



Influence of row proportions on yield and yield components of pigeonpea in intercropping system of pigeonpea [*Cajanus cajan* (L.) Millsp.] and ashwagandha (*Withania somnifera* Dunal)

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Abstract : Field experiment was conducted at Agricultural College Farm, Raichur, Karnataka on medium deep black soils during *Kharif* seasons of 2005 and 2006 to study the influence of row proportions of pigeonpea and ashwagandha in the intercropping system on yield and yield components of pigeonpea. The seed yield of pigeonpea in sole cropping system (15.80 q ha⁻¹) was found to be significantly higher than that recorded under different row proportions of pigeonpea and ashwagandha (11.34 to 14.04 q ha⁻¹). Similar trend was noticed with respect to yield components viz., dry matter accumulation in reproductive parts, number of pods per plant, seed weight per plant, seed number per plant and 100-seed weight. Among the different row proportions, the pigeonpea seed yield produced under 2:4 (14.04 q/ha) and 1:2 (13.95 q ha⁻¹) row proportions were higher by 24 and 23 per cent when compared to the seed yield recorded under 2:1 row proportion of pigeonpea and ashwagandha (11.34 q/ha). The same trend was indicated in the yield components of pigeonpea.

Key Words : Pigeonpea, Ashwagandha, Companion cropping, Row proportion

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INTRODUCTION

Intercropping is an age old practice being followed by subsistence farmers to achieve their domestic needs and also monetary benefits to some extent. The main advantage of intercropping is that component crops are able to use growth resources differently and make better overall use of growth resources than grown separately (Willey, 1979). The success of any intercropping system depends mainly on selection of component crops. The component crops should invariably have different growth rhythms and rooting patterns. Pigeonpea is a tall growing, wide spaced crop with deep root system which can accommodate short statured medicinal crop like ashwagandha which is having shallow root system. Hence, the present investigation was carried out at Agricultural

College Farm, Raichur on the influence of row proportions of pigeonpea and ashwagandha in intercropping system on yield and yield components of pigeonpea.

MATERIALS AND METHODS

The field experiment was conducted during *Kharif* seasons of 2005 and 2006 at the Agricultural College Farm, Raichur on medium deep black soils. The soil pH was 8.20 with 0.62 per cent organic carbon, 223 kg ha⁻¹ of available nitrogen, 35 kg ha⁻¹ of available phosphorus and 334 kg ha⁻¹ of available potassium. There were 10 treatments comprised of eight row proportions of pigeonpea and ashwagandha and two sole crops of pigeonpea and ashwagandha. The experiment was laid out in a Randomised Block Design with three

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