B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS.

1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection methods 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 had been conducted previously, include the actual response rate achieved during the last collection.

The potential respondent universe of this survey includes North Dakota Landowners in 9 different Counties. The population for this research is landowners who own at least 1,000 acres in the 9-county study area because "1,000 acres or more" is the largest size category that the Census of Agriculture uses. We used that size as an established threshold and also, so we could use the data from the Census of Agriculture to determine how many landowners were in that category when doing our sampling calculations. We will use a random sampling procedure to draw our study sample (n = 1,278 landowners) from this population frame. To create the sampling frame, we will obtain public property records from the nine counties in the study area and select only private landowners with >1,000 acres of land. We did not consider sampling proportionate to acres operated because our research questions do not involve comparing landowners with different sized operations; we are interested in only landowners with 1,000 acres or more and want to ensure that they are distributed across the study region as the common land use changes from predominately cropland in the eastern counties to predominately rangeland in the western counties. We will randomly select 142 landowners from each of the nine counties in the study. The population of potential respondents will be 1,278. Based on previous research by Sorice and colleagues in the Great Plains we expect about a 30% response rate by farmers in this survey. Our estimated number of respondents is 383 with a margin of error of +- 3%. The following table is the total number of landowners by County in the population frame that we plan to draw for the study sample.

Distribution of study population by County

County	Number of Landowners
Barnes	142
Billings	142
Burleigh	142
Cass	142
Golden	142
Kidder	142
Morton	142
Stark	142

Stutsman	142
Total	1278

Given that our response rate is expected to be less than 80%, we will conduct an analysis of nonresponse bias as described in Section 3.2 (Nonresponse Analysis and Response Rate Calculation) of the OMB Standards and Guidelines for Statistical Surveys (2006). For this more intensive data collection method we will select a probabilistic subsample of non-respondents and ask them a subset of questions from the original survey to determine if non-response is due to item specific biases.

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, and any use of periodic (less frequent than annual) data collection cycles to reduce burden.

We will us a sampling strategy to sample the same number of landowners in each county. In this case the primary sampling unit is the landowner with >1000 acres. Given a projected 30% response rate, the effective sample will be 383 landowners (1,278 in the initial sample x 0.30 proportion of expected responses). This will provide a 95% confidence level with ±5% margins of error for true population values of closed ended survey questions assuming maximum heterogeneity in response (i.e., a 50/50 split on a yes/no question) (Dillman et al., 2014). This is not ideal, but still considered acceptable in survey research (Dillman et al. 2014). This data will be collected one time, it will not be periodic.

Dillman, D. A., J. D. Smyth, and L. Melani Christian. 2014. Surveys: The Tailored Design Method. Wiley: Hoboken, NJ. pp. 509.

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.

Our sampling strategy ensures that sampling is random and comprised of landowners from each county in the study area. Based on our sampling strategy data will be generalizable to landowners with 1000+ acres in the 9 Counties sampled.

A customer focus group consisting of landowners and extension personnel will be used to review the survey and establish the content validity. The most significant factor contributing to the response rate is length of the survey and the salience of the questions. The survey was limited to 45 questions. Most questions are close-ended with response options customized to the specific population for this study. The questions that are not

close-ended are short response questions that ask for recall of information considered to be easily accessible to landowners (e.g., number of acres owned, primary occupation). The survey was formatted for clarity and designed to improve the applicability of each question to the range of potential respondents (e.g., skip logic when appropriate to avoid respondent fatigue). The survey includes an introductory message explaining the purpose of the survey to secure the cooperation of respondents. Non-response will be reduced by adding a cover letter and reminder cards. Non-response bias will be addressed by mailing a brief 1 to 2-page non-response survey using selected questions from original questionnaire to a random sample of 10% of non-respondents and comparing their responses with the other respondents. If the respondents and non-respondents are not statistically different, we can generalize results for the target population.

4. Describe any tests of procedures or methods to be undertaken. Testing is encouraged as an effective means of refining collections of information to minimize burden and improve utility. Tests must be approved if they call for answers to identical questions from 10 or more respondents. A proposed test or set of test may be submitted for approval separately or in combination with the main collection of information.

We will conduct a pilot study with a group of 9 landowners to establish the reliability of the survey instrument. Based on the pilot testing data we will make needed changes to establish the reliability.

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), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.

Virginia Tech professor Dr. Michael Sorice from the Department of Forest Resources and Environmental Conservation is responsible for collecting data and designing and conducting statistical analysis of the data. Research associate, Kiandra Rajala, will also provide assistance and leadership for this work.

Their contact information:
Dr. Michael Sorice, 310A Cheatham Hall, 310 West Campus Dr. Blacksburg, VA 24061. Tel: 540-231-8303

Kiandra Rajala, 305 Cheatham Hall, 310 West Campus Dr. Blacksburg, VA 24061. Tel: 540-231-5483