

**RESIDUE AND BIOMASS FIELD SURVEY**

OMB No. 0535-0251

**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 target population for the Residue and Biomass Field Survey is crop fields in the South Fork Watershed in Central Iowa.

The South Fork watershed of the Iowa River covers about 788 km<sup>2</sup> in central Iowa. The watershed contains Hamilton and Hardin Counties. The watershed is part of the USDA Conservation Effects Assessment Project (CEAP). The USDA-ARS National Laboratory for Agriculture and the Environment (NLAE) in Ames, IA has a long history of working with growers in the watershed to improve crop management practices and monitor soil and water quality and has extensive databases for the watershed. This survey will allow us to leverage this database and research expertise to address the effects of removing crop residues for biofuel on soil and water quality.

According to the 2012 Census of Agriculture, there are 761 farms in Hamilton County and 819 farms in Hardin County. The minimum size criteria of a crop for this study is 40 acres.

Residue and Biomass Field Survey Response Rates - Most Recent Year					
Survey	Sample Size	Freq	Total Contacts	Total Responses	Contact Rates
Screening Phase in May	101	1	101	99	98.0%
Field Measurements in May & June 1/	99	1	99	47	47.5%
Screening Phase in September (Corn Only)	47	1	47	31	66.0%
Harvest Sample Crops 1/	31	1	31	25	80.6%
Cropping Practices Survey 1/	31	1	31	25	80.6%

**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.

Crop fields are selected so that a range of soil types and areas within the watershed are covered. We know that the management practices on the flatter terrain in the headwaters of the South Fork are different than those near its confluence with the Iowa River.

The 80 crop fields HRSL expects to collect information with this study will have various measurements for crop residues. Crop residue cover will be estimated using the line-point transect method by a team of 2-3 people from HRSL who will walk to two locations within a field, stretch four 15 meter lines with 100 beads each, and count the number of beads intersecting pieces of crop residue. Residue measurements are taken at least 100 meters from the road and 100 meters from each other in a representative area of the field.

At two locations in each field, HRSL will cut, bag, and dry 6 corn plants, for a total of 12 corn plants per field. The corn grain and stover will be weighed separately. Harvest index, the ratio grain weight to total above ground plant weight, will be calculated. Harvest index data and yield maps, supplied by the producers, will be used to estimate the spatial distribution of the amount of crop residue per acre. Biomass measurements are taken from areas in the field which have an average Normalized Difference Vegetation Index (NDVI) based on the field NDVI from a satellite image taken in mid to late August. These measurements are also at least 100 meters from the road and 100 meters from each other. The 100 meters from the field edge is to avoid mixed pixels. The 100 meters from each other is to avoid overlapping sample sites. Pixel size for the remotely sensed images is typically 30 meters or less.

**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.**

Training in refusal conversion will be given to enumerators. Training workshops for other surveys include sessions devoted to role playing for refusal conversion. Enumerators will be provided information about the value and use of the data being requested.

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

Statisticians have frequent contact with corn and soybean producers when collecting data and at association meetings. Procedures and methods are discussed with respondents and data users to seek improvements.

**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.**

Specifications, sample design, and survey design were developed by Craig Daughtry of the USDA-ARS Hydrology and Remote Sensing Laboratory in Beltsville, MD (301) 504-5015. Craig Daughtry will also supervise analysis of the data collected.

Data collection is carried out by Upper Midwest Regional Field Office; Director of Western Field Operations is Kevin Barnes (202) 720-8220.

The NASS survey statistician contact is Rick Mueller of the Spatial Analysis Research Section of Research and Development Division (703)877-8000 extension 111. He is responsible for coordination of sampling, questionnaires, data collection, data processing, and Field Office support.

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