


## Assessment of precision nitrogen management strategies in terms of growth, yield and monetary efficiency of maize grown in Western India

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### ABSTRACT

Blanket fertilizer recommendations, especially for nitrogen can lead to the overuse of fertilizers, pollution and increased cost of cultivation. This necessitates the development of measures to increase crop production while reducing cultivation costs and improving the monetary efficiency of crops. Field investigations were laid during 2015 and 2016 at Anand, India, to find critical threshold values of leaf greenness as measured by the LCC (Leaf Color Chart) and CCM (Chlorophyll Content Meter) for framing approaches for fertilizer N management in maize. The absolute growth rate at 60–90 DAS ( $\text{g day}^{-1}$ ) and crop growth rate ( $\text{g m}^{-2} \text{day}^{-1}$ ) recorded at different intervals found to be superior under N application based on LCC critical value 5 and CCM critical value 40 and did not differ significantly with other treatments except CCM 30 and LCC 3 throughout the years. Assessment of the threshold leaf greenness revealed that fertilizer N management using LCC 5 resulted in increased maize grain yield to the tune of 12.30 and 12.25 percent during 2015 and 2016, respectively over blanket recommendation. Net profit from the maize under LCC 5 was up to 16.37 percent higher compared to the blanket (100% RDF) application. The study revealed that in maize cultivation, N fertilizer can be more effectively managed by applying N dose based on leaf color as measured by LCC or CCM compared to the blanket recommendation.

**Abbreviations:** CCM: chlorophyll content meter; DAS: days after sowing; LCC: leaf color chart; RDF: recommended dose of fertilizers

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