

Improving Productivity and Soil Properties in Rice Based Cropping Systems Through Pre-*kharif* Green Manuring

K Surekha, Y S Satish Kumar, N Sailaja and P C Latha

Department of Soil Science, Directorate of Rice Research, Rajendranagar,
Hyderabad - 500 030

ABSTRACT

In a long-term field experiment during 2002-03 to 2006-07 on a black clayey Vertisol at the Directorate of Rice Research Farm, Hyderabad, the effect of pre-*kharif* green manures (greengram, cowpea, dhaincha and sunhemp) on grain yield of *kharif* rice and *rabi* non rice crops (groundnut, sunflower, safflower and chickpea) and soil health parameters was studied. The grain legumes (green gram and cowpea) provided additional advantage through grain yield (4.5 -5.7 q ha⁻¹) in addition to providing nutrients and improving soil properties. Whereas, sole green manures with high phytomass (dhaincha and sunhemp) improved the soil properties to a great extent. Grain yield of *Kharif* rice was significantly higher (22-74 %) in green manure applied plots over fallow plots. The *rabi* crops also recorded higher yield (by 17-76 % in different crops over 5 years) in green manured plots over fallow plots showing residual effects of regular application of green manures on non-rice *rabi* crops through improved soil health indicators.

Key words : Green manures, Productivity, Rice, Soil properties, Vertisols.