

**S**triking a balance remains the focus of IPNI research programs in nutrient management. In particular balancing nutrient application to optimize yield, quality, economic return and minimize environmental impact. However, our work around the world provides us with so many examples of how challenging this task has become. Whether it is access to nutrients, cost of products, distortions related to subsidies in countries, or simple lack of knowledge, many farmers remain at a significant disadvantage when it comes to using nutrient management to improve their agricultural production.

**Making a science-based fertiliser recommendation continues to be our priority.** In most regions of the world we develop fertiliser recommendations using soil analysis as our principle field assessment tool. While this remains the basis of most recommendations in South Asia, the lack of access to soil testing, or cost, mean that few farmers actually use soil testing. Rather most have to rely on suggestions from neighbors, fertiliser dealers, or their financial resources when it comes to determining fertiliser application rates. If we are going to achieve our objective of providing site-specific nutrient management (SSNM) to smallholder farmers in South Asia this approach is unacceptable.

**Nutrient Expert® (NE) is a new option to help solve the challenge of smallholder access to science-based fertiliser recommendations.** In fact, NE is capable of providing both a SSNM recommendation as well as providing fertiliser source, rate and timing guidance to optimize crop response. Developed using on-farm data collected in the agro-ecological regions of South Asia, NE is proving to be a powerful decision support tool, which can be easily placed in the hands of advisors to farmers, and in some cases computer-trained farmers. Developed to provide fertiliser recommendations in the absence of soil testing, the NE tool is also able to use soil test data if available for a specific field. The recommendation generated is tailored to the farmers own yield goal, field management history and prevailing environmental conditions. Recommendations can be manipulated in-season based on the rainfall patterns, avoiding overuse of nutrients when rainfed agriculture suffers drought. Finally the NE model provides an economic analysis to help the farmers make decisions on their fertiliser management options related to expected returns. Together, these options in the NE tool have changed the ability of farmer advisors to meet the SSNM recommendations of smallholder farmers.

**Proof of concept remains critical to widespread adoption.** That is the approach we have adopted in IPNI with NE. We have spent several years conducting rigorous verification field trials with our cooperators across South Asia to ensure the NE tool is up to meeting the needs of local farmers. This issue of Better Crops South Asia provides the detailed information on how NE was developed in the region, and the results of the model verification with wheat and maize. We are confident that readers will find this information of great interest and cause for reconsidering our options when it comes to making SSNM recommendations to smallholder farmers.

**Future options – where to next?** Our work with NE to date has been very encouraging and motivating to both IPNI staff and our collaborators. Like all new research approaches, we started slow with the key crops wheat and maize. We are currently working to develop NE models that will support rice, soybean and cotton at this time. We are motivated in our efforts based on our current success, and look forward to future opportunities to work on new crops, and in new regions of South Asia.



## BETTER CROPS

International Plant Nutrition Institute  
3500 Parkway Lane, Suite 550  
Peachtree Corners, Georgia 30092-2844  
[www.ipni.net](http://www.ipni.net)

Adrian Johnston  
IPNI Vice President, Asia & Africa Group