

Effect of Sulphur and Potassium Application on Yield and Quality of Jute Seed in North-24-Parganas District of West Bengal

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Abstract—Forest resources are diminishing in India, while consumption of paper, bio-fuel and allied materials is continuously increasing. So, it is important to seek strategies that will compensate the diminishing forest resources and also provide local economic value. It is therefore crucial to explore nonwoods as potential bioresources for production of paper, bio-fuel and allied materials. Jute (*Corchorusolitorius*L.) has high biomass production potential. Jute can be highly economical, renewable natural resource for bio-energy and important crop for environmental cleaning. Seed is the basic input for crop production. The conservative estimate of requirement of jute seed in the country is around five thousand tonnes annually. To ensure higher seed yield in any crop, effective nutrient management strategy is imperative. A field experiment was therefore conducted in Barrackpore, North-24-Parganas, West Bengal on a Gangatic alluvial soil during kharif season of 2014-15. The aim of this study was to determine the effects of sulphur and potassium application on yield and quality of jute seed. The field experiment was conducted on an alluvial soil in split plot design, keeping four potassium levels (0, 25, 50 and 75 kg K₂O/ha) in main plots and four sulphur levels (0, 15, 30 and 45 kg S/ha) in sub-plots and was replicated thrice. The application of 50 kg K₂O/ha resulted in higher values of branches per plant, pod length as well as pods per plant as compared to control, 25 kg K₂O/ha and 75 kg K₂O/ha application. Significantly higher values of branches per pod and number of pods per plant were recorded with the application of 45 kg S/ha over all other sulphur doses including control (no S application), but pod length was significantly higher over 15 kg S/ha and control only. The application of 50 kg K₂O/ha resulted in significantly higher jute seed yield as compared to control and 25 kg K₂O/ha but was at par with 75 kg K₂O/ha application. No significant improvement in 1,000-seed weight of jute was observed with potassium application. Application of sulphur significantly improved the seed yield and 1,000-seed weight of jute. Significantly higher seed yield of jute was recorded with the application of 45 kg S/ha over all other sulphur doses, but the 1,000-seed weight was significantly higher upto 15 kg S/ha application over control only, however it was at par with 30 kg and 45 kg S/ha application. Significant interaction effects among potassium and sulphur doses were also observed in case of branches per plant. However, all other interactions were non-significant.

Keywords: Jute seed crop, seed quality, seed yield, sulphur and potassium fertilization, yield attributes.
