B-76 : ALTERNATIVE METHODS TO DETERMINE THE OPTIMUM PLOT SIZE FOR TREE CROPS

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The plot sizes for field experiments on tree crops are decided by evaluating uniformity trials which are costly. Thus 2 alternative methods are proposed and illustrated using the yield data of coconut (1985 - 1989) from a RCBD experiment of 4 blocks and 7 plots each of nine palms.

In method I, palms were numbered in the same sequence from 1 to 9 within plots to maintain the plot shape identical and palms bearing same numbers were selected from each plot. All possible combination of palms were taken into consideration under different plot size of 9, 8, 7, 6, 5, 4, 3, 2 and 1 palm. The number of blocks and the number of treatments were kept the same. The coefficient of variation of experimental error (CVEE) and cost ratio (CR) was minimum in all years when the plot size was 4.

In method II, the block effect and treatment effect from the yield of each palm was removed and treated the ensuing yields as if it came from a usual uniformity trial. The result of the CVEE and CR were the same as in method I. Thus the optimum

plot size for the RCBD experiments of coconut in this area can be considered as 4 palms.

These methodologies can be applied for other crops.