1Supporting Statement

FARM AND RANCH IRRIGATION SURVEY

OMB No. 0535-0234

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.

The potential respondent universe for this survey is the number farms identified in the 2012 Census of Agriculture as having irrigated land, projected to be 272,000 operations. Exclusions will be abnormal farms (institutional, experimental, and research farms). Although Indian Reservations are considered to be abnormal, they are included in the Farm and Ranch Irrigation Survey (FRIS) sample. The total sample size for the survey will be approximately 35,000 operations, or thirteen percent of the universe. The target response rate is set at 80 percent or higher.

A stratified systematic sample design will be implemented. The sample will be large enough to provide reliable estimates for each of the 50 States as well as for each of the 20 Water Resource Areas and at the U.S. level. The 50 State list frames will be sampled separately. Each stratum will include one substratum to be sampled with certainty (probability one); it will be composed of farms meeting or exceeding a specified number of irrigated acres, which varies by stratum. A proportional allocation scheme will be used to allocate the remaining sample to the other substrata. A systematic random sample will be selected by substratum within each stratum resulting in different sampling intervals across substrata. The sample is designed to provide reliable estimates for total irrigated acres with an average coefficient of variation of 5 percent for each of the 50 States, and an average coefficient of variation less than 5 percent for each of the 20 Water Resources Areas and at the U.S. level.

Estimates for the survey will be computed by weighting the data for each respondent by an expansion factor equal to the initial sampling interval adjusted for whole farm nonresponse.

Within each geographical strata, farms will be identified as either Must or non-Must cases. We expect to have a sample of approximately 2,000 Must operations and a non-Must sample of approximately 33,000. The Must cases will be defined as operations with irrigated acres meeting or exceeding a specified maximum number which varies by State. The non-Must cases will be sampled independently, by substratum within each stratum.

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 sample is comprised of two mutually exclusive samples: general and horticulture. A stratified systematic sample design is used in each state. For the general sample, strata are based on Total Acres Irrigated. For the horticulture sample, strata are based on Total Horticultural Acres Irrigated. Must farms are the farms with the largest irrigated acres/irrigated horticultural acres in each state and are sampled with certainty. This is the highest strata for each sample. Must farms will have a sampling weight of one. Farming operations with a large number of irrigated acres will be sampled at a much higher percentage than farms with a small number of irrigated acres.

Extensive efforts will be used to maximize response to the survey, and thus reduce the extent of nonresponse adjustment to the survey. Approximately 35,000 forms will be mailed on January 6, 2014. All questionnaires will be keyed from paper at National Processing Center (NPC) in Jeffersonville, IN. The initial mailings will contain the questionnaire, a cover letter, an Industry Testimonial letter, a Fact Sheet an EDR instruction sheet and a return envelope. For non-respondents, the follow up mailing will contain another copy of the questionnaire, cover letter and a return envelope. There will be phone or face to face follow-up for those who do not respond to the mail requests.

When responses cannot be obtained from Must farms, data will be imputed using data from the 2012 census report form and information from similar farms which responded to the 2013 Farm and Ranch Irrigation Survey. To correct for nonresponse among farms in the non-Must strata, nonresponse adjustment factors will be calculated independently within each substratum and applied to the expansion factor of each respondent.

In the interest of providing better subject-matter coverage, we combined the general FRIS and horticulture questions into one questionnaire.

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.

Extensive efforts are used to maximize response and thus reduce the extent of nonresponse imputation in the census. A public information campaign will again be used for the 2013 FRIS. The objective is to make farmers aware of the survey, its importance to them and the Nation, and to encourage their response. This campaign will work through farm organizations, radio broadcasters, farm press, agribusinesses, and the State and Regional offices operated by NASS.

Overall response rate for the 2008 FRIS was 79 percent. To ensure a high response rate and to reduce the nonresponse bias in the final 2013 FRIS estimates, NASS will attempt to collect data from non-respondents by telephone and face to face interviews. Some large farm nonrespondents will be attempted by personal enumeration. The telephone and personal enumeration activities will begin in mid-February 2014, and continue for several weeks.

The sample is designed to provide reliable estimates for total irrigated acres with an average coefficient of variation of 5 percent for each of the 50 States, and an average coefficient of variation less than 5 percent for each of the 20 Water Resources Areas and at the U.S. level.

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

The overall procedure and methods to be used for the 2013 FRIS are relatively unchanged from past surveys; the only testing that will be conducted will involve horticultural operations. We are just testing to be sure that this somewhat unique industry will be able to complete the same questions as those asked of typical crop farmers.

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.

NASS is conducting the 2013 FRIS through its Census and Survey Division; the Census Planning Branch Chief is Chris Messer, (202)690-8747.

Specifications, sample design, and survey design were developed by Marisa Reuber, (202)720-3289. They were reviewed by NASS Methods Branch, Statistics Division; Branch Chief is Dave Aune, (202)720-4008.

Data collection is carried out by NASS Field Offices; Eastern Field Operation's Director is Norman Bennett, (202) 720-3638 and the Western Field Operation's Director is Kevin Barnes (202) 720-8220.

The NASS survey statistician in Headquarters for this survey is Stacy Wills, (202)690-8767 in the Census and Survey Division. She is responsible for coordination of sampling, questionnaires, data collection, data processing, and Field Office support.

The NASS commodity statistician in Headquarters is Steve Sakry, (202)720-0339 in the Crops Branch, Statistics Division. He is responsible for regional and national summaries and publication.

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