

Use of Significance Editing for Agricultural Surveys

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The National Agricultural Statistics Service (NASS) is a statistical agency within the U.S. Department of Agriculture (USDA) that conducts hundreds of surveys every year and prepares reports covering virtually every facet of U.S. agriculture. NASS's traditional approach has been to manually fix edit failures for their surveys. As staff resources have become more constrained, the agency is attempting to embrace technological advances. NASS is currently evaluating Statistics Canada's Banff software to perform the editing and imputation for their agricultural surveys. A manual review of "large" data changes would then be performed after the survey is processed through this automated procedure. Significance editing can be used to prioritize the manual review of records after the editing/imputation process is complete. The purpose of significance editing is to identify records with imputed values that have a significant impact on the total survey estimate and to manually review these records to ensure the integrity of the imputed data. A record-level score is assigned based on changes between the original and edited/imputed data and records with the "largest scores" are identified for manual review. For all records, a score is first calculated for each item on the questionnaire based on the weighted absolute difference of the original and edited/imputed values divided by the estimated total. The record's maximum item-level score is then assigned as the record-level score. Records with scores above a pre-specified threshold value are manually reviewed by an analyst. This paper discusses the research initiative to incorporate the automated editing/imputation procedure and significance editing into the agency's surveys.

Key Words: NASS, Banff, significance editing, record-level score, manual review