



RESEARCH PAPER

Effect of sources and levels of phosphorus on yield, quality and phosphorus uptake in pigeonpea

S.H. AHER*, D.N. GOKHALE¹, S.R. KADAM AND P.N. KARANJIKAR¹

Department of Agronomy, College of Agriculture, Vasant Naik Marathwada Krishi Vidyapeeth, PARBHANI (M.S.) INDIA

Abstract : A field trial on effect of sources and level of phosphorus on yield and quality of pigeonpea was conducted at Experimental Farm, Department of Agronomy, College of Agriculture, Marathwada Krishi Vidyapeeth, Parbhani (Maharashtra) during *Kharif* season of 2011-12. The present experiment was laid out in Split Plot Design with twelve treatment combinations of four phosphorus levels (25, 50, 75 and 100 kg P₂O₅ ha⁻¹) and three sources of phosphorus (single superphosphate diammonium phosphate and 20:20:00) replicated thrice. Yield attributes like number of pods per plant, weight of pods and weight of seeds per plant were increased due to application of 100 kg P₂O₅ ha⁻¹ than 25 kg P₂O₅ ha⁻¹. However, it was at par with 50 and 75 kg P₂O₅ ha⁻¹. Among sources single superphosphate influenced the yield attributes. The combination effect of levels and sources of phosphorus application was non-significant for different yield attributes. The yield of pigeonpea was significantly influenced by levels and sources of phosphorus. The maximum seed yield (19.66 q ha⁻¹) was recorded under 100 kg P₂O₅ ha⁻¹ than 25 kg P₂O₅ ha⁻¹ (13.80 q ha⁻¹). However, it was at par with 50 and 75 kg P₂O₅ ha⁻¹. Among sources, single superphosphate was beneficial for improving pigeonpea seed yield (19.56 q ha⁻¹). Similar results were obtained in case of biological yield and harvest index. In case of protein content, an application of 100 kg P₂O₅ ha⁻¹ gave higher protein content (20.52 %) than 25 kg P₂O₅ ha⁻¹ (18.87%) and at par with 50 and 75 kg P₂O₅ ha⁻¹. While, single superphosphate gave higher values of protein content (20.00%) than the other sources of phosphorus.

Key Words : Levels of phosphorus, Sources of phosphorus, Single super phosphate, Yield, Quality

View Point Article : Aher, S.H., Gokhale, D.N., Kadam, S.R. and Karanjikar, P.N. (2015). Effect of sources and levels of phosphorus on yield, quality and phosphorus uptake in pigeonpea. *Internat. J. agric. Sci.*, **11** (1): 59-62.

Article History : Received : 26.05.2014; Revised : 05.11.2014; Accepted : 22.11.2014

INTRODUCTION

Among pulses, pigeonpea [*Cajanus cajan* (L.) Millsp.] is cultivated in the semi-arid areas of tropics and subtropics. It is native of Africa and the early traders have introduced the crop in India. Pigeonpea seeds contain 23.3 per cent protein, 35 per cent minerals, 57.6 per cent carbohydrates and provides 335 KCW energy/100 g. However, recent findings of national institute of nutrition conducted that pulses not supply 17 to 27 per cent of protein but also supply 20 per cent calories of the dietary requirement. Thus, pulses were valued both for

proteins as well as calories requirement (Anonymous, 1981 and 2004). Since, the primary objectives of pigeonpea cultivation has been to meet surplus of grains as such there was not much increase in production and productivity of pigeonpea. During the year 2011-2012 area under pigeonpea in India has the worlds largest hectare 3.44 million ha, of pigeonpea and attribute about 85 per cent of global production of about 2.46 million tonnes. The major pigeonpea growing states in India are Maharashtra, Madhya Pradesh, Karnataka, Gujarat and Andhra Pradesh. Phosphorus is the most important nutrient-limiting pigeonpea productivity followed by Zn and

* Author for correspondence

¹College of Agriculture, Ambajogai, BEED (M.S.) INDIA