RESEARCH ARTICLE

GROWTH PARAMETERS AND SOIL FERTILITY STATUS AS INFLUENCED BY NITROGEN SOURCE IN WHEAT

Fazal Rabi, Meena Sewhag, Shweta, Parveen Kumar, Amit Kumar* and Uma Devi

Department of Agronomy,
CCS Haryana Agricultural University, Hisar, Haryana, India

Received-07.02.2020, Revised-27.02.2020

Abstract: In order to study morphological response of wheat to different nitrogen sources a field experiment was conducted during the *rabi* season of 2017-2018 at the Agronomy Research Farm of Chaudhary Charan Singh Haryana Agricultural University, Hisar .The soil of the experimental field is slightly alkaline in reaction, sandy loam in texture, low in organic carbon and nitrogen, medium in available phosphorus and potassium. The experiment was laid out in Randomized Block *Design* replicated thrice with ten treatments viz. T_1 (Control) , T_2 (Vermicompost @ 6 t ha^{-1}) , T_3 (*Azotobacter* + Vermicompost @ 6 t ha^{-1}), T_4 (30 kg N ha^{-1} + *Vermicompost* @ 3 t ha^{-1}), T_5 (40 kg N ha^{-1} + *Vermicompost* @ 2 t ha^{-1}), T_6 (50 kg N ha^{-1} + *Vermicompost* @ 1 t ha^{-1}), T_7 (30 kg N ha^{-1} + *Azotobacter* + Vermicompost @ 3 t ha^{-1}), T_8 (40 kg N ha^{-1} + *Azotobacter* + Vermicompost @ 2 t ha^{-1}), T_9 (50 kg N ha^{-1} + *Azotobacter* + Vermicompost @ 1 t ha^{-1}) and T_{10} (60 kg N ha^{-1}). The results of the experiment indicated that no variations in plant population at 15 DAS and N, P and K status of soil after harvesting of wheat crop was observed due to application of various combinations of nitrogen fertilizer, vermicompost and *Azotobacter.* Among various treatments of nitrogen fertilizer, vermicompost and *Azotobacter* T_{10} was at par with T_8 and T_9 for plant height at all the stages of crop growth. Treatment T_{10} at all the stages of crop growth resulted in highest dry matter accumulation. Treatment T_{10} (100 % RDN) being at par with treatment T_9 and T_8 required significantly higher number of days to attain physiological maturity than all other treatments. Treatment T_{10} resulted in highest grain yield which was at par with treatments T_8 and T_9 and significantly higher than all other treatments. Straw yield obtained with treatment $T_{10,}$ was significantly higher than all other treatments except $T_{9.}$ Highest biological yield was recorded with treatment T_{10} which was at par with treatments T_8 and $T_{9.}$

Keywords: Growth parameters, Nitrogen, Soil, Wheat

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*Corresponding Author