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Effect of plant height on yield of traditional rice cultivars

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Hundred traditional rice cultivars were evaluated for their yield potential and agronomic characters at the field condition at Faculty of Agriculture, Mapalana. Experiment was conducted with four replicates according to the randomized complete block design. Plant height (cm), number of fertile tillers/plant, number of fertile spikelets/panicle were measured in an individual rice cultivar before harvesting and panicle weight (g), 100 grain weight (g) and yield/plant (g) were measured after harvesting. Grain yield was positively and significantly correlated ($\alpha = 0.01$) with plant height ($r = 0.278$). Come to a decision on what parameters the best cultivars must be selected, a classical compromise programming was applied. Classical compromise programming is a multi-criteria decision analysis technique used to identify the best compromise solution from a set of solutions by some measure of distance. Finally, a sensitivity analysis was carried out using path coefficients so that the role of each parameter on the selection of the yield can be understood. To understand the effect of plant height on the field suitability of rice cultivars, plant height parameter was not included into multi-criteria decision analysis. According to the relative distances, all the rice cultivars were categorized in to 10 groups. To understand the contribution of plant height in determining these different groups of traditional rice cultivars, average plant height of each group was calculated. It was found that there was no significant difference in plant height in these groups.

Key words: Field performances, path analysis, plant height, traditional rice, yield

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