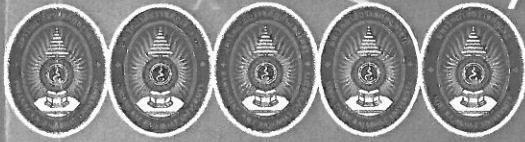




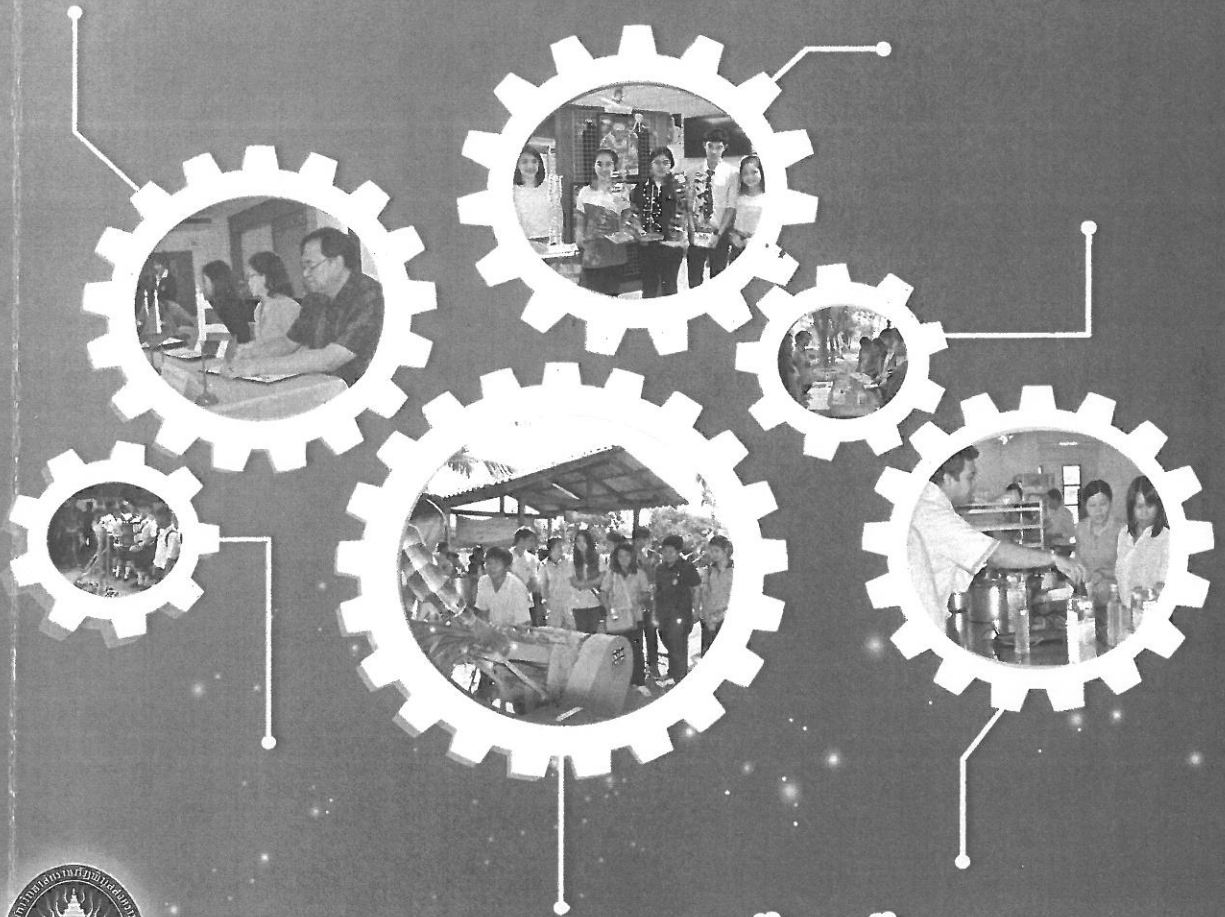
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Comparison of Statistical Methods Used in the Evaluation of Multiple Genotypes in Sesame

Sekip ERDAL^{a,e1}, Ragip Soner SILME^{b,e2}, M. Ilhan CAGIRGAN^{c,e3}

^aBati Akdeniz Agricultural Research Institute, (BATEM) Muratpasa, Antalya, Turkey

^bIstanbul University, Scientific Research Projects, Fatih, Istanbul, Turkey

^cAkdeniz University, Faculty of Agriculture, Department of Field Crops, Antalya, Turkey

^{e1}sekip65@hotmail.com, ^{e2}rsoner@istanbul.edu.tr, ^{e3}cagirgan@akdeniz.edu.tr

Abstract

The primary objective of the study was to compare three experimental designs, i.e., 10X10 Square Lattice (LD) and two Nearest Neighbour Analyses (NNA) used in multiple genotype evaluation to determine the most appropriate and the most precise method. To accomplish the purpose of the study, a set of sesame (*Sesamum indicum* L.) genotypes was grown in two locations at West Mediterranean lowlands of Turkey (BATEM, Aksu and Akdeniz University Campus, Antalya) and agronomic traits that have economic importance were measured. The data were evaluated accordingly, and "magnitude of coefficient of variation (CV) for experimental error", "ability of removing spatial variation from the yield trials" and "the most likely ranking of varieties" were used to compare the precision among the methods employed. For analyzing augmented designs three control varieties were involved in each incomplete block. Plot yields were used for all comparisons. The results indicated that NNA-Second Difference method was superior for removing spatial variation in both locations. Also, NNA-SD method was effective to get a lower CV in BATEM location. Augmented experimental designs were not stable either in coefficient of variation or the most ranking of evaluation of varieties. LD and two NNA methods indicated similar results in variety rankings.

Keywords: Coefficient of Variation, Lattice Design, Nearest Neighbour Analysis *Sesamum indicum* L. Spatial variation