

MAIZE: SCIENCE AND PRACTICE

Maize - the agronomist's favorite crop. Farmers love to grow it and researchers love to study it. In the early planning phase of IPNI's global maize initiative late in 2007, some questioned whether there was really any meaningful science that was yet to be initiated and whether our resources would be better utilized on a less-studied crop. However, maize is the recipient of 16% of the world's fertilizer and represents 40% of global cereal production. And, IPNI scientists around the world felt we had critically important questions about best practices that were not yet answered by the existing scientific literature. There were knowledge gaps, especially at the system level where we attempt to define best practices to meet the economic, environmental and social objectives of sustainable production.

IPNI's mission is not focused on best practices of cropping systems. It's focused on the nutrient management subset (4Rs) of practices in cropping systems. But, we fully appreciate how that subset is not only interactive internally, but interacts with many other factors of the production system and that those other factors can markedly influence the performance of nutrient inputs. After many decades of disciplinary research, the science of each aspect of maize systems is rather well developed, but the science supporting how maize systems at an integrated holistic level behave remains full of uncertainty. The disciplinary science, models, and big data approaches leave us with substantial uncertainty about what the "best" set of practices actually looks like at a specific site and what the performance metrics might be for that set. The pathway of ecological intensification (EI) or sustainable intensification remains at best a fuzzy approximation.

So, the Global Maize Project was launched to establish field studies designed to provide an empirical test of what our incomplete science, filtered by local experience, approximated as the best set of practices for EI systems. How productive and efficient can maize systems become if our best knowledge and technology are all brought to bear in meeting sustainability objectives? How efficient and effective can nutrients and other inputs and resources become? And, how does the EI system compare to the systems being used by farmers in the region? It's really a final validation of the recommendations we make to farmers and a demonstration of their performance ... converting the science we know to practices that farmers can use.

BETTER CROPS

International Plant Nutrition Institute
3500 Parkway Lane, Suite 550
Peachtree Corners, Georgia 30092-2844
www.ipni.net



Paul Fixen

Dr. Paul E. Fixen
IPNI Senior Vice President and Director of Research