GENETIC CONTROLS OF GROWTH TRAITS IN CHERRYBARK OAK (*QUERCUS PAGODA*) ESTIMATED WITH POST-HOC EXPERIMENTAL DESIGN ADJUSTMENTS IN ABLUP

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Optimal experimental design of genetic trials provides accurate estimates of quantitative genetic parameters for tree breeders and forest managers to select elite reforestation and urban forests. Traditional randomized block design could not justify the within block environmental variances in the level that are efficient for the genetic parameter (e.g., heritability) estimation. In this study, we used a restoration and plantation species *Quercus pagoda* as an example to adjust the row-column factors in field progeny tests to improve the selection of the breeding program. Although previous genetic trials have not employed the incomplete block design, our post-hoc adjustment method could utilize the existing design information and reduce the environmental residual noise that leads to an increased estimation of genetic control.