.5	5.1	6.9	6.5
Robertson	2,948	1	27.2	10.5	9.2	7.5
Rockcastle	10,455	2	28.8	7.2	10.3	11.3
Rowan	5,793	1	29.1	9.3	7.4	12.3
Russell	54,891	6	36.0	12.3	10.6	13.1
Scott	78,744	9	28.9	5.4	13.7	9.9
Shelby	91,748	8	15.7	3.2	6.6	5.9
Simpson	111,041	14	13.3	3.1	3.0	7.2
Spencer	14,722	2	11.0	3.3	3.8	3.9
Taylor	58,698	9	15.4	3.0	4.9	7.4
Todd	224,451	11	16.9	6.3	6.6	4.1
Trigg	73,415	4	14.8	5.2	6.2	3.4
Trimble	9,060	1	12.9	3.1	6.1	3.7
Union	191,611	9	9.0	0.6	4.2	4.3
Warren	160,664	14	16.2	3.7	4.3	8.2
Washington	47,090	4	39.2	14.8	15.1	9.3
Wayne	78,931	6	10.9	6.6	2.5	1.7
Webster	258,956	18	8.4	2.1	0.4	5.9
Whitley	6,143	1	32.0	13.6	11.3	7.1
Wolfe	2,092	1	25.8	9.6	14.9	1.4
Woodford	235,829	12	32.5	7.4	18.8	6.4

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		
	Total	Individually reported [1]	Other [2]
State Total			
Kentucky	739	739	-
Counties			
Adair	19	19	-
Allen	12	12	-
Anderson	14	14	-
Ballard	1	1	-
Barren	1	1	-
Bath	12	12	-
Bell	2	2	-
Boone	4	4	-
Bourbon	4	4	-
Boyle	13	13	-
Bracken	3	3	-
Breckinridge	41	41	-
Bullitt	7	7	-
Butler	12	12	-
Caldwell	6	6	-
Calloway	31	31	-
Campbell	1	1	-
Carlisle	1	1	-
Carroll	1	1	-
Carter	9	9	-
Casey	9	9	-
Christian	4	4	-
Clark	6	6	-
Clinton	2	2	-
Crittenden	2	2	-
Cumberland	6	6	-
Edmonson	23	23	-
Estill	10	10	-
Fayette	4	4	-
Fleming	27	27	-
Franklin	13	13	-
Garrard	10	10	-
Grant	15	15	-
Graves	7	7	-
Grayson	6	6	-
Green	2	2	-
Greenup	1	1	-
Hardin	11	11	-
Harlan	2	2	-
Harrison	20	20	-
Hart	14	14	-
Henderson	1	1	-
Henry	10	10	-
Hopkins	1	1	-
Jackson	3	3	-
Jefferson	4	4	-
Jessamine	3	3	-
Counties - Con.			
Johnson	4	4	-
Knox	6	6	-
Larue	7	7	-
Laurel	12	12	-
Lawrence	5	5	-
Lee	2	2	-
Leslie	6	6	-
Lincoln	9	9	-
Livingston	3	3	-
Logan	11	11	-
Lyon	1	1	-
McCreary	2	2	-
McLean	2	2	-
Madison	15	15	-
Magoffin	6	6	-
Marion	3	3	-
Marshall	2	2	-
Martin	2	2	-
Mason	10	10	-
Meade	10	10	-
Mercer	17	17	-
Metcalfe	1	1	-
Monroe	6	6	-
Montgomery	8	8	-
Morgan	16	16	-
Muhlenberg	6	6	-
Nelson	12	12	-
Nicholas	4	4	-
Ohio	7	7	-
Oldham	7	7	-
Owen	6	6	-
Pendleton	3	3	-
Powell	7	7	-
Pulaski	20	20	-
Robertson	3	3	-
Rockcastle	14	14	-
Rowan	5	5	-
Russell	1	1	-
Shelby	15	15	-
Simpson	5	5	-
Spencer	5	5	-
Taylor	3	3	-
Todd	2	2	-
Trigg	2	2	-
Trimble	3	3	-
Warren	6	6	-
Washington	3	3	-
Wayne	10	10	-
Webster	3	3	-
Whitley	8	8	-
Woodford	3	3	-

[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.