grain yields of 15 to 17 t/ha were achievable. Average annual grain productivity of the system was 13.3 t/ha of which 60% was from rice and 40% from wheat. None of the SSNM locations had annual grain productivity less than 10 t/ha. Averaged over locations, SSNM caused a 3.4 t/ha annual advantage or 34% more yield than common farmers' practices (FP). SSNM increased the expenditure on fertilisers by Rs.4,170/ha (US$104) compared to FP but generated additional produce valued at Rs.20,530 (US$513) – returning an extra net income per unit extra expenditure, or benefit-to-cost (BCR) ratio of 4.9. A frequency distribution of economic returns for the rice-wheat system (84 location x nutrient x rate combinations) found BCRs under 2 in 13% of cases, 2 to 5 in 17% of cases, 5 to 10 in 24% of cases, and above 10 in 46% of cases. The majority of cases with very high BCRs reflect very high grain yields achieved through high rates of response per unit applied nutrients.

Similarly, two years of rice-rice data revealed grain yields of 15 to 18 t/ha. Average annual grain productivity was 13.3 t/ha – the contribution of Kharif and Rabi rice being almost equal. The annual grain productivity under SSNM was more than 10 t/ha at all locations except one. Averaged over locations, SSNM brought a 2.5 t/ha advantage, or a 23% increase over FP.

SSNM also increased fertiliser expenditure by Rs.4,540/ha (US$114) over the FP but generated additional produce valued at Rs.11,900/ha (US$298) – a BCR of 2.6. The application of several nutrients was profitable at most sites.

Soil testing for fertiliser use started receiving attention in the mid 1950s. Close to 550 soil testing laboratories have been set up during the past 50 years to provide site- and crop-specific fertiliser recommendations. Most of these are owned and operated by government departments, but for various reasons their ground-level impact on facilitating balanced nutrient application is small. The national soil testing system needs to be readily energized and made more farmer-friendly, under the SSNM approach.

The nutrient needs of Indian agriculture are so large and expanding such that no single input, be it fertiliser or organic material, can meet them alone. Integrated nutrient management (INM) is receiving increasing attention, and rightly so. However, most INM packages will continue to be fertiliser-driven. This is because of inadequate amounts of organic sources of nutrients and their competing usage. Available estimates indicate that organic materials available as nutrient sources can meet about 25% of the total nutrients needs in India. The rest must come from soil reserves and inorganic fertilisers. BC-INDIA

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IPNI Scholar Award Announced

K. Vanitha

Miss K. Vanitha of Tamil Nadu Agricultural University (TNAU), Coimbatore, India, was one of only five recipients of the 2007 Scholar Award sponsored by IPNI. The awards of US$2500 (twenty-five hundred dollars) each are conferred to deserving graduate students in sciences relevant to plant nutrition and management of crop nutrients. Funding for the awards is provided through support of IPNI member companies.

Miss Vanitha is a M.Sc. student in Crop Physiology at TNAU, with a thesis title of "Drip Fertigation and Its Nutrio-Physiological Impact in Aerobic Rice (*Oryza sativa* L.)." Rice production and water conservation are two major factors impacting food production in India. Aerobic rice is a new concept to further decrease the water requirements in rice production, which will have major consequences for both soil and plant nutrient dynamics.

A native of Bommidi in Tamil Nadu, Miss Vanitha completed her B.Sc. degree in 2006. Her career goals are to pursue a Ph.D. in abiotic stress management of crops.

The IPNI Scholar Awards are made directly to students and no specific duties are required of them. More information is available from IPNI staff or from the IPNI website: >www.ipni.net/awards<. BC-INDIA