



## Effect of crop rotation and fertility schedules in isabgol (*Plantago ovata* Forsk.) based cropping systems in hot arid region of Rajasthan

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**Abstract :** A field experiment was conducted to study the effect of crop rotation and fertility schedules in isabgol based cropping systems in loamy sand soil under irrigated conditions at Agronomy Farm, College of Agriculture, Rajasthan Agricultural University, Bikaner for two *Rabi* and *Kharif* seasons from 2003-04 and 2004-05. The results showed that a significant influence of crop rotation when mothbean was grown after isabgol found highest soil available nitrogen (77.72 kg ha<sup>-1</sup>), phosphorus (14.30 kg ha<sup>-1</sup>) and zinc (0.55 ppm) after harvest of *Kharif* crops, per cent organic carbon and available potassium were at par with the crops. Among four *Kharif* crops viz., pearl millet, clusterbean, sesamum and mothbean, highest yield of *Kharif* crops equivalent to isabgol (9.31 q ha<sup>-1</sup>), cropping systems equivalent yields (19.75 q ha<sup>-1</sup>), gross return (Rs. 33371 ha<sup>-1</sup>), net return (Rs. 15225 ha<sup>-1</sup>) and B:C ratio (1.94) were recorded in clusterbean growth after isabgol compared to other *Kharif* crops. Among seven fertility schedules (N, NP, NK, NPK, NPK+Zn, NPK+FYM and FYM) applied as per recommendation of concerned crop, treatment NPK+FYM was found superior among all in terms of per cent organic carbon (0.10), soil available nitrogen after harvest of each crop (79.62 kg ha<sup>-1</sup>), phosphorus (15.27 kg ha<sup>-1</sup>) and potassium (154.02 kg ha<sup>-1</sup>), available zinc was found highest under NPK + Zn. Further highest yield of *Kharif* crops equivalent to isabgol (8.10 q ha<sup>-1</sup>), cropping systems equivalent yields (21.51 q ha<sup>-1</sup>) and gross return (Rs. 34541 ha<sup>-1</sup>) were recorded under NPK+FYM, net return (Rs. 14247 ha<sup>-1</sup>) and B:C ratio (1.88) were found highest under treatment NPK+Zn, but statistically at par to NPK+FYM.

**Key Words :** Crop rotation, Cropping systems, N, P, K, Zn, FYM, Isabgol, *Kharif*

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