Supporting Statement – Part B

HEMP ACREAGE AND PRODUCTION SURVEY

OMB No. 0535-NEW

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.

Sampling Frame

The Hemp Sampling Frame comprises active and potential farm operations on NASS's List Frame that have a Hemp production indicator; and - for measuring NASS's List Frame incompleteness – comprises all entities identified via a Multi-Agency Collaboration Environment (MACE) web scraping process. The target population is drawn from all 50 states.

Sample Size Determination

A Mark-Recapture Sampling Design was used to derive sample sizes from the NASS and MACE sampling frames.

Let M be the NASS mark sample size.
Let C be the MACE recapture sample size, and
Define R to be the relative sample size, i.e. R=C/M.

Using the Robson and Regeir (1964) method for determining sample size, the relative size of the capture and mark sample must be specified. It is anticipated that many of the operations on the MACE sampling frame will have relatively low harvested acreage values, and hence better estimates for total harvested acreage will be achieved by taking the value of the relative sample size to be less than one.
Define B to be an upper bound for the target population size, and let

$$D=\left(Z_{1-\alpha/2}\frac{(1-e)}{e}\right)^2$$

where e is the relative margin of error for a level of confidence (1-α). Then the required sample size, M, is the positive root of:

$$R(B-D)M^2 + DB(R+1)M - DB^2 = 0$$

An R of 0.80, alpha of 0.05, relative margin of error of 0.05, and an upper bound of 20,000 for the population size were used to derive the sample size. The non-overlapping sample size (~9,000) was adjusted for response rate (0.60) and no-item-of interest rate (0.25) to ~20,000.

Background

Marijuana – Cannabis - is a plant that produces resin containing cannabinoids which produces drug like effects in the body. Two of the many cannabinoids are: cannabidiol (CBD) and tetrahydrocannabinol (THC). They are both psychoactive cannabinoids; however, unlike THC, CBD is non-intoxicating and non-euphoric. Different cannabis varieties produce different levels of CBD and THC. Hemp is a cannabis variety that produces relatively high CBD levels and relatively low THC (less than 0.3%) levels. CBD oil extracted from Hemp leaves and flowers are used for therapeutic purposes. Additionally, the fiber in Hemp stalks are used in the manufacturing of clothing, rope, bedding materials, particle boards, ceiling panels and other industrial materials; and Hemp seeds are used to produce edible items such as vitamins, flour and milk.

2014 Farm Bill

Under the 2014 Farm Bill (Agricultural Improvement Act of 2014), State Departments of Agriculture and higher education institutions – up until January 1, 2022 – can participate in a Hemp Research Pilot Program (The 2014 Farm Bill does not include Indian Tribes).

2018 Farm Bill

Under the 2018 Farm Bill (Agricultural Improvement Act of 2018), USDA is responsible for the administration of the Hemp Production Program. Under this program, States and Indian Tribes may have primary regulatory responsibilities. However, they are required to submit their domestic Hemp Production Plans - to meet monitoring and regulation compliance - to the USDA - Agricultural Marketing Service (AMS) for approval (AMS will be responsible for producers in States and Tribes that do not take primary responsibility for Hemp Production).

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**

A pressure sealed postcard with instructions on how to access the questionnaire online, will be mailed to respondents around the first of October. Respondents who do not respond by internet will be mailed a paper questionnaire in mid-October. This will be followed by a postcard reminder and a second mailing of the questionnaire. Operations that do not respond by mail or internet by early November will be attempted by phone or personal enumeration. Responses will be monitored to make sure that the respondents are representative of the stratified sample. Extra efforts will be taken to collect data from any stratum that has insufficient coverage. After data collection is complete, the data will be edited for reasonableness and completeness.

2. 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.

The survey, instructions, and publicity materials will initially be mailed out to the entire sample. Respondents will be given several options to respond by either mail or internet. Non-respondents will be attempted by phone and there will be limited field enumerations for respondents who have been coordinated with any other surveys that NASS will be conducting at that time. The COVID-19 protocols may impact the use of Field Enumeration. NASS will be using National Association of State Departments of Agriculture (NASDA) enumerators who have been working with NASS surveys for many years. Training will be provided by the NASDA supervisors and by our regional Data Collection Centers.

NASS will publish summary level data to the NASS home website. The public can access this information at:

https://www.nass.usda.gov/Publications/.

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

NASS conducted 25 cognitive interviews under the Generic Testing Docket (0535-0248) prior to the beginning of data collection. NASS will do internal testing of the edit and summary programs before any publications will be generated to ensure accuracy of data.

Periodically, NASS conducts cognitive interviews with farm or ranch operators to see if the questionnaires are being interpreted in the manner in which they are intended. In addition, NASS measures the time it takes the respondent to complete the survey as well as any questions they need to access their operations records in order to complete the survey. New questionnaires, and new questions and other significant changes in existing questionnaires, are tested prior to their implementation.

In 2021, NASS conducted two rounds of cognitive testing for a new survey that will measure hemp production in the United States. The first round of testing consisted of 17 interviews, with participants in Kentucky, Montana, California, Oregon, and Colorado. The second round of testing consisted of 8 interviews, with participants in Arizona and North Carolina.

In the first round of testing, respondents provided feedback on the initial draft questions, and provided feedback that other questions were necessary to add to the survey, in order to get the most relevant and accurate production and pricing data. Specifically, they noted difficulty in providing a price for harvested hemp that had not yet been sold. This is different from other industries because many growers are new to the industry, and the industry itself is still in its infancy, removing two major reference points that respondents would use as references for an estimate. Further, some respondents were pessimistic about their ability to sell their hemp at all, adding an additional layer of difficulty to providing an estimate price. Further, respondents that were able to provide prices noted that whether or not they paid for their own seed or plants would have a major impact on the prices that they received (the primary arrangement being that their customers gave them the seeds or plants to grow on their behalf). Lastly, several processing steps could be done by the grower or the customer, and those will also impact the price.

Questions regarding unsold hemp, how they acquired their seeds or plants, and their processing steps, were added to the survey after the first round of testing. The second round of interviews served to further refine the questions that were developed during and after the first round.

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.

Sample sizes for each state are determined by the agency's Sampling, Editing, and Imputation Methodology Branch, headed by Branch Chief Mark Apodaca, (202) 690-8141.

Data collection is carried out by NASS Field Offices; Eastern Field Operation's Director is Jody McDaniel (202) 720-3638 and the Western Field Operation's Director is Troy Joshua, (202) 720-8220.

The NASS Crops Branch Chief is Lance Honig (202)720-2127.

The NASS Survey Administration Branch, Census and Survey Division; Branch Chief is Gerald Tillman, (202) 720-3895. The Survey Administrator is responsible for coordination of sampling, questionnaires, data collection, training, Interviewers Manual, Survey Administration Manual, data processing, and other Field Office support.

The national summary is the responsibility of the Summary, Estimation and Disclosure Methodology Branch, Methodology Division; Branch Chief is Jeff Bailey (202) 690-8141.

July 2021