

Regional Training Course on
Agricultural Cost of
Production Statistics
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Session 3.4: Survey Design Considerations: Random Sampling

Miriam Hodge, PhD



Random Sampling Designs

Simple Random Sampling (SRS)

- * Observations selected independently; each unit in the sampling frame has the same probability of selection.
- * One must use an external source of randomness (a computer) to obtain samples.

Random Sampling Designs

Systematic sampling:

- * For a sample size of n , then $k \cong \frac{N}{n}$
- * Where N represents the total number in the sampling frame.
- * From a random start among the first k people, take every k^{th} person in the sampling frame.

Systematic Samples

- * Decide on sample size: n
- * Divide population of N individuals into groups of k individuals: $k = N/n$.
- * Randomly select one individual from the 1st group.
- * Select every k^{th} individual thereafter.

$$N = 64$$

$$n = 8$$

$$k = 8$$

First Group



Random Sampling Designs

- * Systematic sampling is a practical method when you cannot use a computer to select a SRS.
- * Sample can usually be considered a SRS.

Random Sampling Designs

Unequal probability sampling:

- * Each unit is assigned a probability of selection.

Probability Proportional the Size (PPS):

- * Each unit is assigned a probability of selection proportional to the size of the unit.

References

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