



## Effect of different N levels and green leaf manure application on yield and yield components of rice

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### ABSTRACT

Field experiment was conducted during samba season of 2001 (*Rabi*) to study the effect of different N levels and green leaf manure application on yield and yield components of rice. The treatment consisted of nine N regimes *viz.*, control, 100 kg N ha<sup>-1</sup>, 150 kg ha<sup>-1</sup>, application of N through LCC critical values of 3, 4, and 5 and through SPAD critical values of 33, 35 and 37 in two cultivars *viz.*, ADT 39 and CORH 2. These treatments were tried with or without the application of green leaf manure at 6.25 Mg ha<sup>-1</sup>. The highest yield was obtained when N was applied through SPAD 35 and least yield was recorded in control plot. Application of N through SPAD 37, LCC 5 or 150 kg N ha<sup>-1</sup> levels had resulted in taller plants, with more numbers productive tillers, and higher panicle length, thousand grain weight, more numbers of filled grains and higher density.

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**Key words :** Green leaf manure, LCC, N levels, and Nutrients uptake, SPAD and yield

### INTRODUCTION

Rice is one among the cereal crops, which is exclusively grown for human consumption and feeding 40 per cent of the world population and 65 per cent of the country's population. The rice yields obtained from one hectare could sustain 5.7 humans in a year (De Datta, 1981). To meet the food demand, the country has to reach an average rice production level of 2.40 t ha<sup>-1</sup> from the present level. Among the nutrients, N is the primary in the fertilizer management programme for rice as it is able to realise the yield potential of high yielding rice varieties (Budhar and Palaniappan, 1996). Due to increasing energy crisis, fertilizer N shortages and rising fertilizer cost, an urgent need has arisen to identify alternative N sources including green leaf manures. Green leaf manure was used as a supplementary previously and now it is used to substitute for mineral N (Gill *et al.*, 1994). Green manures have not only increased grain yield but also enhanced the sustainability of nutrients

in the soil due to higher residual recoveries (Deka Medhi and De Datta, 1996). Therefore, a study to find optimum dose of nitrogen to transplanted rice was found necessary. Hence, the present investigation was carried to find out the effect of varying N levels on the yield and yield components of rice.

### MATERIALS AND METHODS

A field experiment was conducted at eastern farm of Pandit Jawaharlal Nehru College of Agriculture and Research Institute, Karaikal, Puducherry during the samba season of 2002 with nine N levels *viz.*, control (T<sub>1</sub>), 100 kg N ha<sup>-1</sup> (T<sub>2</sub>), 150 kg N ha<sup>-1</sup> (T<sub>3</sub>), application of N through LCC 3 (T<sub>4</sub>), LCC 4 (T<sub>5</sub>) and LCC 5 (T<sub>6</sub>), N through SPAD 33 (T<sub>7</sub>), SPAD 35 (T<sub>8</sub>), and SPAD 37 (T<sub>9</sub>) in two cultivars *viz.*, ADT 39 (V<sub>1</sub>), and CORH 2 (V<sub>2</sub>). These treatment tried with (G<sub>1</sub>) or without the application of green leaf manure (GLM) (G<sub>2</sub>) (*Crotalaria juncea*) at the rate of 6.25 Mg ha<sup>-1</sup>.

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