



Research Article

Effect of seed rate and nitrogen on growth and yield of summer fodder sorghum [*Sorghum bicolor* (L.) Moench]

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ABSTRACT : A field experiment was conducted to ascertain the effect nitrogen and seed rate on growth and yield of summer fodder sorghum. Application of 80 kg N ha⁻¹ significantly increased plant height, stem diameter, dry matter production and number of functional leaves plant⁻¹ etc. at different crop growth periods. Stem diameter showed significant and consistent increase, whereas leaf stem ratio recorded significant and consistent decrease with increase in nitrogen application. Green and dry fodder yield recorded marked increase with increase in nitrogen levels from 40 to 100 kg ha⁻¹. Seed rate of 40 and 45 kg ha⁻¹ being at par, significantly increased plant height and dry matter accumulation of summer fodder sorghum at different crop growth periods where as number of functional leaves plant⁻¹ remained unaffected by different seed rate. Increasing seed rate significantly decreased the stem diameter, whereas leaf stem ratio decreased significant up to 45 kg ha⁻¹. Green and dry fodder yield increased significantly with increase in seed rate 40 to 45 kg ha⁻¹ compare to 30 and 35 kg ha⁻¹. The results revealed that application of 80 kg N ha⁻¹ and seed rate of 40 kg ha⁻¹ may be used for realizing palatable and higher yield of summer fodder sorghum.

KEY WORDS : Summer fodder sorghum, Nitrogen, Seed rate, Growth, Yield

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INTRODUCTION

Among the various fodder crops, sorghum [*Sorghum bicolor* (L.) Moench] is one of the most important dual crops widely grown in summer and *Kharif* season for grain as well as for fodder in India. The crop has significant over other cultivated fodder crops due to its high production potential, wider adaptability, quick growing nature, succulence, palatability, excellent fodder quality and free from toxicant and it can safely fed to animals at flowering stage. Fertilizer application is one of

the principle factors that markedly increase the fodder yield. An adequate supply of nutrients at each growth stage is essential for optimum growth and development of fodder sorghum. Nutrients nitrogen is an important from essential nutrient physiological, growth and yield point of view (Alloway, 2008) but at the same time establishment of an optimum plant stand is equally important to get maximum yield as (Reddy and Reddy, 2010). Therefore, there is a need to evaluate the effect of seed rate and nitrogen on the growth and yield of summer fodder sorghum.

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EXPERIMENTAL METHODS

The field experiment was conducted during summer season of 2011 at Instructional farm of Rajasthan College of Agriculture, Udaipur. The experiment was laid out in factorial randomized block design using fodder sorghum variety SU-1080 as a test crop. The experiment consisted of 16 treatment combinations which consisted of 4 nitrogen levels (40,60,80