



Local Food Marketing Practices Survey Methodology and Quality Measures

Released April 2022, by the National Agricultural Statistics Service (NASS), Agricultural Statistics Board, United States Department of Agriculture (USDA).

Scope and Purpose: The 2020 Local Food Marketing Practices Survey (LFMPS) was designed to collect data related to the marketing of foods directly from farm producers to consumers, institutions, retailers who sell directly to consumers, and intermediate markets who sell locally or regionally branded products. The primary purpose of the 2020 Local Food Marketing Practices Survey was to produce important statistics on the number of operations that sell using direct marketing channels, the value of foods sales, and their marketing practices. The survey's scope excluded farms such as grazing associations, American Indian reservations, and government-operated units (i.e, hospitals, prisons, research farms, university and other school farms, and church farms). The survey was administered in all 50 States.

Survey Timeline: Data collection began in December 2020 and concluded in January 2022 with further analysis and review continuing until the results were published on April 28, 2022.

Sampling: The LFMPS Sampling Frame comprises all active operations, in all States, on NASS's List Frame. The LFMPS Sampling Frame was stratified by region, state, direct sales type group and direct sales value or commodity group.

Direct Sales Type Group Stratification:

Group 1. Operations that had a direct market sales value.

Group 2. Operations that had a direct market sales indicator.

Group 3. Operations that did not have a direct market sales value or indicator.

Group 1 was stratified using direct market sales value as a measure of size. Groups 2 and 3 were stratified by commodity groups.

Sample Size: The sample size was 64,540.

Data Collection: The NASS National Operations Division (NOD) in St. Louis, MO, mailed respondents pre-survey postcards in December 2020. The report form, along with a cover letter and instructions for web reporting, were mailed in January 2021. Mail, web, and telephone interview modes of data collection were utilized for the survey. Respondents who did not return their survey by the end of February 2021 were sent a follow-up mailing at that time. In April 2021, NASS began telephone enumeration for remaining non-respondents. Data collection concluded in May 2021.

In December 2021, a supplemental sample was created and surveyed. The original sample came from farmers and ranchers who had previously reported local food marketing activity on the prior surveys and census. Considering the extreme dynamics of the COVID-19 pandemic and reliance on previous indicators of local food marketing based on the 2017 Census of Agriculture, contacting additional producers to get the complete picture of local food marketing practices was required. Respondents in this second sample received the same questionnaire and materials as respondents in the first sample, which included the cover letter and instructions for web reporting. The respondents in the supplemental sample utilized the same web reporting instrument as the first sample.

Respondents in the second sample were mailed a questionnaire in late November 2021, and non-respondents received a follow-up mailing in late December 2021. This data collection effort did not include phone follow-up or field enumeration. Data collection, for the second sample ended in late January 2022.

For consistency across data collection modes, the paper report form version was considered the master report form, while the web and telephone interviewing instruments were built to model the paper instrument. The USDA Agricultural

Marketing Service, as well as representatives from Local and Regional Food Systems Working Group played a significant role in developing the report form. Report form content and format were evaluated by NASS through a specifications process, where requests for changes were evaluated and approved or disapproved. A NASS survey methodologist also conducted cognitive interviews before the report form was finalized. All data collection instruments were tested prior to the 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, show the design applies sound statistical practice, ensure the data do not already exist elsewhere, and show that the public is not excessively burdened. The 2020 Local Food Marketing Practices Survey report form displayed an active OMB number that gave NASS the authority to conduct the survey, as well as a statement of the purpose of the survey and the use of the data being collected. The report form included a response burden statement that gave an estimate of the time required to complete the form as well as a confidentiality statement explaining that the respondent's information was protected from disclosure.

In addition to asking marketing practice questions, all survey instruments collected information to verify that the sampled operation qualified for the target population. Any operation name or address changes were reviewed as well.

Survey Edit: As survey data were collected and captured, they were edited for consistency and reasonableness using automated systems. The edit logic ensured administrative coding followed the methodological rules associated with the survey design. Relationships between data items on the survey were verified. The edit determined the status of each record as either "dirty" or "clean." Dirty records were either updated or certified by an analyst as accurate. Corrected data were then reedited interactively.

Analysis Tool: Data were analyzed with an interactive tool. This tool displayed the data from all report forms and the data could be focused and sorted by individual report form items. The tool provided various scatter plots, tables, charts, and special tabulations that allowed analysts to compare an individual record to other similar records within the appropriate State and region. These tools identified outliers and unusual data relationships, which prompted NASS Regional Field Office and Headquarters staff to review and determine if they were correct. Suspect data found to be in error were corrected, while data found to be correct were kept.

Nonsampling Errors: These survey process errors include reporting, recording, editing, and imputation errors. Steps were taken to minimize the impact of these errors, such as with report form testing, comprehensive interviewer training, validation and verification of processing systems, detailed computer edits, and the analysis tool.

Weighting Methodology: The survey utilized nonresponse weighting and coverage weights.

Nonresponse Weights: When conducting a sampled survey, not all the operations selected in the sample will provide the requested information. Bias is introduced if these records are not taken into consideration for the final results. To compensate for this situation, a nonresponse weight is calculated. A nonresponse weight adjustment will increase the weights of the responding operations inversely proportioned to those records that didn't respond.

To calculate the nonresponse weight adjustment, records were grouped by sampling region and strata. The number of operations that responded to the survey were used to calculate the adjustment for each group. The methodology assumes that the nonresponse is random.

Nonresponse Adjustment = Total number sampled / Total number responded

Coverage Weight: While NASS makes every effort to keep a complete and up-to-date list of all the farms in the United States, there are always farms coming in and out of business. Due to the fluid nature of the agriculture industry, it is difficult to create a frame that is complete. The majority of 2020 LFMPS respondents were also respondents on the 2017 Census of Agriculture. Operations that were respondents to both the 2017 Census of Agriculture and the 2020 LFMPS survey were assigned the 2017 Census of Agriculture coverage adjustment. The coverage adjustment for 2020 LFMPS respondents that did not match to the 2017 Census of Agriculture were calculated using regression modeling and information from similar operations. Details on the methodology used

to calculate the coverage weight in the Census of Agriculture 2017 can be found in Appendix A – Census of Agriculture Methodology:

https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_1_US/usappxa.pdf

Final Weights and Calibration: The final weights for the in-scope farms on the NASS list frame were calculated as:

$$\text{Final Weight} = \text{Sample Weight} \times \text{Nonresponse Adjustment} \times \text{Coverage Adjustment}$$

However, once the final weights were calculated several of the final weights were largely inflated, because of some of the sample probabilities were small in some sampling strata. To reduce the effects of these records on the estimators, calibration was used to redistribute these weights. Target numbers were established for categories of interest. The targets used for calibration were:

- Total number of local foods operations by marketing channel
- Total gross value of sales for local food products

An algorithm was used to redistribute the final weight while providing a maximum weight that records could obtain. The algorithm adjusted the weights such that the sum of the calibrated weights met the target values within some error. The maximum possible weight that records were allowed to take was 150. ‘Must’ records (records with a sample probability of 1) had a maximum weight of 2. Once the records were calibrated, the values of interest were estimated by summing the weights for records belonging to the category of interest.

Quick Stats Labeling and Data Definitions:

| Quick Stats Label | Alternative Plain English Label | Definition |
|--|--|---|
| DIRECTLY MARKETED | Direct Marketing Practices | A sale made or an operation making a sale using one of the marketing channels that has only one or two stages between the site of production and the end consumer is considered <u>directly marketed</u> . Though these practices can be part of a local food marketing strategy, not all the sales captured in this report occurred near the point of production nor were all sales made in close proximity to production included in this report. Only sales made through one of the direct marketing channels and operations making those sales were included. |
| HUMAN CONSUMPTION | Food | The product sold must be considered food in its current state to qualify for the label <u>human consumption</u> . This project focused only on operations which use direct marketing practices to sell food. |
| COMMODITY TOTALS: HUMAN CONSUMPTION | All Food Sales made using Direct Marketing Practices; Value of Sales | <u>Value of sales</u> include the edible agricultural sales an operation produced and sold through the appropriate direct marketing channel. Sales were reported before the deduction of expenses, marketing fees, or taxes. Sales also include the estimate of the value of any crop or livestock bartered directly to consumers for services or other goods. |
| COMMODITY TOTALS: (EXCL. PROCESSED OR VALUE-ADDED) | Raw Food Commodity Sales | <u>Commodity sales</u> include the combined sales of raw crop and livestock products. For this project, those products were exclusively food for human consumption in the raw state. |
| | | <u>Crop sales</u> include the value of the crops sold as food for human consumption in 2020 regardless of the year crops were harvested. Some examples include: apples, wild rice, potatoes, tomatoes, etc. |

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|--|---|--|
| | | <u>Livestock and poultry sales</u> include the value of livestock, poultry, and their products produced and sold by an operation for human consumption. These sales only include food items sold in their unprocessed state, such as farmed clams, oysters, soft-shelled crabs, and bulk sales of honey or milk. Sales of meat, eggs in small cartons, and other processed products are reported as value added sales, not raw |
| COMMODITY TOTALS: PROCESSED OR VALUE-ADDED | Value Added Sales | <u>Value of sales of processed or value added food</u> include the total value of sales for value added or processed products. Examples of value added products are processed meat, bottled milk or cheese, wine and jam. |
| CONSUMER | Direct to Consumer Marketing Practices | <u>Direct to consumer sales</u> include the value of agricultural products sold directly to individuals from farmers markets, on-farm stores or stands, roadside stands or stores, community supported agriculture (CSA), online marketplace, and other direct – to – consumer markets (pick your own, mobile market, etc.). Non edible products are excluded from the scope of this release, as indicated by the inclusion of 'human consumption' on all data items |
| RETAIL | Direct to Retail Marketing Practices | <u>Direct sales to a retail market</u> include sales to supermarkets or supercenters, restaurants or caterers, other direct to retail markets. Non edible products are excluded from the scope of this release, as indicated by the inclusion of 'human consumption' on all data items. |
| INSTITUTIONS and INTERMEDIATE | Direct to Institutions and Intermediate Marketing Practices | <u>Direct sales to an institution</u> include K-12 schools, colleges and universities, hospitals, and other direct to institution markets. It excludes non edible products. |
| | | <u>An intermediate market</u> is a business or organization in the middle of the supply chain marketing locally and/or regionally branded products. These markets include distributors, food hubs, brokers, auction houses, wholesale and terminal markets, and food processors. An operation would have to intend to use these intermediates to market their product as locally or regional grown and in return the intermediate would have to brand that product as locally or regionally grown to be considered as selling to an intermediate market. Intermediate markets that labels the product with the place of production with no intent for that place name to imply that the product was produced near where it will be sold were excluded. |
| FARMERS MARKET | Farmers Market | |
| ONSITE | On Farm Stand or Store | |
| OFFSITE | Off Farm Stand or Store | |
| COMMUNITY SUPPORTED AG | CSA | |

| | | |
|---|--|--|
| ONLINE MARKETPLACE | Online Marketplace | |
| OTHER MARKETS | Other Direct to Consumer Marketing Practices | |
| DIRECTLY MARKETED – OPERATIONS WITH SALES | Farm Count | |
| MEASURED IN \$ | Value of Sales | |

Purpose and Definitions: Under the guidance of the Statistical Policy Office of the Office of Management and Budget (OMB), the U.S. 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 the survey contributing to the publication. The accuracy of data products may be evaluated through sampling and non-sampling error. The measurement of error due to sampling in the current period is evaluated by the coefficient of variation (CV) for each estimated item. The CV for all items is available in the Quick Stats database alongside the published numbers. Non-sampling error is evaluated by response rates and the percent of the estimate from respondents.

Sample size is the number of operations selected from the population (sampling frame).

Response rate is the proportion of the sample that completed the survey. This calculation follows Guideline 3.2.2 of the Office of Management and Budget Standards and Guidelines for Statistical Surveys (Sept 2006).

Coefficient of variation is a measure of the relative amount of error associated with a sample estimate. Specifically, it is the standard error of a point estimate divided by that estimate, generally multiplied times 100 so that it can be reported as a percentage. 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. Every estimate for the Local Food Marketing Practices Survey project has a corresponding CV published with it. NASS has identified the following index to use when evaluating coefficient of variation for the Local Food Marketing Practices Survey.

- **Low Reliability Estimate.** Coefficient of Variation (CV) 30 percent or higher. Caution should be used when using this estimate in any form. Please consult NASS for more information or guidance.
- **Medium Reliability Estimate.** Coefficient of Variation (CV) between 15 percent and 29.9 percent.
- **High Reliability Estimate.** Coefficient of Variation (CV) less than 15 percent.

Local Food Marketing Practices Survey Sample Size and Response Rates – Region, State, and United States ¹: 2020

| Region and State | Sample Size ² | Response Rate |
|----------------------|--------------------------|---------------|
| Region 1 | 8,521 | 60.9 |
| California | 4,041 | 65.0 |
| Colorado | 1,311 | 57.0 |
| Hawaii | 886 | 51.5 |
| Utah | 937 | 74.8 |
| Region 2 | 11,294 | 51.1 |
| Connecticut | 1,392 | 45.7 |
| Maine | 920 | 52.2 |
| Maryland | 916 | 48.1 |
| Massachusetts | 823 | 49.9 |
| New Hampshire | 940 | 46.9 |
| New Jersey | 1,667 | 58.4 |
| New York | 943 | 50.8 |
| Pennsylvania | 1,685 | 55.8 |
| Vermont | 1,016 | 60.5 |
| Region 3 | 4,365 | 56.0 |
| Oregon | 1,249 | 56.3 |
| Washington | 1,125 | 47.7 |
| Region 4 | 11,606 | 57.8 |
| Iowa | 3,052 | 62.0 |
| Minnesota | 3,121 | 59.3 |
| Missouri | 3,264 | 62.2 |
| Region 5 | 8,241 | 58.8 |
| Texas | 5,266 | 62.4 |
| Region 6 | 10,660 | 54.1 |
| Florida | 911 | 53.7 |
| Kentucky | 1,958 | 54.0 |
| North Carolina | 1,555 | 57.1 |
| South Carolina | 1,313 | 44.2 |
| Tennessee | 1,422 | 51.6 |
| Virginia | 1,721 | 63.0 |
| Region 7 | 9,853 | 61.6 |
| Illinois | 1,187 | 55.2 |
| Indiana | 1,122 | 50.6 |
| Michigan | 2,047 | 69.6 |
| Ohio | 1,974 | 58.3 |
| Wisconsin | 3,523 | 64.4 |
| United States | 64,540 | 56.9 |

1/ Unpublished States are included in the regional and national totals. State sample sizes will not sum to regional or national totals. Unpublished States by region: **Region 1** - Arizona, Nevada, New Mexico; **Region 2** - Delaware, Rhode Island; **Region 3** - Alaska, Idaho, Montana, Wyoming; **Region 4** - Kansas, Nebraska, North Dakota, South Dakota; **Region 5** - Alabama, Arkansas, Louisiana, Mississippi, Oklahoma; **Region 6** - Georgia, West Virginia; **Region 7** - no unpublished States

2/ Samples were drawn independently and overlap in operations is included in both the sample size and the response rate calculations.

Access to NASS Reports

For your convenience, you may access NASS reports and products the following ways:

- All reports are available electronically, at no cost, on the NASS web site: <http://www.nass.usda.gov>
- Both national and State specific reports are available via a free e-mail subscription. To set-up this free subscription, visit <http://www.nass.usda.gov> and in the “Follow NASS” box under “Receive reports by Email,” click on “National” or “State” to select the reports you would like to receive.

To learn more about the NASS surveys and reports, visit www.nass.usda.gov/AgCensus, where you can access new and historic data in a variety of formats, including the Quick Stats database. To learn about other NASS reports and activities, visit www.nass.usda.gov. For additional information, contact NASS Customer Service through email (nass@nass.usda.gov) or phone (800-727-9540).

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Information Contacts

| Process | Unit | Telephone | Email |
|-----------------------------------|---|----------------|-------------------------|
| Data | Environmental Economics and Demographics Branch | (202) 720-6146 | HQ_SD_EEDB-EDS@usda.gov |
| Data Collection | Census Planning Branch | (202) 690-8747 | HQ_CSD_CPB@usda.gov |
| Media Contact and Webmaster | Public Affairs Office | (202) 690-8122 | HQDAPPMISO@usda.gov |