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INFLUENCE OF INTERCROPS AND ROW RATIOS ON WEED SUPPRESSION AND PERFORMANCE OF UPLAND RICE (*ORYZA SATIVA* L.)UNDER DIFFERENT WEED REGIMES

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ABSTRACT

Direct-seeded rice ecosystems are most vulnerable to weed competition that reduces not only its grain yield (30-100%) but also deteriorates the grain quality. This investigation aimed at employing cultural techniques for economically viable and effective weed control rather than complete weed elimination. Hence, a field experiment was carried out to assess the impact of cropping systems involving crops of diverse growth nature such as pigeon pea and cowpea on weed occurrence and productivity of the system under weed control regimes comprising of single and two hand weedings. In rice + cowpea intercropping system, three row ratios i.e. 4:1, 4:2 (replacement series) and 5:1 (additive series) whereas two row ratios i.e., 4:1 (replacement series) and 5:1 (additive series) were tested in rice + pigeon pea intercropping system. Besides intercropping, all the three crops (rice, pigeon pea and cowpea) were also grown as the sole crop. Results showed that cowpea and pigeon pea intercropping with rice minimized the weed infestation. Least density and biomass of weeds was recorded in rice + cowpea (5:1) intercrop system. A slight decrease in weed count and biomass of broadleaf weeds was observed with intercropping of cowpea. Reduction in the grain yields of rice, pigeon pea and cowpea were recorded (16.7 to 35.2%) across the years under intercropping system in comparison to sole cropping. The land equivalent ratio (LER) values showed that, irrespective of spatial combinations of the crops, a useful yield increase was always attainable in all intercropping treatments. In particular, intercropping of rice and pigeon pea with 4:1 row ratio was found to be the most effective for land use efficiency and better economics.

KEYWORDS: Intercropping, Weed Control, Rice Equivalent Yield, Upland Rice, Cowpea, Pigeon Pea