Supporting Statement – Part B

MILK AND MILK PRODUCTS

OMB No. 0535-0020

B. COLLECTION OF INFORMATION EMPLOYING STATISTICAL METHODS

Additional information on data collection, sampling, statistical methodology and data reliability can be found in the back of the data publications for each of the surveys included in this docket. Sample publications have been attached to the ROCIS submission system.

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.

The 2012 Census of Agriculture identified 64,098 farms with one or more milk cows on it. The Census also reported 9,252,272 milk cows on these farms. The quarterly Milk Production Survey targets both the commercial dairies that are licensed to produce and sell milk and the smaller unlicensed operations. In 2013 there were approximately 46,960 licensed dairy operations in the United States. Farms with only a few cows for home use are not required to be licensed. In some parts of the country there are farm operators that are not covered by a Federal Milk Order and therefore may not be licensed either. The list source in many States is maintained through the surveys and use of criteria (list frame development) letters. Supplemental list sources include the Brucellosis Ring Test List, Dairy Herd Improvement Association test records, and Agricultural Marketing Association regulated milk sources. Farm level data is maintained on the NASS List Frame and are used to create samples for all NASS surveys.

The Milk Production Population is stratified by State and operation size (number of milk cows on the operation). The quarterly milk production surveys consist of samples selected from each State's list of dairy producers.

The following are examples for CA, KY, and PA.

Milk Production Survey Strata		
State	Strata	Number of Milk Cows per Operation
California	1	1 - 29
	3	30 - 99
	4	100 - 199
	5	200 - 499
	6	500 - 999
	7	1,000 - 1,999
	8	2,000 - 3,999
	9	4,000 +

Kentucky	1	1 - 29
	2	30 - 49
	3	50 - 99
	4	100 - 199
	5	200 - 499
	8	500 +

Pennsylvania	1	1 - 29
	2	30 - 49
	3	50 - 99
	4	100 - 199
	5	200 - 499
	6	500 - 999
	8	1,000 +

The Milk Production Survey is sampled using a stratified simple random sampling scheme.

The stratum level target sample size formula is:

$$n_h = \frac{N_h s_h^2}{\frac{\left(f_h T_h\right)^2}{N_h} + s_h^2}$$

Where:
h is the stratum,
n_h is the target sample size for stratum h,
N_h is the stratum population,
s_h is the stratum standard deviation,
f_h is the stratum coefficient of variation, and
T_h is the stratum total number of milk cows.

The target sample sizes resulting from the formula are then adjusted upward by dividing the target sample sizes by historical response rates to calculate actual sample sizes.

The universe for manufactured dairy products is composed of producers, distributors, handlers, and processors of manufactured dairy products. There are about 1,200 plants currently in the universe. Approximately 100 of the 1,200 plants are required to respond to the monthly surveys (Public Law No. 106-532). The list is maintained using regulatory lists, license lists, trade association memberships, and information obtained during field travel. All plants in the universe are contacted at least once during the year. Those plants that report all of their manufactured products monthly are not required to report again on the annual survey. These surveys are followed closely by the industry and data users.

Milk and Milk Products Response and Coverage Rates for 2014

Survey	Sample Size	Freq.	Total Contacts	Total Responses	Response Rate	Coverag
Voluntary Surveys						
Quarterly Milk Production [1/]						Total Milk Cows
Jan. 2014	10,661	1	10,661	6,832	64.1%	71.5%
Apr. 2014	10,015	1	10,015	6,661	66.5%	69.6%
July 2014	9,633	1	9,633	6,305	65.5%	73.2%
Oct. 2014	9,479	1	9,479	6,178	65.2%	69.5%
						71.0%
Voluntary Surveys						
Manufactured Dairy Products [2/]						Total P Manuf
Monthly	601	12	7,212	4708	65.3%	92.
Annual	377	1	377	250	66.3%	77.
Voluntary Subtotal [3/]	11,639		47,377	30,934	65.3%	
Frequency			3.43725			
Mandatory Surveys						
Manufactured Dairy Products [4/]						
Monthly	53	12	636	636	100.0%	10(
Mandatory Subtotal	53		636	636	100.0%	
Overall Total	11,692		48,013	31,570	65.8%	

[1/] Jan. Milk Production is the base month, the three other quarters contact only those operations that are still in business or milking as the year progresses.

[2/] Monthly plants are the plants that produce large quantities of one or more dairy products. The annual plants are smaller plants, many of which are seasonal producers. Some large plants that refuse to respond to monthly surve only be contacted with the annual survey to honor their requests.

[3/] Sum of the quarterly Milk Production Surveys (entirely voluntary) and the voluntary portion of the Manufactured Products Survey. The voluntary subtotal for sample size is the sum of the largest quarterly Milk Production samp in January) and the monthly and annual Manufactured Dairy Products samples.

[4/] Plants that produce dry whey or non-fat dry milk are required to report production data for these products under Law 106-532.

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**

Milk production: Surveys are conducted quarterly (January 1, April 1, July 1, and October 1) in all 50 States. Milk production questionnaires are mailed to the entire sample. States conduct a non-response telephone follow-up to ensure that adequate coverage is obtained for each stratum. In most states four strata are used for summarization. The three indications of milk cow numbers are:

a. The *direct expansion* is derived by multiplying the average number of milk cows per farm reported in each stratum by the estimated number of milk cow farms in each stratum. Individual strata expansions are added to a state total.

b. The *identical expansion* is obtained by matching current survey reports with reports for the previous quarter. After identical reports have been tabulated by stratum, a percent change for milk cows is calculated for each stratum. This indicated percent change is multiplied by the estimated number of milk cows on farms the previous quarter in each corresponding stratum and provides an indication of the current number of milk cows.

c. The *ratio-to-base expansion* is similar to the identical expansion in that the current reports are matched with reports from a January base period. This comparison is used to reflect the change in milk cows from the base month. Since all states conduct a large scale cattle inventory survey the first of each year (OMB No. 0535-0213) current reports are matched with the January 1 base period. The indicated change from the base in each stratum is applied to the estimated number of cows in each stratum at the beginning of the base. The sum of these stratum expansions is an indication of milk cow numbers for the current month or quarter.

Manufactured dairy products: States that have a small number of plants that produce manufactured dairy products send questionnaires out to their entire population monthly. In States with a large number of plants, the large and medium sized plants (based on production) are contacted monthly and the smaller sized operations or seasonal operations are contacted annually. The annual questionnaire collects all twelve months at one time and monthly numbers can be adjusted in the annual report if necessary.

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.

Directors of our State and Regional Field Offices along with HQ commodity statisticians attend numerous industry meetings throughout the year to promote the importance of our data along with the accuracy of the data. In meetings with data users, we explain how the data can be used to make wise operating decisions and how the data is also used by government agencies to make policy decisions that impact this industry. Respondents are encouraged to participate in all NASS surveys so that the data is as accurate as possible and so that all political decisions can be based on timely, accurate data.

Indications from the milk production survey when read on time series charts are providing reliable indications. Total milk production data collected by NASS is compared to data reported to AMS for the various milk marketing orders. Not all States are covered under the milk marketing orders, so NASS is the only complete source of total milk production data. NASS has begun conducting this survey on a quarterly basis instead of monthly basis. In the past, the 23 largest, milk producing States were contacted monthly and the smaller States were contacted either quarterly or annually. Under the current approval NASS collects data from all 50 States on a quarterly basis to reduce respondent burden and hopefully improve the overall response rates. When NASS Field Offices do phone follow-up with non-respondents they concentrate their efforts towards the larger producers. In 2014, estimates were based on a 71% coverage rate of milk cows and 71.4% coverage of total milk produced.

Monthly estimates of manufactured dairy products are based upon a 91% coverage rate.

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

There are no tests planned for these long-running surveys.

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.

Survey design and methodology are determined by the Summary, Estimation, and Disclosure Methodology Branch, Statistics Division; Branch Chief is Jeff Bailey, (202)720-4008.

Sample sizes for each State are determined by the Sampling, Editing, and Imputation Methodology Branch, Methods Division; Branch Chief is Mark Apodaca, (202)720-5805.

Data collection is carried out by NASS Regional Field Offices; Kevin Barnes is the Field Operations Director (202)720-8220.

The Livestock Branch Chief is Dan Kerestes (202)720-3570. Commodity statisticians within the Livestock Branch are responsible for coordination of sampling, questionnaires, data collection, data processing, Regional Field Office support, national and regional summaries, analysis, presenting the data to the Agricultural Statistics Board for final estimates, publication, and the Estimation Manual.

January, 2015

Revised July, 2015