VALIDATION OF REGRESSION MODELS IN THE FIELD FOR ESTIMATION OF N REQUIREMENTS OF WHEAT

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ABSTRACT

Traditionally, fertilizer recommendations are based on crop response to fertilizers in field experiments. To save time and fertilizer resources, there is a need to develop predictive models for N fertilizer requirements for different areas. Thus models developed can be validated in the field. Six field trials on selected sites (3 irrigated and 3 barani) in D.I.Khan, Mardan and Swat districts were conducted to compare the N rates determined from regression models with the recommended rates of N for these areas. These regression models were developed during 1992-93 and 1993-94 to predict wheat yields and N fertilizer requirements. Design employed for these studies was randomized complete block with three replications. Basal dose of 90 kg P_2O_5 and 60 Kg K_2O ha^{-1} was used for irrigated trials, while 50 kg P_2O_5 for barani trials at D.I.Khan and Mardan, and 45 kg P_2O_5 and 30 kg K_2O ha^{-1} for Swat. The results obtained showed significant differences among fertilizer treatments almost in all the trials. In case of irrigated trials, combined model proved better than other models for D.I.Khan and Swat sites, while 1992-93 model for Mardan. In case of barani trials, combined model proved better than the recommended rate of N for all the three sites. It is obvious from these results that the different models were effective in predicting wheat yields and estimating site-specific N requirements for different sites under irrigated as well as barani conditions. These models can be successfully used to estimate wheat yields and N fertilizer requirements using soil properties.