

RELATIVE EFFICIENCIES OF SAMPLING PLANS
FOR SELECTING A SMALL NUMBER OF UNITS
FROM A RECTANGULAR REGION

by

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ABSTRACT

We examine the efficiency of several sampling plans for use in certain agricultural, ecological and environmental studies. One concern for such studies is that plots that are physically close might be more similar than distant plots. We considered sampling plans that are designed to generate samples that represent the entire population while avoiding the selection of units that provide essentially redundant information. All plans have the property that they avoid the simultaneous selection of units that are, in some sense, neighboring units. By means of a simulation study, the efficiency of these plans is compared to simple random sampling. Factors that influence the relative efficiencies are examined. This is done for a number of different populations, representing various possible patterns for a response variable.

Keywords and phrases. Random sampling excluding contiguous units, simple random sampling, stratified random sampling with random stratum boundaries.