



Effect of chickpea based intercropping systems on competitive relationship between chickpea and intercrop

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Abstract : A field experiment was conducted during *Rabi* season of 2009-10 to study the effect of planting geometry and chickpea based different intercropping systems on competitive relationship between chickpea and intercrops. Land equivalent ratio was observed highest in chickpea + linseed at 3:3 row proportions. Competitive ratio of main crop (chickpea) was highest in chickpea + linseed at 3:3 row proportions. It means, chickpea was more competitive in chickpea + linseed at 3:3 row proportions than in any other intercropping system. Intercrop safflower was more competitive in chickpea + safflower at 6:3 row proportions which was at par with sunflower in chickpea + sunflower in 6:3 row proportions. The aggressivity of chickpea was highest (0.23) in chickpea + linseed at 3:3 row proportions.

Key Words : Intercropping, Chickpea, Land equivalent ratio, Aggressivity

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INTRODUCTION

The present area of 1.05 million hectares in under cultivation of chickpea during *Rabi* season in Maharashtra can be further increased by growing it as intercrop with wide spaced crops like linseed and safflower. The initial slow growth rate and deep root system of safflower offers a good scope of intercropping with fast growing, early maturing and shallow rooted chickpea. Different intercrops and their special arrangement in intercropping have important effects on competition between component crops and their growth (Sarkar *et al.*, 2000). Further the most of the intercropping systems are beneficial than growing in their respective sole crops. But studies on performance of different plant geometry and chickpea based different intercropping systems on competitive relationship between chickpea and intercrops at different duration and at different row proportion in intercropping are lacking. Hence, the present investigation was undertaken.

MATERIALS AND METHODS

A field experiment was conducted during *Rabi* season of 2009-10 at Farm, Department of Agronomy, College of Agriculture, Marathwada Krishi Vidyapeeth, Parbhani. The experimental field was clayey and slightly alkaline in nature with pH 8.10, organic carbon content 0.42 per cent, available nitrogen 118 kg ha⁻¹, available P₂O₅ 16.50 kg ha⁻¹ and available K₂O 434.86 kg ha⁻¹. The treatments consisted of four treatments of sole crops *i.e.* T₁ - chickpea, T₂ - linseed, T₃ - sunflower and T₄ - safflower with six intercropping treatments involving different combinations with chickpea *i.e.* T₅ - chickpea + linseed (3:3), T₆ - chickpea + linseed (6:3), T₇ - chickpea + sunflower (3:3), T₈ - chickpea + sunflower (6:3), T₉ - chickpea + safflower (3:3) and T₁₀ - chickpea + safflower (6:3) row proportions.

The row to row distance between chickpea and different intercrops was maintained at 45 cm and plant to plant at 10 cm in chickpea and linseed, while 20 cm in sunflower and safflower. Sole chickpea was fertilized with 25 and 50 kg of N and P₂O₅ ha⁻¹, while linseed with 60 and 40 kg of N and P₂O₅ ha⁻¹,

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