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Use of leaf colour chart for nitrogen management as a tool in bridging the yield gap in rainfed rice (*Oryza sativa* L.) production

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ABSTRACT : Nitrogen is the major nutrient that limits the yields of rice cultivars but application of higher level of nitrogen fertilizers is very common among Indian farmers, who attribute the rice crop greenness and growth to nitrogen application. As a result of application of higher levels of nitrogen the crop suffers from high incidence of pest and diseases and also from lodging. Therefore, there is need to synchronise N fertilizer application with plant needs to optimise the nutrient use and minimise the environmental pollution. Appropriate diagnosis of N status in leaves is necessary to decide the need for top dressing fertilizer N. So, recently introduced leaf colour charts (LCC) is a farmer friendly tool that offers substantial opportunities for farmers to estimate plant nitrogen (N) demand in real time for efficient fertilizer use and high rice yields. A field experiment was conducted to study the “use of leaf colour chart for nitrogen management as a tool in bridging the yield gap in rainfed rice (*Oryza sativa* L.) production”. LCC readings were measured every week from 21 days after seeding (DAS) until the first flower appeared and nitrogen fertilizer was applied as per treatment schedule. The N management at LCC 3 with sunhemp green manuring registered higher grain yield as result of higher available N in the soil, higher net returns and B:C followed by green leaf manuring with eupatorium with N management at LCC 3. Significant positive correlation was observed between grain yield and growth and yield attributes whereas, per cent chaff, straw yield and lodging index were significantly negatively correlated with grain yield. Thus, the results of the experiment provide an appropriate and economic package to the farmers in judicious and conjunctive use of N fertilizer on the basis of LCC management practice.

KEY WORDS : LCC, Green manuring, Yield, NUE, B:C, Lodging

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