

Dr. Rattan Lal, a distinguished agricultural soil scientist at the Ohio State University (OSU), USA and an alumnus of ICAR-Indian Agricultural Research Institute (IARI), New Delhi, has been declared the winner of the World Food Prize - 2020 for his pioneering work on developing and mainstreaming a soil-centric approach to increasing food production that restores and conserves natural resources and mitigates climate change. Dr. Lal was born in 1944 in Western Punjab of the then undivided India. He had his graduation (B.Sc. in Agriculture) from Punjab Agricultural University, Ludhiana in 1963 and M.Sc (Soils) in 1965 from the IARI. He received his Ph.D. (Soils) in 1968 from OSU, USA. His soil-centric approach is based on the premise that *'the health of soil, plants, animals, people and the environment is one and indivisible'*. Dr. Lal has developed innovative soil-saving techniques that benefit the livelihoods of more than 500 million smallholder farmers, improving the food and nutritional security of more than two billion people and saving hundreds of millions of hectares of natural tropical ecosystems. He revealed that restoring degraded soils through increasing soil carbon and organic matter not only improved soil health, but helped combat rising carbon dioxide levels in the air by sequestering atmospheric carbon.



Other IARI Alumni who received prestigious World Food Prize

Dr. Sanjay Rajaram, a prominent wheat breeder at the International Maize and Wheat Improvement Center (CIMMYT), Mexico and an alumnus of ICAR-Indian Agricultural Research Institute (IARI), New Delhi was honoured as the World Food Prize Laureate - 2014 for his innovative research that led to a prodigious increase in world wheat production by more than 200 million tons. Dr. Rajaram developed an astounding 480 wheat varieties that have been released in 51 countries on six continents and have been widely adopted by small- and large-scale farmers. He was born in 1943 in Uttar Pradesh, India. He earned his B.Sc. (Agriculture) degree in 1962 from College of Jaunpur at the University of Gorakhpur. He studied genetics and plant breeding under Prof. M.S. Swaminathan at IARI, New Delhi, and received his master's degree in 1964. He had his Ph.D. degree in 1968 from University of Sydney, Australia. Dr. Rajaram joined CIMMYT in 1969, and began his research and field work along with Dr. Norman E. Borlaug. Dr. Rajaram developed wheat cultivars with durable resistance to rusts through his concept of *'slow rusting'*. His high-yielding wheat varieties are disease- and stress-resistant and adaptable to diverse geographical regions and climate conditions.



Dr. Surinder Kumar Vasal, a renowned maize breeder at the International Maize and Wheat Improvement Center (CIMMYT), Mexico and alumnus of ICAR-Indian Agricultural Research Institute (IARI), New Delhi was awarded with Millennium World Food Prize (2000) along with Dr. Evangelina Villegas (Biochemist, Mexico), for their research on improving protein quality of maize. Dr. Vasal was born in 1938 in Amritsar, India. He completed his B.Sc. degree from Khalsa College, Amritsar in 1957 and M.Sc. degree from Kanpur Agricultural College in 1959. He earned his Ph.D. in genetics and plant breeding in 1966 from the IARI, New Delhi. He joined CIMMYT, Mexico in 1970. He successfully combined 'modifiers' gens with recessive *opaque2* gene which led to the birth of hard endosperm based Quality Protein Maize (QPM). QPM possesses nearly double the amount of essential amino acids like lysine and tryptophan than the traditional maize, and it offers 90% the nutritional value of skim milk. At a time when UNICEF reports stated that one million infants and small children were starving each month, the inclusion of QPM in daily rations improved



health and saved lives. The impact of QPM on growth and development of poultry and piggery are well documented.

Dr. Monkombu Sambasivan Swaminathan, an eminent wheat breeder at the ICAR-Indian Agricultural Research Institute (IARI), New Delhi and *'father of green revolution in India'*, received the first World Food Prize in 1987 for spearheading the development and cultivation of high-yielding wheat and rice varieties to India's farmers. Dr. Swaminathan was born in 1925 in Kumbakonam, Tamil Nadu, India. He earned his Ph.D. in plant genetics from Cambridge in 1952. Dr. Swaminathan became a scientist at IARI in the 1950s. After independence, it was predicted that the population would outstrip food production so much so that the 1970s would be a time of famine in India. Dr. Swaminathan learnt the development of Mexican dwarf wheat varieties by Dr. Norman E. Borlaug at Mexico. He invited Dr. Borlaug to India, and worked together to develop high yielding semi-dwarf wheat varieties that could support the increased biomass. Dr. Swaminathan also demonstrated to the farmers how to effectively increase grain production by employing a combination of the high-yielding wheat varieties, fertilizers, and more efficient farming techniques. Dr. Swaminathan's vision transformed India from a *'begging bowl'* to a *'bread basket'* almost overnight and ended India's reliance on grain imports.

