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RESEARCH PAPER

Response of niger (*Guizotia abyssinica*) to different levels of nitrogen, phosphorus, potassium and sulphur

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Abstract : A field experiment was conducted at Instructional-cum-Research (ICR) Farm, Assam Agricultural University, Jorhat during *Rabi* seasons of 2016-17 and 2017-18 to study the response of niger to different levels of nitrogen, phosphorus and potassium as well as sulphur on growth, yield and oil content of niger. The experiment was laid out in Factorial Randomized Block Design with three replications. The treatments comprised of three NPK levels *viz*., F_1 (20-10-10 kg N-P_2O_5-K_2O ha^{-1}), F_2 (25-12.5-12.5 kg N-P_2O_5-K_2O ha^{-1}), F_3 (30-15-15 kg N-P_2O_5-K_2O ha^{-1}) and three S levels *viz*., S_1 (no sulphur), S_2 (10 kg S ha^{-1}), S_3 (20 kg S ha^{-1}). Application of F_3 (30-15-15 kg N-P_2O_5-K_2O ha^{-1}) and S_3 (20 kg S ha^{-1}) recorded maximum and significantly higher seed yield (q ha^{-1}), oil content (%), oil yield (q ha^{-1}) as well as growth and yield attributing parameters *viz.,* plant height, number of leaves $plant^{-1}$, number of branches $plant^{-1}$, number of capitulum $plant^{-1}$ and number of seeds $capitulum^{-1}$ during both the years. Test weight was not influenced significantly during both the years. Interaction effects of NPK (F) and sulphur (S) were found to be not significant in respect of growth and yield attributing characters in both the years. In case of seed yield (q ha^{-1}) and oil yield (q ha^{-1}) interaction effect were found to be significant in both the years.The highest gross return (Rs. 23,905.00 in 2016-17 and Rs. 22,400.00 in 2017-18) and net return (Rs. 11,184.86 in 2016-17 and Rs. 9679.86 in 2017-18) were recorded by F_3S_3 in both the years. In case of benefit-cost ratio, the higher value (1.88 and 1.76, respectively) was recorded with F_3S_3 during 2016-17 and 2017-18.

Key Words : Niger, Sulphur, Growth, Yield, Oil content

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