




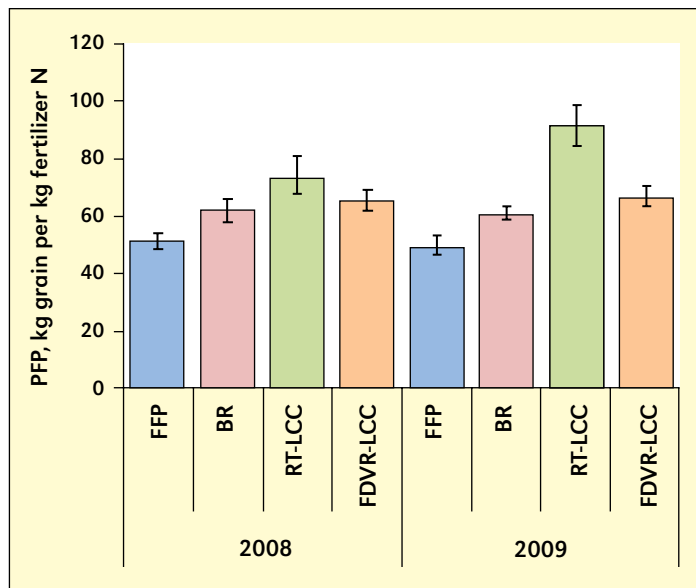
The LCC is gaining in popularity as an inexpensive tool for estimating leaf N content and managing fertilizer N in rice.

fixed-date variable rate strategy were similar to those recorded for real-time N management, the former allowed application of either 100 or 115 kg N/ha compared to the 60 to 120 kg N/ha range in the latter. This suggests that fixed-date variable N application, as was designed in this study, needs to be modified to allow for N application across a wider seasonal range. It is proposed here that this can be done either by introducing the element of variable rate N application at the 21 DAT stage or by including another date for fertilizer application as per leaf color just before flowering (around 60 days).

### Conclusions

In summary, farmers had a general tendency towards applying up to 60 kg N/ha more fertilizer N than the blanket recommendation of 120 kg N/ha without capturing a yield benefit. Real-time N management based on applying fertilizer N whenever leaf color was less than critical greenness resulted in application of 60 to 120 kg N/ha with rice yields being equivalent to those obtained with the blanket recommendation. Following the strategy of fixed-date variable rate N management, either 100 or 115 kg N/ha was applied, and yields were equal to those produced by real-time N management or the blanket recommendation. For easy adoption by farmers, the fixed-date variable rate strategy needs to be modified to allow the application of N across a wider seasonal range. 

Mr. Harmandeep Singh is Research Fellow in the Department of Soils, Punjab Agricultural University, Ludhiana 141 004, Punjab; e-mail: harman\_80fdk@rediffmail.com. Dr. Sharma is Professor, Department of Soils, Punjab Agricultural University, Ludhiana 141 004, Punjab,



**Figure 1.** Partial factor productivity ( $PFP_N$ ) of different N management strategies in rice averaged over 5 and 10 on-farm experiments in 2008 and 2009, respectively. [FFP = Farmer fertilizer practice; BR = Blanket recommendation; RT-LCC = Real time N management using leaf color chart; and FDVR-LCC = Fixed-date variable rate N management using LCC].

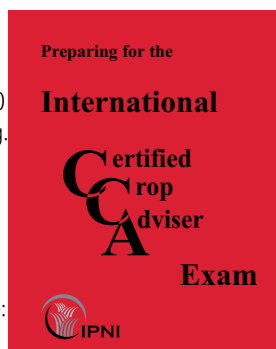
e-mail: sharma\_kn@rediffmail.com. Mr. Dhillon, Ms. Amanpreet, Mr. T. Singh, and Mr. V. Singh are Research Fellows in the Department of Soils, Punjab Agricultural University, Ludhiana 141 004, Punjab; e-mail: preetaman\_13@yahoo.co.in. Dr. Kumar is Associate Professor, Department of Soils, Punjab Agricultural University, Ludhiana 141 004, Punjab; e-mail: dinesh\_kathuria@rediffmail.com. Dr. B. Singh is National Professor, Indian Council of Agricultural Research (ICAR), at Punjab Agricultural University, Ludhiana, e-mail: BijaySingh20@hotmail.com Dr. Harmandeep Singh is Deputy Director, West India Region, IPNI South Asia Program, e-mail: hsingh@ipni.net.

### References

- Bijay-Singh, Yadvinder-Singh, J.K. Ladha, K.F. Bronson, V. Balasubramanian, Jagdeep-Singh and C.S. Khind. 2002. *Agron. J.* 94:821-829.
- Snyder, C.S. and T.W. Bruulsema. 2007. International Plant Nutrition Institute. June 2007. Reference # 07076. Norcross, GA, U.S.A. pp. 4
- Varinderpal-Singh, Yadvinder-Singh, Bijay-Singh, Baldev-Singh, R.K. Gupta, Jagmohan-Singh, J.K. Ladha, and V. Balasubramanian. 2007. *Archives of Agron. and Soil Sci.* 53: 567-579.
- Yadvinder-Singh, Bijay-Singh, J.K. Ladha, J.S. Bains, R.K. Gupta, R.K., Jagmohan Singh, and V. Balasubramanian. 2007. *Nutr. Cycl. in Agroecosys.* 78:167-176.

### Study Guide for International Certified Crop Adviser Exam

The publication titled *Preparing for the 2011 International Certified Crop Adviser Exam* (Item #50-1000) is available for purchase from IPNI. The price of USD 50.00 (fifty-dollars) includes shipping and handling. Contact: Circulation Department, IPNI, 3500 Parkway Lane, Suite 550, Norcross, GA 30092-2806. Phone: 770-825-8084; Fax: 770-448-0439; E-mail: circulation@ipni.net. The ICCA exam study guide may also be purchased on-line by visiting this website: >[www.ipni.net/ccamanual](http://www.ipni.net/ccamanual)<.



### AG CONNECT Expo Set for January 2011

North America's new global agriculture exhibition, AG CONNECT Expo 2011, is set for January 8-10 (with preview day January 7) in Atlanta, Georgia. IPNI is a supporter and exhibitor for the event and will sponsor two educational presentations. AG CONNECT Expo is organized by the Association of Equipment Manufacturers, with direction from industry companies and organizations. For more information, visit the website: >[www.agconnect.com](http://www.agconnect.com)<.

