

THE EFFECT OF PLANT POPULATION AND
PLANTING GEOMETRY ON THE PRODUCTIVITY
OF CORN-COWPEA INTERCROPPING SYSTEMS.

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Corn and cowpea are intercropped to increase the total crop yield and quality per unit land area. There has been no proper cropping system designed for these crops and hence the productivity of the system is lowered. Therefore, this experiment was conducted at the University Experimental Station, Dodangolla, Kundasale during Maha 1987/88 to develop an economically viable intercropping system for corn and cowpea for the mid-country intermediate zone. Eight intercropping models which were composed by factorially combining (a) 50,000 and 60,000 plants/ha of corn (b) 75,000 and 150,000 plants/ha of cowpea, and (c) one and two rows of cowpea planted between corn rows, and sole crops of corn and cowpea were tested as experimental treatments.

Corn and cowpea population had no effect on corn yields. However, two-row planting of cowpea significantly lowered corn yields (2075 kg/ha) compared to single rows (2845 kg/ha). Yield of cowpea was greater at 150,000 plants/ha than 75,000 plants/ha and also with two-row planting than single rows. These differences clearly influenced partial land equivalent ratios (LER) of component crops.

Gross income from cowpea was significantly increased by 150,000 plants/ha of cowpea (Rs.12,800 per hectare) and two-row planting (Rs.13,633 per hectare) when compared to 75,000 plants/ha and single-row planting, respectively. Gross income from corn was not affected by treatments. Harvest index values of component crops as well as whole systems were greater in single-row planting than two-row planting.