

Research Article

Effect of nitrogen and potassium on yield, yield attributes and quality of summer pearl millet

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Summary

The field experiment was conducted on medium black calcareous soils of the Instructional Farm College of Agriculture, JAU, Junagadh during summer season. The results revealed that the significantly higher grain and stover yields, yield attributes as well as quality parameters were obtained with application of N @ 120 kg ha⁻¹ and K @ 120 kg ha⁻¹. The grain yield of summer pearl millet increased to the tune of 49.06 and 37.27 per cent with application of 160 kg N ha⁻¹ and 120 K₂O ha⁻¹ as compared to control, respectively. The grain (3536 kg ha⁻¹) and stover (6793 kg ha⁻¹) yield of pearl millet were obtained significantly higher under combined application of N₁₆₀ K₈₀ over control *i.e.* N₀K₀.

Key words : Nitrogen, Potassium, Pearlmillet, Yield, Yield attributes

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Introduction

Pearlmillet is the fourth most important food grain cereal crop in India. India is the largest producer of pearl millet in the world which occupies an area of 95.96 lakh ha and production of 77.02 lakh tones with productivity of 803 kg ha⁻¹ (Singhal, 2003). Cereals crops generally require a good supply of major nutrients particularly N during most of their growth period. Balance application of potassium along with N and P₂O₅ not only gave higher yield but it also increase the quality of economic produce of pearl millet (Vyas *et al.*, 1992). No works has so far been done on effect of nitrogen and potassium on yield of summer pearl millet particularly in this region. Keeping this in view, study was taken to know the effect of nitrogen and potassium on yield, yield attributes and quality of summer pearl millet.

Resources and Research Methods

The field experiment was conducted on medium black calcareous soils of the instructional farm, College of

Agriculture, JAU, Junagadh during summer season. The soils had pH_{2.5} 7.75, EC_{2.5} 0.34 dSm⁻¹, organic carbon 6.90 g kg⁻¹, CEC 34.5 Cmol (P⁻) kg⁻¹, available N, P₂O₅ and K₂O were recorded 215 kg ha⁻¹, 57.8 kg ha⁻¹ and 220 kg ha⁻¹, respectively. The treatments consisted five levels of N (0, 40, 80, 120 and 160 kg ha⁻¹) in the form of urea and four levels of K₂O (0, 40, 80 and 120 kg ha⁻¹) in the form of KCl. One half of the nitrogen and full dose of potassium were applied in furrow as basal application. The remaining amount of nitrogen was applied as per treatments at 30 days after sowing. The recommended dose of phosphorus @ 40 kg ha⁻¹ was applied as basal in all the plots of experiment. At maturity, grain and stover yield data were recorded. The protein (%) content of seed worked out by multiplying nitrogen content of grain by a factor of 6.25 as suggested by Gupta *et al.* (1972).

Research Findings and Discussion

The results obtained from present investigation is