



Effect of different rates of nitrogen application on Nitrogen uptake and Use efficiency of wheat

Prabin Ghimire

Institute of Agriculture and Animal Science, Nepal

Abstract:

Unsuitable nitrogen management and low soil fertility are major constraints of wheat production in Nepal. Limited information is available on optimum nitrogen rates and use efficiencies. So a field experiment was conducted on the inner terai to determine the effect of nitrogen on yield and improving the nitrogen use efficiency of wheat. Level of five doses of nitrogen, 0 kg ha⁻¹ (Control), 60 kg ha⁻¹, 80 kg ha⁻¹, 100 kg ha⁻¹ and 120 kg ha⁻¹ were laid out in Random completely Block Design (RCBD) with four replication. Observation on the various parameters of yield attributing characters like plant height, tiller m⁻², thousand grain weight (Kg), spike length (cm), grain spike-1 was found highest on Nitrogen dose 120 kg ha⁻¹. Similarly, nitrogen at 120 kg ha⁻¹ increases the grain yield by increasing the biological yield and harvest index. Grain nitrogen concentration 120 kg ha⁻¹ is statistically similar with 100 kg ha⁻¹ and 80 kg ha⁻¹ while nitrogen uptake is highest (114.833 kg ha⁻¹) in 120 kg ha⁻¹ and lowest in control. Agronomic use efficiency (18.420 Kg Kg⁻¹) is highest observed in 100 kg ha⁻¹ and lowest (13.62 kg kg⁻¹) on 60 kg ha⁻¹. Apparent fertilizer N recovery ratio obtained high (49.62%) in 120 kg ha⁻¹ which is statically similar to 100 kg ha⁻¹ (46.97%) and lowest (31.76%) in 60 kg ha⁻¹. While observing agro physiological efficiency and Nitro-



gen harvest index did not show any significance among any treatments. The application of nitrogen at 120 kg ha⁻¹ was required to produce the optimum yield and increasing the nitrogen use efficiency traits.

Biography:

Prabin Ghimire is studying Masters on soil science at Institute of Agriculture and Animal Science, Tribhuvan University, Nepal

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