Techniques of efficient fertilizer management for wetland rice - a review.

ABSTRACT

Efficient fertilizer management was proved as a tool for increased crop production in an environmental friendly way. Nutrient response studies determine optimum economic doses for a particular nutrient under specific soil environment. Fertilizers need assessment entails, soil test results and nutrient response models. A few models for fertilizer rate calculation based on soil test values, are briefly discussed in this paper. The test results from site specific nutrient management (SSNM) model showed about 10% grain yield increase compared to that of farmers' practice in Asia. The results of several studies showed that the use of urea supper granule (USG), leaf color chart (LCC) and Soil Plant Analysis Division: Chlorophyll meter (SPAD) based on N fertilizer management increased N fertilizer use efficiency and reduces environmental risk. The mean yield values of 18 tidal prone sites of Bangladesh showed USG produced an average of 17.84% higher yield of MV rice and saved an average of 32.52% of N over prilled urea. N and K nutrients response in rice were best fitted to quadratic and square root quadratic, while for P response curve it was linear plateau. In clay loam soils of Bangladesh, a linear yield increase was observed from <3 to 6 mg kg-1 available P and then leveled-off up to 17 mg kg-1. Potassium fertilizer positive response was found up to 80 kg ha-1 of K in clay loam soils of Bangladesh. It can be concluded that for sustainable, efficient and environment-friendly rice production fertilizer application should be based on plant and soil tests, either it derived from different model or crop nutrient response study.

Keyword: Fertilizer; Rice; Nitrogen; Phosphorus; Potasium.