

1 Supporting Statement

2012 CENSUS OF AGRICULTURE

OMB No. 0535-0226

B. COLLECTION OF INFORMATION EMPLOYING STATISTICAL METHODS

- 1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection method to be used. Data on the number of entities (e.g., establishments, State and local government units, households, or persons) in the universe covered by the collection and in the corresponding sample are to be provided for the universe as a whole and for each stratum in the proposed sample. Indicate expected response rates for the collection as a whole. If the collection, was conducted previously, include the actual response rate achieved during the last collection.**

The target population is any establishment from which \$1,000 or more of agricultural products was produced and sold or would normally be sold during the reference year (2012). This is the same definition which has been used since the 1974 Census of Agriculture when it was conducted by the Census Bureau. Despite attempts by the Census Bureau, to raise the \$1,000 threshold, it has remained. NASS maintains a list sampling frame containing names and addresses of operations qualifying as farms under this definition. The list frame is continuously updated and supports the agricultural estimates program as well as the census. Processes are in place to identify and eliminate duplication and deadwood (e.g., deceased, retired, and out-of-business operators) and evaluate outside list sources to find new and missing farm operators.

An intensive list building effort to improve list coverage will occur before the census is conducted in 2013. Current estimates are that approximately 1.7 million records will be added to the NASS list frame during 2008 – 2012 as potential farm records. The National Agricultural Classification Survey (NACS) (OMB No. 0535-0140) will be used to screen approximately 1.2 million of these records to determine if they have any agricultural production and should be included on the census mail list (CML). The NASS Field Offices will also conduct screening of some records. Approximately 300,000 of these records will become available in the summer of 2012, too late to be screened. These will be included on the CML without being screened. This list development effort is expected to produce a list of 3.0 million names and addresses of farm operators and potential farm operators for the census.

Each address on the census mail list will receive a census report form. Respondents will be able to navigate this form quickly, and easily report data for their operation(s). Regional versions of each report form will be used to further reduce respondent burden; the list of regions and regional form codes are

included in the attachments. The following sample questionnaires are included as attachments:

- 2012 National Agricultural Classification Survey,
- 2012 Census of Agriculture (US version, Region 1),
- 2012 Census of Agriculture – American Indian,
- 2012 Census of Agriculture – Hawaii Version,
- 2012 Census of Agriculture – Puerto Rico Version,
- 2012 Census of Agriculture – Guam,
- 2012 Census of Agriculture – Commonwealth of the Northern Mariana Islands,
- 2012 Census of Agriculture – US, Virgin Islands,
- 2013 Census of Agriculture – American Samoa.

While response to the census of agriculture is mandatory; activities are planned to encourage response and produce a high response rate. The U.S. response rate for the 2007 Census of Agriculture was 85.2 percent. NASS is developing public relations and data collection strategies to achieve a response goal in 2012 of at least 85 percent. These include a pre-census publicity campaign that targets two somewhat different messages. The first message is to make the agricultural community aware of the results of the 2007 Ag Census, how that data has been important to the agricultural industry, and to solicit additional names for new farms or those that were missed in the last census. This first phase takes advantage of the usual annual trade show involvement at national or state-level farmer and commodity conferences. The second pre-census campaign encompasses August 2012 to December 2012 with the message that the Census of Agriculture is coming soon and to complete it by the February 4, 2013 due date either on the Internet or by mailing the paper form. During the data collection period of January through around April 2013, the message focuses on “fill it out and send it back.” All of these communication efforts stress how and why accurate statistics are important to all sections of U.S. agriculture. Various modes used to disseminate these messages include: News releases, stakeholder testimonials, agricultural organizations carrying the message to their membership, Extension & other government agencies delivering our message, direct mailing information as part of other normally scheduled annual Fall surveys, paid and free advertising in periodicals, radio and on the Internet. Paid communications will of course be limited by funding and will have to be targeted to certain groups such as minority & women operators as well as states or regions that have shown typically low response in previous censuses. A toll-free hotline will be available to assist respondents with questions and problems related to the census; this hotline will be prepared to accept data if the respondent wishes to complete the report form over the phone. Management information reports will be used to monitor response rates by county and low response counties will be targeted for follow-up.

2. **Describe the procedures for the collection of information including:**
- **statistical methodology for stratification and sample selection,**
 - **estimation procedure,**
 - **degree of accuracy needed for the purpose described in the justification,**
 - **unusual problems requiring specialized sampling procedures**

Information will be collected by mail, electronic data reporting (EDR), telephone, and personal enumeration. The EDR will be conducted via the Internet and will be available in all 50 States. Historically, the primary mode for data collection has been by mail-out/mail-back. Telephone enumeration will be used for follow-up work to reach the targeted overall response rate. Telephone follow-up will also be used to achieve targeted response rates for all counties. Personal enumeration will be used for selected operations where respondents have requested assistance to minimize burden. Personal enumeration will also be used to contact the larger or more complex operations that did not respond to earlier contacts by mail.

Contacts in all 50 States and Puerto Rico will be provided with a toll-free telephone number and Internet address which can be used to indicate non-farm status, provide data, or get questions answered. Data collection for American Samoa (AS), Commonwealth of the Northern Mariana Islands (CNMI), Guam, and the U.S. Virgin Islands (USVI) will be by direct field enumeration of farm operators

Point estimates will be calculated by summing all in-scope census responses after weight adjustments have been made to account for non-response and coverage. All in-scope census responses will be complete questionnaires. Non-integer weights will be calculated for each record to properly account for non-response and coverage and will be converted to integer values before tabulation. Integer weights ensure totals for all sub-domains and cross-tabulations will balance in the final data products.

Item non-response will be handled in one of four ways. First, deterministic imputation will be employed whenever the missing value can be derived from other cells on the form. Second, previously reported data from either a recent NASS survey or the previous census, will be imputed, when appropriate. Third, a nearest neighbor donor (farm of similar type, size, and location) will be found and a value or relationship from the donor will be used for the recipient. When all of these automated options fail, the problem will be referred to a statistician for resolution.

An algorithm will be used to define weighting cells for non-response adjustments using statistical data mining techniques. A predetermined set of control data variables will be used to systematically divide the entire list into mutually

exclusive weighting cells for which response rates will be calculated. When two related cell response rates have a statistically significant difference, they become a permanent division and the next variable is checked. When no more divisions are possible, due to exhausting the variable list or too small cell populations, or no more significant differences are found, the resulting "buckets" serve as the non-response weighting cells. Current response information is used to model in-scope rates and estimate how many non-respondents are actually farms. The weights of the non-exempted respondents are scaled to account for the estimated number of in-scope non-respondents.

Mail list under-coverage will be measured using a NASS survey independent of the census. NASS conducts an area-based (complete frame) survey every June (OMB No. 0535-0213) which already provides much of the data needed for coverage evaluation. In June 2012, the regular area survey plus a supplemental sample will identify farming operations not included on the mail list. The sample of land segments for the annual June survey is allocated to obtain precise measures of crop and livestock production, so the supplemental segments are allocated to better target demographic items such as race, ethnicity, and gender. Farms and ranches identified in the area frame as not on the mail list (NML) will be mailed the census questionnaire. Responses from these farms and ranches will provide measures of farm missed by type and size. Additionally, NASS will evaluate over counts and undercounts for key items using information obtained from sources other than the NASS list frame. For example, cotton production from cotton gins, milk receipts from dairy plants, or slaughter totals from slaughter plants. Small area estimation techniques will be employed to make weight adjustments to the responding in-scope records, by state, to account for net coverage error.

Prior to the beginning of data collection, input will be solicited from field office staff with the specific objective to identify a small portion of records that need to be specially handled (tagged records). These are typically large or complex operations. Tagged records are limited to approximately 1% of the Census Mail List. Another portion of records intended to be collected by personal interview include operations that are sampled for the Agricultural Resource Management Survey (ARMS) Phase III. NASS and the Economic Research Service (ERS) have collaborated on an 'integrated' report form that incorporates all the necessary census data items into the ARMS III form. Effectively, the ARMS III data collection will run concurrent with most of the census period. Upon conclusion of the ARMS III data collection, the necessary data can be captured from the ARMS III receipts and used for the Census of Agriculture.

During 2009, 2010, and 2011 NASS Field Office staff have worked with minority population groups to obtain lists of potential agriculture producers to receive an ag screener. This effort will continue into 2012. During the collection period if an operation is discovered within one of the under-represented populations, NASS

will include their report in the aggregate data.

In an effort to reach typically under represented populations, NASS intends to hold a Community Based Organization (CBO) workshop in 2012. This workshop is designed to enable CBO groups to help “spread the word” about the need to be counted by the Census of Agriculture. Much of this effort is subject to proper funding.

Applying knowledge gained from the 2007 Census of Agriculture, NASS intends to again partner with CBO groups to recruit and train members of the under-covered populations as enumerators. NASS will also ask the CBO groups to invite NASS staff to events leading up to and throughout data collection. These staff will provide assistance in filling out Ag Census report forms.

NASS intends to continue efforts to obtain census data from individual American Indian farmers and ranchers on reservations in the 2012 census. Historically, the Bureau of the Census and NASS treated most American Indian reservations in the U.S. as single farming operations for the census. A single census report form was obtained for the entire reservation, including data for any tribally operated farm or ranch and all individual farms and ranches. In 2007, NASS expanded its efforts to reach individual American Indian farms and ranches, on and off reservations. For the majority, individual operators were represented in the census data in all States. In a few instances operator counts were obtained from reservations which preferred to report aggregated reservation data. Similar procedures will be used in 2012.

In 2012, NASS will use a customized form for the American Indian operations in the Southwestern United States. This report form is designed to collect more data by mail and thus reduce the need for expensive field collection. If this effort proves effective it may be expanded in the 2017 Census of Agriculture.

- 3. Describe methods to maximize response rates and to deal with issues of non-response. The accuracy and reliability of information collected must be shown to be adequate for intended uses. For collections based on sampling a special justification must be provided for any collection that will not yield "reliable" data that can be generalized to the universe studied.**

Relative standard errors for U.S. fully adjusted estimates of number of farms for major demographic items in 2007 ranged from 0.22 to 4.76. In 2012, NASS will survey the same number of segments for census coverage. Thus, the relative standard errors are expected to be slightly lower.

Extremely large and specialty farms will be pre-selected (must cases). If necessary, special data collection steps will be taken to ensure a response

because the record cannot be accurately adjusted for, in non-response and coverage adjustments. These unique cases will be ineligible for all non-response and coverage adjustments. These 'must case' records will be identified prior to data collection and special efforts may be made at the local level to encourage response up to six months before the initial mail out. This would include a personal visit by a NASS Field Office representative. During the data collection phase, these must cases are tracked and will be among the first to receive phone follow-up. Personal enumeration will be the final attempt at collecting the data and comes only after other less expensive modes are exhausted.

In order to ensure sufficient coverage in every county, NASS will utilize a CATI instrument specifically designed to target records in counties that have not achieved 80% coverage. While an overall response rate that exceeds 80% is our target, NASS places a high priority on obtaining comprehensive and uniform coverage of all farms.

4. Describe any tests of procedures or methods to be undertaken.

NASS conducted a content test (OMB No. 0535-0243) of all census forms. This test was a nationwide sample of 30,000 names. Alternative versions of the questionnaire were tested for question phrasing, form design, form flow, respondent comprehension, and regional differences. Emphasis was placed on new items and items found to be problematic in the past. Content Test results were used to determine the final questionnaire content and design.

Following the 2007 Census of Agriculture, NASS created a team led by our survey methodologists and research methodologists with the primary responsibility of redesigning the questionnaire to increase the quality of data collected. This group would also be tasked with properly wording questions for new content items. Initially, the team performed an in-depth analysis of the performance of each item in the 2007 questionnaire. Resulting from that analysis, the team targeted specific items that were determined to be excessively imputed or edited.

During 2009-2011, cognitive interviews were conducted to provide feedback to questionnaire changes. Producer feedback was useful in providing modest adjustments in wording to traditionally problematic questions and new content items.

Upon conclusion of the content test, results were analyzed to see how the redesigned form performed. A few minor adjustments were made to provide clarity(e.g.. Include and exclude statements).

Processing systems put into place in 2007 will be enhanced based on 2007 results and analysis. Content test data have been retained to test processing

systems. All processing systems will be tested with prepared test decks and previous census data. New and modified methodologies are being evaluated using previous census data. During the processing of content test results, scheduled for late 2011, NASS will be able to adjust edit programming to better capture potential misreporting and identify items determined to still be problematic. Also, NASS will be able to refine its imputation programming to better represent missing data.

5. Provide the name and telephone number of individuals consulted on statistical aspects of the design and the name agency unit, contractor(s), grantee(s), or others who will actually collect and/or analyze the information for the agency.

Several NASS units contribute to developing census methodology, each containing staff members with census experience from the 1997, 2002 and 2007 censuses. Contributing senior staff and unit leaders are:

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