

BEE and HONEY SURVEY

OMB No. 0535-0153

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 in tabular form for the universe as a whole and for each of the strata in the proposed sample. Indicate expected response rates for the collection as a whole. If the collection has been conducted previously, include the actual response rate achieved during the last collection.**

Historically, the target population for the Bee and Honey Survey has been all U.S. commercial apiaries with five or more colonies. Beginning with the 2015 survey, NASS has expanded the sample to include operations with less than 5 colonies. This is in response to a Presidential Initiative relating to the wellbeing of the honey bee industry.

NASS control data are updated throughout the year from sources that include the Office of the State Apiarist, Industry and Trade Groups, Government Agencies, and NASS's Annual Bee and Honey Survey and Agricultural Census. These lists are typically complete and current. The Bee and Honey Sampling Frame is considered to have good coverage of the target population.

Bee and Honey operations were stratified within each state according to the strata definitions presented below. Within each stratum, a simple random sample is selected. Strata corresponding to large operations or cross-state operations are sampled with probability one. (These are the strata with the designation 'EO' in the table which follows.) For all other strata, the stratum level sample sizes are calculated to meet national and state targeted coefficient of variation (CV). These CV targets are consistent with general NASS standards for the precision of national and state level estimates. In addition, the strata level sample sizes are chosen to achieve specified probabilities of $\alpha = 0.05$ for Type I error, and $\beta = 0.20$ for Type II error. The sample size calculation uses historic information on the number of Bee and Honey operations, total colonies, and the standard deviation of number of colonies in each stratum. The stratum level sample size formula is:

$$n_{jh} = \frac{1}{\left(1 + \frac{Z_{1-\beta}}{Z_{1-\frac{\alpha}{2}}}\right)^2 \left(\frac{((CV_j)T_{jh})^2}{100(N_{jh}S_{jh}^2)}\right) + \frac{1}{N_{jh}}}$$

Where:

n_{jh} is the sample size for stratum h in state j,

N_{jh} is the population for stratum h in state j,

S_{jh} is the standard deviation for stratum h in state j,

α : Type I error probability.

β : Type II error probability.

CV_j is the target coefficient of variation for state j (percent), and

T_{jh} is the total for stratum h in state j.

Bee & Honey Strata Number and Definitions		
9	New Add	EO
9		
9	Multi-state Operation	EO
8		
8	Operations with >= 2% of total honey producing colonies within a state with more than 5 honey producing colonies.	EO
9		
8	Operations with <2% and >= 1% of total honey producing colonies within a state with more than 5 honey producing colonies	
8		
8	Operations with <1% of total honey producing colonies within a state with more than 5 honey producing colonies.	
7		
7	Operations with >= 1% of total colonies within a state with more than 5 total colonies but less than 5 honey producing colonies.	EO
9		
7	Operations with <1% of total colonies within a state with more than 5 total colonies but less than 5 honey producing colonies.	
8		
7	Operations with 1 to 4 Total Colonies	
0		

EO = Extreme Operator, or the largest producers.

In 2014, the marked sample was 11,784 operators of which 1,095 were out of scope, out of business, no items of interest or were held in the office and not attempted. Out of the remaining 10,689 operations that were in scope and attempted, 8,242 responded with positive honey data.

2014 Response Rates				
Survey	Sample Size	Waves of Data Collection	Total Responses	Response Rate
Bee and Honey	10,689	1	8,242	77.1%

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**

The Bee and Honey Survey is conducted in all States, therefore all eligible operations on NASS's List Frame are included in the Bee and Honey sampling frame. In 2014, 22 States had sample sizes greater than 300 operations.

Questionnaires are mailed in December and data collection is completed by mid-February to reflect the December 15 honey stocks. Beekeepers not responding by mail or internet will be attempted by telephone or in person. The telephone enumerators conduct interviews using computer assisted telephone interviews. In-person contacts are used if requested by the operator or if there are reporting difficulties such as with cross-State producers. Headquarters acts as the clearing house for multi-State data between the different field offices.

All Regional Field Offices (RFOs) execute a survey summary prepared in Headquarters. Review of summary results and preparation of estimates by RFOs are completed by early March and sent to Headquarters. Survey estimates are based on direct expansions and ratio estimates from matched reports to the previous year's survey. The census of agriculture provides a benchmark every five years to evaluate survey performance.

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.**

NASS has well-established, long-term relationships with the larger operations and respondents are familiar with the instrument and purposes of the survey so there is a good response. Some operators make special arrangements with NASS RFOs to report by phone or personal interview. The completed responses for the 2014 survey were 38.2 percent by mail, 8.9 percent by internet, 50.3 percent by

telephone, and 2.6 percent by personal interview. Telephone follow-up is conducted for the non-respondents. NASS employs a staff of experienced phone enumerators in 5 calling centers. All Bee and Honey calling was done by two of these calling centers. Calling is performed by a core set of enumerators who are trained to administer this survey by phone and are monitored by supervisors for quality control. Non-respondents are attempted up to 10 times.

After data collection closes, non-respondents in strata labeled as “EO” preselects are manually imputed and the remaining strata are reweighted. In 2014, the preselects accounted for 80 percent of the total honey production. In general, state level CVs range from 0.1 to 10.0 with the larger producing states under 3.0. As a general rule, NASS designs surveys to produce CVs under 5 for the large states and under 10 for the smaller producing states. Ten states with disclosure issues are collapsed and published as “Other States”. With non-response follow-ups, the resulting estimates provide reliable and useable measures of this industry.

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

No test of procedures is proposed for this survey.

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

Sample sizes for each state are determined by the agency’s Sampling, Editing, and Imputation Methodology Branch, headed by Branch Chief Mark Apodaca, (202)720-5805.

Data collection is carried out by NASS Regional Field Offices. The Eastern Field Operations Director is Jay Johnson, (202) 720-3638. The Western Field Operations Director is Kevin Barnes, (202) 720-8220.

The NASS commodity statistician in Headquarters for the bee and honey survey is Joshua O’Rear, (202)690-3676, in the Poultry and Specialty Commodities Section of the Livestock Branch, Statistics Division. The Livestock Branch Chief is Dan Kerestes (202)720-3570. Commodity statisticians are responsible for national and regional summaries, analysis, presentations to the Agricultural Statistics Board for final estimates, publication, and the Estimation Manual.

The NASS Survey Administrative Statistician in Headquarters for the Bee and Honey Survey is Jeff Lemmons (202) 720-8092, in the Commodity Surveys Section of the Survey Administration Branch, Census and Survey Division; Branch Chief is Gerald Tillman, (202) 720-3895. The Survey Administrator is responsible for coordination of sampling, questionnaires, data collection, training, Interviewers Manual, Survey Administration Manual, data processing, and other Field Office support.

The national summary is the responsibility of the Summary, Estimation, and Disclosure Methodology Branch in the Methodology Division. Branch Chief is Jeff Bailey, (202)720-4008.

October 2015

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