B-99 Evaluation of maize-legume based intercropping systems under rainfed upland conditions

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Mixed cropping of legumes with maize was found to be superior to sole cropping in maintaining soil fertility and increasing crop yield even under adverse climatic conditions. However, success of any intercropping system would depend upon the crop compatibility. Studies on yield and economics of maize and food legumes intercropping were, therefore, carried out for 2 seasons to identify suitable intercrop combinations for rainfed upland conditions in the dry zone.

7 food legumes, cowpea (var. Varuni), greengram (var. MI-5), blackgram (var. MI-1), groundnut (var. Red Spanish), soybean (var. Pb-1), horsegram (var. Local), and pigeonpea (var. ICPL 84045) were evaluated with maize (var. Aruna) in this study.

Results showed that each crop produced higher grain yield under sole crop conditions compared to intercropping. In both seasons, the yield of maize in the intercrop combinations did not differ significantly from that of sole crop, indicating the possibility of intercropping food legumes with maize without adversely affecting the maize yields. A distinct reduction in the yield of legumes was observed when intercropped with maize. Intercrop combinations except with groundnut and pigeonpea gave LER values below 1.0 indicating the incompatibility of intercropping with maize. LER values for intercrop combinations with pigeonpea and groundnut were 1.2 - 1.3. This means at least 20% yield advantage can be obtained in intercropping these 2 legumes with maize. Further these combinations, gave highest gross returns over the sole crop of maize.

It can be concluded that among the tested intercrops, pigeonpea and groundnut are the most suitable crops for intercropping with maize under rainfed upland conditions in the dry zone.