

DR. ABDUL RASHID NAMED IPNI SCIENCE AWARD RECIPIENT FOR 2017

December 14, 2017 – Peachtree Corners, GA, USA – The International Plant Nutrition Institute (IPNI) has named Dr. Abdul Rashid, Fellow & Editor-in-Chief with the Pakistan Academy of Sciences, as the recipient of the 2017 IPNI Science Award.

Dr. Rashid's achievements are unique among soil and crop scientists. Abdul's innovative, problem-solving approach to balanced and efficient fertilizer use in calcareous soils, focusing on micronutrients, phosphorus (P), and soil testing and plant analysis, has contributed significantly to crop and soil management and sustainable crop productivity, not only in Pakistan and Asia but also worldwide.

Dr. Rashid's farmer-friendly fertilizer use technologies are formally recommended and widely adopted in Pakistan. These include: i) cost-effective use of boron (B) and zinc (Zn) fertilizers in 3 million (M) ha of cotton since 1998; ii) highly cost-effective use of B fertilizer in 2 M ha of rice, leading to 15-25% yield increases and cooking quality improvements, since 2004; iii) farmer-friendly, Zn-enriched rice nursery technology to control Zn deficiency; iv) 50% fertilizer-saving, phosphate banding technology for wheat on over 8 M ha.

He has publicized his research effectively, locally and globally, through journal papers, books, conferences, advisory materials, and field demonstrations—addressing researchers, educators, extension service, farmers, and policy makers. He has lectured extensively in Pakistan and around the world. His *Soil Science* monograph (published by Pakistan's National Book Foundation) is a superb textbook for students and advisory staff. Most recently, in 2017, Dr. Rashid prepared a comprehensive status report titled *Micronutrient Fertilizer Use in Pakistan: Historical Perspective and 4R Nutrient Stewardship* revealing that potential fertilizer requirement for B and Zn are 22-times and 5-times their current use levels, respectively.

Since 2008, Dr. Rashid has addressed micronutrient malnutrition by enriching staple cereals with Zn and iodine. This multi-country research under the *HarvestZinc Project* has established that wheat and rice grains can be enriched by foliar feeding, that foliar Zn fertilizer can be mixed safely with pesticide spray solutions, and that high-Zn wheat grains used as seed result in denser crop stand and higher yield. He is co-author of papers on agronomic biofortification of staple cereals with Zn, and the first-ever paper reporting wheat grain enrichment with iodine by fertilization.

Dr. Rashid is an IFA Norman Borlaug Laureate, Pakistan's Dr. Norman Borlaug Laureate, East-West Center Distinguished Alumnus, Fellow of Indian Society of Soil Science, Fellow of Soil Science Society of Pakistan, PARC Silver Jubilee Laureate, Pakistan Scientist of the Year, National Book Foundation Awardee, and J. Benton Jones Laureate.

More about Dr. Abdul Rashid

During his formative years in research (1973-79), Dr. Rashid contributed towards identification, establishment, and mechanisms of Zn deficiency in rice, wheat, and corn. In 1979, he became coordinator of *Micronutrients Project* in Pakistan. Then, he obtained Ph.D. from the University of Hawaii by determining crop

Zn requirement in acid soils of Hawaii and calcareous soils of Colorado. Abdul returned to Pakistan in 1986 and led a well-conceived soil fertility and crop nutrition program at the National Agricultural Research Center.

Dr. Rashid's work identified and established deficiencies of nitrogen (N), phosphorus (P), potassium (K), B, Zn, and iron (Fe) in irrigated and rain-fed cereal, legume, oilseed, fiber, and sugar crops. While most plant and soil scientists would not consider B deficiency to be of real concern in calcareous soils, Dr. Rashid identified and established B deficiency in 3 M ha irrigated cotton and 2 M ha flooded rice grown in calcareous soils of Pakistan. He delineated deficient areas of P, K, B, and Zn for irrigated cotton and sugarcane and many rain-fed crops. Also, he made substantial contributions to world literature by establishing suitability of seed B, Zn, and P composition for prognosis of their deficiencies and by developing foliar analysis diagnostic norms for B, Zn, Fe, and P in many crops. Abdul's work underlined the critical importance of fertilization in sustaining crop production and provided a convincing argument for soil test-based balanced fertilization along with crop residue recycling, for sustaining cotton-wheat productivity.

His extensive field research demonstrated that balanced nutrient management leads to carbon sequestration. For example, he reported that semi-arid soil organic matter is enhanced by optimum P fertilization, which leads to better root proliferation and crop residue recycling. His advocacy for soil-plant analysis-based fertilizer use has helped avoid overuse of N and P in high-input cotton, potato, corn, and vegetables, has enhanced crop use efficiency of fertilizer nutrients, and has reduced the risk of nutrient losses to the environment. His *Soil-Plant Advisory Service* backstopped crop production as well as environmental concerns, like heavy metal contamination. Consequently, he has been an invited speaker to many environment conferences.

Dr. Rashid is affiliated with Soil Science Society of America, American Society of Agronomy, Indian Society of Soil Science, East-West Center Association, Honolulu, Hawaii, Agricultural Foundation of Pakistan, Association of Former PARC Scientists, and Soil Science Society of Pakistan, of which he is a Past-President. He has served as Director General of Pakistan's National Agricultural Research Center and Member (Bio-Sciences) of Pakistan Atomic Energy Commission.

About the IPNI Science Award

The IPNI Science Award is intended to recognize outstanding achievements in research, extension, or education; with focus on efficient management of plant nutrients and their positive interaction in fully integrated cropping systems that enhance yield potential. Dr. Rashid receives a special plaque along with a monetary award of US\$ 5,000. A committee of noted international authorities selects the recipient.

Private or public-sector agronomists, soil scientists, and crop scientists from all countries are eligible for nomination. More information about the IPNI Science Award is available at <http://www.ipni.net/awards>.

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IPNI Contacts: Dr. Terry Roberts, IPNI President, Ph: 770.447.0335, (info@ipni.net); Dr. Robert Mikkelsen, IPNI VP Communications, Ph: 770-825-8070, (rmikkelsen@ipni.net); Mr. Gavin Sulewski, IPNI Editor, Ph: 770.825.8080, (gsulewski@ipni.net).