



Honey Bee Colony Methodology

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Scope and Purpose: The Quarterly Colony Loss Survey that provides the data necessary to produce the Honey Bee Colonies report is conducted in all 50 States. The target population consists of all known producers with five or more honey bee colonies. Data are collected on the beginning of quarter and end of quarter inventories and which State the colonies are located in. If honey bee colonies were present in more than one State during the quarterly period, then the colonies are included in the total for each State. The number of colonies lost, queened, received nucleus colonies or package bees, added, or sold or given away is also collected. In addition, respondents are asked to report the number of colonies affected by Colony Collapse Disorder symptoms, Varroa mites, other pests and parasites, diseases, pesticides, other stressors, and unknown stressors.

Estimates are published for 20 States, Other States (which includes thirty States with low levels of inventory), and the United States for beginning of quarter inventory and during the quarter estimates for maximum number of colonies, colonies lost, colonies added, and colonies renovated. The percent of colonies affected by various health stressors are estimated and published for the same 20 States, Other States, and the U.S. including Varroa mites, other pests and parasites, diseases, pesticides, other stressors, and unknown stressors. Finally, the number of colonies lost with Colony Collapse Disorder symptoms is published at the U.S. level only.

Survey Timeline: For the Quarterly Colony Loss Survey, data collection begins at the beginning of each quarter for the following months: January, April, July, and October using the current year as the reference period. Questionnaires are mailed around the first of the referenced month. Telephone follow-up is conducted for nonresponse records beginning approximately a week later. Enumerators at National Agricultural Statistics Service (NASS) data collection centers collect data for a period of approximately two weeks. Assigned Regional Field Offices (RFOs) have approximately two weeks from the end of data collection each quarter to complete editing and analysis, execute the summary, interpret the survey results, and submit recommendations for estimates. A National review is then completed, and National estimates are established. Estimates are released to the public in early August for the preceding six quarters as specified by the Agricultural Statistics Board (ASB) on its annual publications calendar.

Sampling: The target population for the Quarterly Colony Loss Survey is all operations with five or more honey bee colonies. It is a follow-on survey to the [Bee and Honey Inquiry](#) as the sample is drawn from those that respond to that survey with 5 or more honey bee colonies. All records from the higher strata (i.e., operations with large number of colonies and/or operating in multiple states) are included in the Quarterly Colony Loss sample while a simple random sample is drawn from records from the lower strata (i.e., operations with fewer colonies). Strata boundaries vary by State, depending on the distribution and size of operations.

Data Collection: All federal data collections require approval by the Office of Management and Budget (OMB). NASS must document the public need for the data, apply sound statistical practice, prove the data does not already exist elsewhere, and ensure the public is not excessively burdened. The questionnaire must display an active OMB number that gives NASS the authority to conduct the survey, a statement of the purpose of the survey and the use of the data being collected, a response burden statement that gives an estimate of the time required to complete the form, a confidentiality statement that the respondent's information will only be used for statistical purposes in combination with other producers, and a statement saying that response to the survey is voluntary and not required by law.

All Regional Field Offices (RFO) use the same standardized questionnaire for data collection. For consistency across modes, the paper version is considered the master questionnaire and the Computer Assisted Self Interview (CASI), mobile

Computer Assisted Telephone Interview (mCATI), and Computer Assisted Telephone Interview (CATI) instruments are built to model the paper questionnaire. The questionnaire content and format are evaluated annually through a specification process where requests for changes are evaluated and approved or disapproved. Input may vary from question wording or formatting to a program change involving the deletion or modification of current questions or addition of new ones. If there are significant changes to either the content or format proposed, a NASS survey methodologist will pre-test the changes for usability. Prior to the start of data collection, all modes of instruments are reviewed, and CASI, mCATI, and CATI instruments are thoroughly tested.

Sampled operations receive a pre-survey letter explaining the purpose and importance of the survey and that they are being contacted for survey purposes only. Attached to the letter is a complete copy of the paper questionnaire and a pass code, which can be used to complete the survey securely online. RFOs are responsible for their data collection strategy, but RFOs must include provisions for respondents to report securely online. If response is not received by mail or online, respondents are contacted by CATI. Limited personal interviewing may be conducted, generally for large operations or those with special handling arrangements.

Survey Edit: As survey data are collected and captured, they are edited for consistency and reasonableness using automated systems. Relationships between data items on the current survey are verified and in certain situations those items may be compared to data from earlier surveys to make sure certain relationships are logical. The edit will determine the status of each record to be either “dirty” or “clean”. Dirty records must be updated and reedited or certified by an analyst to be clean. If updates are needed, they are reedited interactively. Only clean records are eligible for analysis and summary.

Analysis Tools: Edited data are processed through an interactive analysis tool which displays data for all reports by item. The tool provides scatterplots, tables, charts, and special tabulations that allow the analyst to compare an individual record to similar records. Outliers and unusual data relationships become evident and assigned RFO staff review them to determine if they are correct. The tool allows comparison to an operation’s previously reported data to detect large changes in the operation. Data found to be in error are corrected, while data found to be correct are retained.

Nonsampling Errors: Nonsampling errors are present in every survey process. These errors include reporting, recording, and editing errors. Steps are taken to minimize these errors, such as comprehensive interviewer training, validation, and verification of processing systems, application of detailed computer edits, and evaluation of the data via the analysis tools.

Estimators: Each operation in the sample has an initial weight based on the final nonresponse adjusted weights from the Bee and Honey Inquiry and any additional sampling. Response to the survey is voluntary. Some producers refuse to participate in the survey. Others cannot be located during the data collection period, and some submit incomplete reports. In the Quarterly Colony Loss Survey, nonresponse is accounted for in one of two ways. For operations in strata made up of large and often unique operations, some data items must be manually imputed. Nonrespondents in all other strata are accounted for by adjusting the weights of the complete responses to account for responses that are not complete. The adjustment occurs at the stratum level and is performed for each individual item because sometimes only a partial report is obtained.

Point estimates, called direct expansions, are calculated by multiplying the reported value by the combined nonresponse weight and sampling weight and summing to a stratum total. A variance estimate is also computed at the stratum level. Totals and variances are additive across strata to form a State estimate, and State estimates are additive to a National estimate.

Ratio estimates are also computed for many items. Ratio estimates use the reweighted estimator described above for the numerator and denominator direct expansions. Both the numerator and denominator must be complete for that record to be included in the ratio estimate.

Estimation: When all samples are accounted for, all responses fully edited, and the analysis material is reviewed, each assigned RFO executes a summary to evaluate and analyze the data under its responsibility. When all assigned RFOs have run summaries, Headquarters receives all State files and pools the data. Since identical surveys are conducted in each State, the samples can be pooled, and National survey results computed. The summary results provide multiple indications

and their standard errors. It also provides information to assess the performance of the current survey and evaluate the quality of survey indications, such as response rates and strata level expansions. RFOs are responsible for performing a detailed review of their survey results. Any irregularities revealed by the summary must be investigated and, if necessary, resolved. Assigned RFOs interpret the survey results and submit a recommended estimate to Headquarters for beginning of quarter inventory and during the quarter estimates for maximum number of colonies, colonies lost, colonies added, colonies renovated, the percent of colonies affected by Varroa mites, other pests and parasites, diseases, pesticides, other stressors and unknown stressors and the number of colonies lost with Colony Collapse Disorder symptoms. The survey indications used in State summaries are produced by the National summary. All these estimates are set at the State level and the U.S. estimates are a sum of the States.

The Quarterly Colony Loss survey and estimation periods are conducted quarterly. The estimates are published in an annual report which includes the four quarters of the previous year and the first two quarters of the current year. Prior to the annual report, the previous six quarters are subject to revision. Revisions are the result of late reports or corrected data. Every five years, NASS conducts the Census of Agriculture, which is an exhaustive data collection effort for all known farm operations across the United States. Estimates are thoroughly reviewed for possible revision after data from the Census of Agriculture are available. The information gathered from the Census of Agriculture is used to establish benchmark levels by which the survey estimates can be compared, and bias determined.

Quality Metrics for Honey Bee Colonies

Purpose and Definitions: Under the guidance of the Statistical Policy Office of the Office of Management and Budget (OMB), the United States Department of Agriculture's National Agricultural Statistics Service (NASS) provides data users with quality metrics for its published data series. The metrics table below describe the performance data for all surveys contributing to the publication. The accuracy of data products may be evaluated through sampling and non-sampling error. The CVs measure the error due to sampling as well as some nonsampling error. Nonsampling error is also evaluated by examining response rates and the weighted item response rates.

Sample size is the number of observations selected from the population to represent a characteristic of the population. Operations that did not have the item of interest or were out of business at the time of data collection have been excluded.

Response rate is the proportion of the above sample that responds to the survey.

Weighted item response rate is a ratio of reported survey data expanded by the original sampling weight compared to final nonresponse adjusted summary totals.

Coefficient of variation provides a measure of the size for the standard error relative to the point estimate and is used to measure the precision of the results of a survey estimator.

Quarterly Colony Loss Survey Sample Size and Response Rates: To assist in evaluating the performance of the estimates in the Honey Bee Colonies report, the sample size and response rates are displayed. Response rates overall for 2024 and 2025 are displayed.

Quality Metrics for Quarterly Colony Loss Survey - States and United States: January 1, 2024 and January 1, 2025

State	First of quarter inventory							
	Sample size		Response rate		Weighted item response rate		Coefficient of variation	
	2024	2025	2024	2025	2024	2025	2024	2025
	(number)	(number)	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)
Alabama	80	(NA)	57.5	(NA)	57.5	(NA)	5.0	(NA)
Arizona	22	(NA)	59.1	(NA)	42.1	(NA)	3.6	(NA)
Arkansas	34	(NA)	44.1	(NA)	49.3	(NA)	42.3	(NA)
California	252	244	37.7	40.6	29.8	27.1	3.2	2.4
Colorado	40	(NA)	50.0	(NA)	17.5	(NA)	3.5	(NA)
Connecticut	24	(NA)	75.0	(NA)	69.4	(NA)	3.8	(NA)
Florida	237	238	47.7	44.5	33.1	27.8	1.2	1.6
Georgia	124	152	48.4	50.0	63.0	45.6	3.0	4.0
Idaho	52	51	59.6	62.7	56.7	67.2	1.5	0.1
Illinois	96	(NA)	52.1	(NA)	41.1	(NA)	7.5	(NA)
Indiana	66	(NA)	42.4	(NA)	56.4	(NA)	8.1	(NA)
Iowa	47	65	57.4	55.4	18.4	14.7	40.1	3.6
Kansas	28	(NA)	67.9	(NA)	74.0	(NA)	12.9	(NA)
Kentucky	70	(NA)	74.3	(NA)	63.0	(NA)	7.4	(NA)
Louisiana	43	49	41.9	87.8	34.4	81.0	5.5	11.6
Maine	14	(NA)	71.4	(NA)	23.5	(NA)	1.2	(NA)
Maryland	33	(NA)	57.6	(NA)	52.8	(NA)	15.2	(NA)
Massachusetts	28	(NA)	60.7	(NA)	57.9	(NA)	1.8	(NA)
Michigan	110	102	45.5	58.8	40.8	39.5	2.1	2.7
Minnesota	65	93	60.0	38.7	47.3	24.0	15.9	1.3
Mississippi	41	35	46.3	77.1	36.3	77.6	8.8	14.2
Missouri	59	(NA)	61.0	(NA)	47.5	(NA)	23.8	(NA)
Montana	37	34	51.4	35.3	48.9	35.9	-	1.7
Nebraska	35	(NA)	54.3	(NA)	42.5	(NA)	4.9	(NA)
New Jersey	40	(NA)	50.0	(NA)	7.7	(NA)	2.4	(NA)
New Mexico	20	(NA)	45.0	(NA)	25.4	(NA)	4.2	(NA)
New York	101	92	60.4	62.0	43.9	38.1	4.3	5.0
North Carolina	126	130	62.7	73.1	60.8	65.7	7.6	5.5
North Dakota	76	89	42.1	39.3	53.5	48.3	2.3	-
Ohio	103	125	57.3	68.0	63.9	61.4	8.5	9.5
Oklahoma	18	(NA)	55.6	(NA)	52.9	(NA)	14.4	(NA)
Oregon	69	65	44.9	46.2	53.4	50.0	3.9	2.0
Pennsylvania	125	130	54.4	70.0	40.9	31.4	3.1	5.6
South Carolina	46	(NA)	58.7	(NA)	55.9	(NA)	7.4	(NA)
South Dakota	57	54	49.1	42.6	69.8	14.6	0.2	2.3
Tennessee	82	(NA)	62.2	(NA)	58.7	(NA)	9.1	(NA)
Texas	122	162	57.4	61.7	64.4	47.1	13.2	1.5
Utah	42	(NA)	57.1	(NA)	72.3	(NA)	2.4	(NA)
Vermont	22	(NA)	50.0	(NA)	13.5	(NA)	0.8	(NA)
Virginia	88	(NA)	63.6	(NA)	73.2	(NA)	9.6	(NA)
Washington	67	72	56.7	54.2	59.3	56.3	0.8	3.5
West Virginia	53	(NA)	81.1	(NA)	91.7	(NA)	11.8	(NA)
Wisconsin	76	114	60.5	48.2	40.6	36.0	11.1	1.1
Wyoming	23	(NA)	65.2	(NA)	63.8	(NA)	0.6	(NA)
Other States ¹	58	1,143	44.8	59.7	54.6	51.5	6.0	1.4
United States	3,051	3,239	53.7	56.2	46.0	39.1	1.6	0.7

- Represents zero.

(NA) Not available.

¹ Includes data for States not published in this table.

Quality Metrics for Quarterly Colony Loss Survey - States and United States: April 1, 2024 and April 1, 2025

State	First of quarter inventory							
	Sample size		Response rate		Weighted item response rate		Coefficient of variation	
	2024	2025	2024	2025	2024	2025	2024	2025
	(number)	(number)	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)
Alabama	77	(NA)	57.1	(NA)	61.8	(NA)	5.5	(NA)
Arizona	22	(NA)	54.5	(NA)	35.8	(NA)	3.3	(NA)
Arkansas	27	(NA)	59.3	(NA)	30.2	(NA)	5.2	(NA)
California	249	238	40.2	43.3	33.1	34.4	2.3	3.4
Colorado	37	(NA)	54.1	(NA)	18.4	(NA)	3.1	(NA)
Connecticut	23	(NA)	60.9	(NA)	57.7	(NA)	4.4	(NA)
Florida	232	229	46.1	48.0	21.5	32.5	1.3	2.5
Georgia	117	147	47.9	50.3	30.2	34.8	1.9	4.0
Idaho	49	47	61.2	59.6	57.0	55.6	1.7	0.1
Illinois	95	(NA)	55.8	(NA)	48.7	(NA)	8.5	(NA)
Indiana	61	(NA)	42.6	(NA)	52.9	(NA)	5.9	(NA)
Iowa	45	63	68.9	65.1	24.8	25.6	44.0	1.3
Kansas	27	(NA)	77.8	(NA)	77.4	(NA)	10.1	(NA)
Kentucky	66	(NA)	71.2	(NA)	45.6	(NA)	7.8	(NA)
Louisiana	42	46	64.3	73.9	50.2	65.8	3.7	9.5
Maine	12	(NA)	66.7	(NA)	80.4	(NA)	1.3	(NA)
Maryland	32	(NA)	53.1	(NA)	39.8	(NA)	5.3	(NA)
Massachusetts	27	(NA)	63.0	(NA)	83.9	(NA)	1.3	(NA)
Michigan	101	99	59.4	60.6	30.7	41.7	2.5	3.2
Minnesota	60	85	53.3	52.9	55.1	27.6	16.1	1.2
Mississippi	36	35	72.2	68.6	73.1	63.3	5.9	15.2
Missouri	58	(NA)	63.8	(NA)	46.8	(NA)	19.6	(NA)
Montana	36	33	55.6	57.6	58.4	52.8	-	1.9
Nebraska	35	(NA)	48.6	(NA)	35.1	(NA)	5.4	(NA)
New Jersey	40	(NA)	52.5	(NA)	13.7	(NA)	3.7	(NA)
New Mexico	20	(NA)	50.0	(NA)	70.4	(NA)	4.0	(NA)
New York	97	90	52.6	66.7	42.9	61.6	4.6	7.6
North Carolina	124	128	69.4	83.6	71.1	73.1	7.3	5.1
North Dakota	79	90	44.3	42.2	51.4	45.2	2.3	-
Ohio	96	122	63.5	75.4	44.8	49.2	15.0	7.8
Oklahoma	18	(NA)	66.7	(NA)	71.5	(NA)	28.2	(NA)
Oregon	66	61	50.0	52.5	28.5	63.4	6.0	3.7
Pennsylvania	122	128	45.1	68.0	32.9	50.0	22.7	6.0
South Carolina	44	(NA)	68.2	(NA)	47.7	(NA)	3.6	(NA)
South Dakota	57	50	47.4	44.0	40.3	11.6	0.3	2.0
Tennessee	81	(NA)	49.4	(NA)	64.2	(NA)	10.0	(NA)
Texas	118	157	59.3	66.9	39.5	70.4	12.8	2.0
Utah	39	(NA)	61.5	(NA)	68.2	(NA)	2.5	(NA)
Vermont	22	(NA)	45.5	(NA)	6.5	(NA)	0.8	(NA)
Virginia	87	(NA)	57.5	(NA)	63.5	(NA)	9.9	(NA)
Washington	62	71	56.5	52.1	57.9	42.8	1.5	2.9
West Virginia	51	(NA)	74.5	(NA)	65.0	(NA)	12.1	(NA)
Wisconsin	74	107	68.9	58.9	31.4	33.6	11.5	0.8
Wyoming	23	(NA)	78.3	(NA)	78.5	(NA)	0.1	(NA)
Other States ¹	55	1,103	63.6	63.7	50.6	52.5	6.9	3.7
United States	2,941	3,129	55.4	60.2	40.0	41.5	1.5	0.9

- Represents zero.

(NA) Not available.

¹ Includes data for States not published in this table.

Quality Metrics for Quarterly Colony Loss Survey - States and United States: July 1, 2024 and July 1, 2025

State	First of quarter inventory							
	Sample size		Response rate		Weighted item response rate		Coefficient of variation	
	2024	2025	2024	2025	2024	2025	2024	2025
	(number)	(number)	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)
California	250	237	32.4	33.3	18.0	24.6	2.3	1.0
Florida	241	214	47.3	40.2	26.3	31.3	2.7	3.1
Georgia	157	148	41.4	43.9	24.1	29.1	3.2	5.5
Idaho	55	50	56.4	48.0	54.0	37.5	0.5	2.6
Iowa	65	59	66.2	64.4	28.7	26.1	3.1	1.3
Louisiana	51	60	49.0	55.0	17.1	66.0	14.1	4.4
Michigan	105	107	59.0	57.9	33.3	39.1	3.7	2.9
Minnesota	93	92	40.9	46.7	19.2	36.2	1.3	1.5
Mississippi	35	46	57.1	60.9	36.9	35.7	27.0	11.0
Montana	34	39	47.1	35.9	53.0	23.2	1.7	2.1
New York	96	113	56.3	53.1	44.9	42.8	4.5	4.4
North Carolina	138	133	73.9	78.2	54.6	84.7	5.6	4.7
North Dakota	87	95	33.3	25.3	37.0	35.4	-	0.5
Ohio	128	100	60.9	58.0	42.1	42.4	11.4	7.5
Oregon	67	69	26.9	44.9	30.4	34.0	2.1	1.8
Pennsylvania	135	132	71.1	58.3	45.5	32.3	6.1	2.9
South Dakota	57	67	50.9	49.3	50.3	15.8	2.8	12.0
Texas	167	153	52.1	41.8	39.6	24.8	2.0	6.4
Washington	74	77	54.1	50.6	45.4	35.1	3.1	1.5
Wisconsin	117	110	59.0	50.0	31.9	36.8	0.7	0.7
Other States ¹	1,175	1,149	58.6	53.6	43.6	45.2	2.8	5.6
United States	3,327	3,250	53.7	50.2	33.1	32.9	0.8	1.2

- Represents zero.

¹ Includes data for States not published in this table.

Quality Metrics for Quarterly Colony Loss Survey - States and United States: October 1, 2024 and October 1, 2025

State	First of quarter inventory							
	Sample size		Response rate		Weighted item response rate		Coefficient of variation	
	2024	2025	2024	2025	2024	2025	2024	2025
	(number)	(number)	(percent)	(percent)	(percent)	(percent)	(percent)	(percent)
California	249	230	36.5	36.1	36.3	24.4	2.8	1.3
Florida	239	212	46.9	20.8	26.0	17.9	2.3	2.4
Georgia	155	147	32.9	41.5	42.8	37.4	4.4	2.3
Idaho	54	50	55.6	34.0	54.7	29.1	0.6	2.1
Iowa	65	57	66.2	54.4	38.8	24.8	3.3	1.6
Louisiana	50	58	72.0	44.8	65.0	13.5	16.3	1.7
Michigan	104	105	80.8	56.2	58.3	59.9	2.8	4.0
Minnesota	93	92	45.2	41.3	28.9	31.4	1.3	1.3
Mississippi	35	46	71.4	39.1	68.8	47.1	15.8	15.1
Montana	33	38	45.5	28.9	53.3	16.1	1.7	2.1
New York	96	113	53.1	52.2	35.9	30.1	5.6	4.0
North Carolina	135	129	64.4	68.2	41.7	74.2	7.3	5.3
North Dakota	86	93	43.0	34.4	40.0	39.9	-	0.4
Ohio	126	99	62.7	69.7	40.6	61.2	6.9	6.5
Oregon	66	66	45.5	45.5	55.5	54.4	2.7	1.5
Pennsylvania	133	131	62.4	48.1	43.2	33.3	5.7	3.4
South Dakota	55	65	61.8	38.5	73.5	17.2	2.3	11.7
Texas	165	150	61.2	61.3	59.2	37.9	1.7	5.2
Washington	73	77	45.2	59.7	33.0	53.9	3.9	1.6
Wisconsin	115	110	61.7	47.3	39.7	41.2	0.7	2.8
Other States ¹	1,151	1,187	62.3	46.2	52.6	35.5	3.2	1.5
United States	3,278	3,255	56.5	45.8	45.0	32.6	0.8	0.9

- Represents zero.

¹ Includes data for States not published in this table.

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