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INTEGRATED PLANT NUTRITION SYSTEM (IPNS) IN WHEAT UNDER RAINFED CONDITIONS OF RAWALAKOT AZAD JAMMU AND KASHMIR

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ABSTRACT

Integrated plant nutrition system (IPNS) is a useful soil management strategy that optimizes and sustains the productivity of rainfed farming systems by increasing the efficiency of nutrient utilization. In Azad Jammu and Kashmir, continuous erosion and a little addition of organic matter making the soils low productive and less fertile. A field experiment was conducted to explore the potential of integrated use of both organic and mineral N on the growth and yield of wheat. The treatments consist of mineral N 30 and 60 kg N ha^{-1}, organic N farmyard manure (FYM) and green manure of Populous auramericans leaves and a control. The different parameters studied during investigation were; plant height, flag leaf area, root length, spike length, number of spikelets per spike, number of grains per spike, 1000 grain weight, grain yield, and straw yield. The response of wheat to both mineral and organic N was statistically inconsistent. Plant height, number of spikelets per spike, straw yield and grain yield were increased ($P \leq 0.05$) by the application of both mineral and organic N with a little effect on flag leaf area, root length, spike length, and number of grains per spike. Maximum grain yield of 2585 kg ha^{-1} was recorded in the treatment where 60 kg N ha^{-1} was applied followed by application of ½ N+FYM+leaves (2191 kg grain ha^{-1}). Contribution of plant leaves alone towards wheat yield was very small. Straw yield was maximum in 60 kg N ha^{-1} followed by plant leaves and farmyard manures. Economic analysis of data showed that mineral N @ 60 kg ha^{-1} gave the maximum net profit of Rs. 6605 per hectare. On an average, integrated plant nutrition system appears to increase wheat yield by 30 to 42% which is very encouraging in rainfed conditions.