**Research Article**

# Evaluating fertilizer applications on spectral behaviour of rice crop using remote sensing technique

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## Summary

Present experiments were conducted at the research farm of Indian Agricultural Research Institute, New Delhi during *Kharif* 1999 and *Kharif* 2001 to study the influence of nitrogenous fertilizer on the tilth of rice crop by remote sensing technique. Spectral radiance observations of the crop canopy were collected with the Portable Spectroradiometer which scanned from 330 nm to 1100 nm of electromagnetic spectrum range at 5nm interval (band-width). Normalized difference vegetation index was calculated for the both tillage practices, puddle and unpuddled situation at different growth stages for different fertilizer treatment. Fertilized plots were observed to have a higher value of BR than controlled ones throughout the crop growth period, both in puddled and unpuddled treatments. The higher values of band ratio were observed in puddled rice compared to the unpuddled rice irrespective of growth stages and fertilizer application levels. Statistical correlations were developed between NDVI (Normalized difference vegetation index) and RVI (Ratio vegetation index) with LAI (Leaf area index), DM (Dry matter) production and total leaf chlorophyll content. Second order polynomial equations were developed to correlate remotely sensed data with crop biometrics. Polynomial second order equations of 'band ratio' were found to be better fitted than NDVI with crop biometrics.

**Key words :** NDVI, Puddle, Unpuddled, Rice, Fertilizer