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RESEARCH PAPER

Performance of finger millet varieties to different levels of fertilizer on yield and soil properties in sub-montane zone of Maharashtra

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Abstract : Field experiments were conducted at the Zonal Agricultural Research Station, NARP., Shenda Park, Kolhapur (Maharashtra) during *Kharif* season of three years of 2009 to 2011 to study the response of finger millet varieties to different levels of fertilizer on crop yield and soil properties. The results revealed that, on shallow and lighter type of soils in IX rainfall situation under sub-montane zone of Maharashtra, for obtaining highest grain and straw yield, the long duration varieties should be fertilized with the recommended dose of fertilizer (60:30:00 kg NPK ha^{-1}). The medium duration varieties showed good response to application of 75 per cent of recommended dose.

Key Words : Fertilizer, Finger millet, Rainfed, Low fertility

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INTRODUCTION

Nutrient absorption pattern of the plant and its efficient utilization of the applied nutrients are necessary for obtaining the economical returns. Finger millet (*Eleusine coracana* L.) locally called as Nagli/ Nachni/ Ragi is the most important crop grown in Maharashtra State, which gives good response to applied fertilizers. The yield of finger millet is very low in the state as the crop is mostly grown along the hill sides on sloppy land on light textured soils. It is also coupled with negligence in adoption of improved package of practices *viz.*, variety, use of balance fertilizer, proper sowing time, spacing etc. In recent years much emphasis has been given for use of fertilizers to produce adequate amount of high quality food. Such nutrient supply system helps for maintenance and possibly improvement of soil fertility for sustaining crop productivity on long term basis (Babalad, 1999).

The low yield in cereals in the Entisols under rainfed conditions mainly attributed to poor nutrient status of soil, limited use of nitrogenous fertilizer either through chemical or organic sources coupled with insufficient moisture during crop growth period. Keeping in view these facts, the experiments were conducted to study the performance of finger millet genotypes to different levels of fertilizer.

MATERIALS AND METHODS

Field experiments were conducted during *Kharif* season of 2009, 2010 and 2011 under rainfed condition at the Zonal Agricultural Research Station, Shenda Park, Kolhapur (Maharashtra). The experimental site was silty clay with pH 7.20, E.C. 0.10 dSm^{-1}, organic carbon 0.35 per cent, available N 228.0, P_2O_5 19.7 and K_2O 109.6 $kgha^{-1}$ The row spacing of 30 cm were kept for finger millet crop and was sown by dibbling method. The thinning was done at 15 days after sowing and only two healthy plants was kept per hill by maintaining the distance of 10 cm within the plants. The experiment was laid out in Split Plot Design with three replications. Four levels of fertilizer (0, 50, 75 and 100% of RDF) were assigned to main plots and six finger millet genotypes were assigned as sub

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