

# RESEARCH WITH IMPACT

## THE CHALLENGE:

*The Terai region of Nepal is a narrow strip of fertile alluvial land, comprising the most agriculturally productive region of the country. Rice, maize, and wheat are the major food crops of Nepal and they are intensively cultivated in the Terai. Despite their high yield potential, the average yield of these crops has remained stubbornly low. Inadequate nutrition is one of the major reasons that crop yields never approach their potential. Not only is improved productivity of cereal crops in the Terai crucial for Nepalese food security, it is a key to raising the livelihood of over 70% of its population who are directly associated with agriculture.*

*Balanced and adequate application of plant nutrients is essential to improve cereal productivity in the Terai. However, the lack of capacity of farmers' and their advisers to first estimate and then apply the recommended amounts of plant nutrients to individual fields in this smallholder landscape remains a major barrier.*

## THE RESEARCH SOLUTION:

IPNI developed the Nutrient Expert® fertilizer decision support tool to quickly estimate specific fertilizer requirements for cereals at the individual farm scale. IPNI also engaged with FORWARD (a leading non-governmental organization in Nepal) and the Non-Resident Nepalese Association of Australia (NRNA) to disseminate the resulting recommendations to cereal farmers throughout the Terai.

Nutrient Expert® was first introduced in far eastern Nepal (Zhapa and Morang districts) over a two-year period to provide improved fertilizer recommendations to at least 600 farmers of maize, wheat, or rice. An introductory workshop was organized to kick-start the project and to bring together all stakeholders for their agreement with the program objectives. This first meeting included participating farmers, representatives of the Nepal Agricultural Research Council, local government extension, students and researchers from the Institute of Agriculture and Animal Science, NRNA, and FORWARD.

Key farm advisers of FORWARD and other cooperating groups were trained to use Nutrient Expert on behalf of each of the 600 participating farmers.



## Nutrient Expert® Software Boosts Farm Profitability in Eastern Nepal

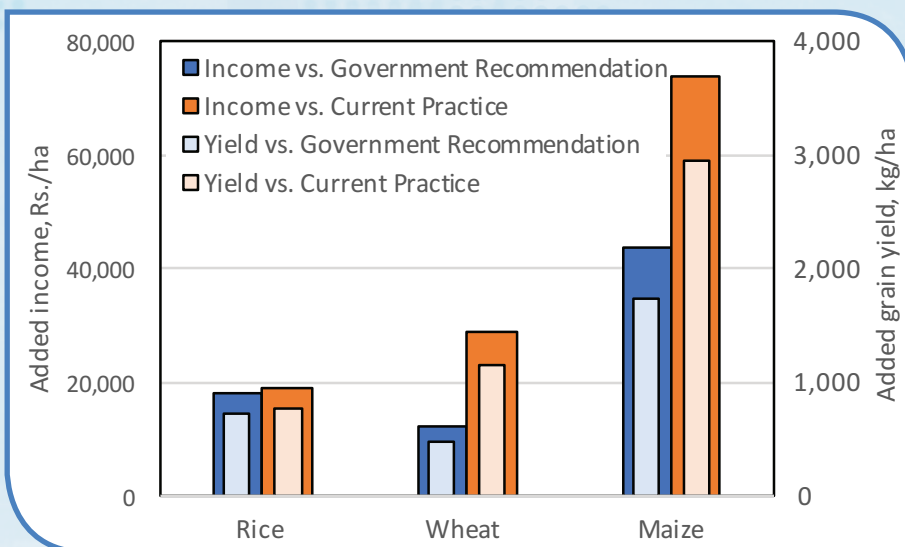
### THE RESULTS:

Research trials on each farm compared (1) recommendations generated by Nutrient Expert®, (2) official government recommendations, and (3) current farm practice for rice, wheat, or maize.

Nutrient Expert® recommendations increased rice yields by 16% over current practice; wheat yields increased by 47% over current practice and 18% over government recommendations; and maize yields rose by 42% over current practice and 21% over government recommendations. In turn, these higher grain yield raised farm income by an additional Rs.18,100 to 19,050/ha in rice, Rs.12,040 to 28,860/ha in wheat, and Rs.43,525 to 73,650/ha in maize. [note: Rs.104 (Nepalese Rupee) = US\$1].



Nepalese farmers can significantly improve yields of rice, wheat, and maize, and also raise their income through the use of fertilizer recommendations generated by Nutrient Expert®. The adoption of this relatively simple tool, which is able to generate farm-specific information, will enhance food security within Nepal and secure the livelihoods of its farmers.



*Fertilizer recommendations generated by Nutrient Expert® software increased yields and farmer profitability of rice, wheat, and maize compared with generalized government recommendations or current practice in the Terai of eastern Nepal. Rs.104 (Nepalese Rupee) = US\$1.*



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