



Reducing fertilizer requirement with the use of bio- fertilizers in summer pearl millet [*Pennisetum glaucum* (L.)]

Y.C. LAKUM, S.H. PATEL AND P.V. MEHTA

ABSTRACT

An experiment was conducted in summer season during 2008 at Anand Agricultural University, Anand. The soil was loamy sand in texture, low in organic carbon and available N, while medium in available P and high in available K. The treatment T₇ (*Azospirillum* + 75% RDF + 10 t ha⁻¹) recorded significantly higher plant height (171.41 cm). Similarly the total (6.48 plant⁻¹) and effective tillers (4.43 plant⁻¹) as well as length of earhead (22.25 cm) recorded significantly higher under the same treatment. The highest grain (4584 kg ha⁻¹) and straw (10084 kg ha⁻¹) yields were significantly registered under treatment T₇. Similar to yield, the significantly highest N and P uptake by grain (76.81, 28.9 kg ha⁻¹, respectively) and N uptake by straw (34.09 kg ha⁻¹) of pearl millet was observed under T₇ while it was true under T₂ in case of P uptake (29.67 kg ha⁻¹) by pearl millet straw. The highest net realization (Rs. 23885) was noticed due to 75% RDF + 10t FYM ha⁻¹ including *Azospirillum* as bio-fertilizer application compared to net income of Rs. 21174 under fertilizer application at 100% RDF + 10t FYM ha⁻¹. It is indicating more benefit besides reduction of chemical load *i.e.* 30 kg N and 15 kg P ha⁻¹ with the inclusion of bio-fertilizer.

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Key words : Pearl millet, Bio-fertilizer, FYM

INTRODUCTION

Pearlmillet, being low in price mainly consumed by middle and poor class families. It also occupies an important place in daily diet of many classes of the people in India, particularly in Gujarat, Rajasthan, Madhya Pradesh, Maharashtra and Uttar Pradesh where it is grown comparatively on large scale. The use of organic manure not only supplies sufficient nutrient but also improve soil physico chemical and biological properties of soils. Moreover, release of many organic acids during decomposition of FYM convert unavailable soil nutrients into available form and thereby requirement of nutrients can be reduced under medium to high available nutrient status. At the same time, nitrogen and phosphorus are becoming costlier day by day. Hence, there is a wide scope for biological nitrogen fixation through N fixer bio-

agents, and use of phosphate solublizer bacteria. which are cheaper source. Bio-fertilizers are the product containing living cells of different types of microorganisms having an ability to mobilize nutritional element from non-usable to usable form through biological process. In an era of escalating prices of inorganic fertilizers and poor purchasing power of marginal and small farmers, it is necessary to develop a strategy to use cheaper combination of bio-fertilizers and proper dose of inorganic fertilizers.

MATERIALS AND METHODS

An experiment was conducted in summer season on pearl millet (var., GHB 558) during 2008 at Anand Agricultural University, Anand. Full dose of phosphorus (60 kg P₂O₅ ha⁻¹) and 50 per cent nitrogen (60 kg N ha⁻¹)

Correspondence to :

Y.C. LAKUM, Micronutrient Project (ICAR), Anand Agricultural University, ANAND (GUJARAT) INDIA

Authors' affiliations:

S.H. PATEL, Agricultural Research Station, Anand Agricultural University, Derol, PANCHAMAHAL (GUJARAT) INDIA

P.V. MEHTA, Micronutrient Project (ICAR), Anand Agricultural University, ANAND (GUJARAT) INDIA