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Evaluation of Nitrogen Fertilizer and Plant Density Effects on Yield and Yield Components of Fenugreek in Double Cropping

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Abstract

In order to study the effect of different rates of nitrogen and plant density on yield and yield components of Fenugreek, a field experiment was laid out at Guilan region in double cropping during 2008-2009. The experiment was carried out using split plots based on completely randomized block design with 4 replications. Four levels of nitrogen (control, 25, 50, 75 kg N ha^{-1}) which allotted to the main plots and four levels of plant density (60, 80, 100, 120 plants m^{-2}) were planted as subplots. Nitrogen fertilizer was affected number of pods per branches, number of pods per plant, grain yield and biological yield. The biological yield significantly influenced by plant density. The highest grain yield (1468 kg ha^{-1}) produced by 75 kg N ha^{-1}. There was a positive and significant correlation between grain yield and biological yield ($r=0.638^{**}$). According to means comparison of simple effects, the highest biological yield belonged to application of 75 kg N ha^{-1} and a density of 120 plants m^{-2},. Our findings suggest that since, N_4D_4 is more closely related to N_3D_3 based on cluster analyses and due to bioenvironmental considerations, fenugreek growers should choose the latter treatment combination under rainfed condition.

Keywords: Trigonella foenum-graecum L., Nitrogen fertilizer, Plant density, Yield, Double cropping