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# Economics of transplanted pigeonpea in sole cropping and finger millet based intercropping system

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## ABSTRACT

**A field experiment was carried out at the Gandhi Krishi Vignana Kendra, Bengaluru under rainfed conditions during *Kharif*, 2008 to workout the economics of sole crop of transplanted pigeonpea and finger millet + transplanted pigeonpea intercropping. Transplanting of 5 weeks old pigeonpea seedlings as sole crop resulted in significantly 69.5 per cent higher grain yield (2669 kg ha$^{-1}$) over direct sowing (1575 kg ha$^{-1}$), higher net returns of Rs. 39983 ha$^{-1}$ with B:C ratio of 1.99 than direct sowing (Rs. 21817 ha$^{-1}$ with B:C ratio of 1.77). Finger millet + transplanted pigeonpea (8:2) intercropping with transplanting of 4 weeks old seedlings produced significantly higher pigeonpea grain yield (1347 kg ha$^{-1}$ with finger millet grain yield of 1880 kg ha$^{-1}$) compared to finger millet + direct sown pigeonpea (391 kg ha$^{-1}$ with finger millet grain yield of 1992 kg ha$^{-1}$). Finger millet + transplanted pigeonpea (8:2) with 4 weeks old seedlings gave higher net returns (Rs. 31874 ha$^{-1}$) and B:C ratio of 1.90 than finger millet + direct sown pigeonpea (Rs. 16176 ha$^{-1}$ and 1.28, respectively) and sole crop of finger millet (net returns of Rs. 14910 ha$^{-1}$ and B:C ratio of 1.64).**

**Key words :** Pigeonpea, Finger millet, Intercropping, Net returns, B: C ratio

## INTRODUCTION

Pigeonpea [*Cajanus cajan* (L.) Millsp.] is the second most important pulse crop of India after chickpea, grown in an area of 3.56 million hectares with a production of 2.31 million tonnes and productivity of 650 kg ha$^{-1}$ (Anonymous, 2007). In Karnataka, pigeonpea stands the first in both area and production among pulses. It is grown in an area of 5.80 lakh hectares with a production of 2.60 lakh tonnes and productivity of 448 kg ha$^{-1}$ as against the national average of 712 kg ha$^{-1}$ (Anonymous, 2007). One of the major agronomic constraints for low productivity of pigeonpea is improper time of sowing. Pigeonpea suffers more when sowing is delayed (Padhi, 1995). Early sowing of pigeonpea *i.e.,* in the month of May, ensures higher yield (Shankaralingappa and Hegde, 1989). But in dryland areas, farmers are unable to sow pigeonpea in the month of May regularly because of non-receipt of sufficient rains and there is a stray cattle menace in the field damaging the early sown pigeonpea crop, as no other crop is available in the field. Because of these two constraints, the benefits of early sowing (May sowing) of pigeonpea could not be realized. Other alternative method of establishing pigeonpea in early season is, therefore, very much required for improving the productivity of pigeonpea. Raising pigeonpea seedlings well in advance and transplanting in the field on receipt of good rains would help in reaping the benefits of early sowing.

Finger millet [*Eleusine coracana* (L.) Gaertn.] is a staple food crop of Karnataka, it is grown in an area of 10.5 lakh hectares with annual production of 15.7 lakh tonnes with productivity of 1889 kg ha$^{-1}$ (Anonymous, 2007). The farmers under dryland conditions practice sowing of pigeonpea as an intercrop in finger millet. In intercropping, the growth of pigeonpea is suppressed by finger millet at initial stages, as the growth of finger millet is faster. Sowing of pigeonpea as an intercrop in finger millet simultaneously in the month of July resulted in lower yield of pigeonpea (Anonymous, 1983). Staggered sowing of finger millet and pigeonpea (8:2) intercropping, *i.e.,* sowing of pigeonpea in May and introducing finger millet in July between paired rows of pigeonpea is profitable under dryland conditions (Shankaralingappa and Hegde, 1992). Under staggered sowing, pigeonpea gets an opportunity for full vegetative growth in intercropping system, though May sowing is not a suitable time for sowing finger millet. Besides, in view of non-receipt of sufficient rains in the month of May every year and also the problem of stray cattle menace, sowing of pigeonpea in May could not be possible in finger millet based intercropping system. The system of intercropping seems to be difficult to change due to its several benefits. Transplanting of pigeonpea seedling and direct sowing of finger millet in regular sowing time (July) simultaneously seems to be better option in place of staggered sowing of finger millet and pigeonpea (8:2) intercropping. Therefore, the experiment was conducted to identify the optimum age of pigeonpea seedlings for transplanting, to study the

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