

DR. M.S. SWAMINATHAN - BIOLOGIST PAR EXCELLENCE

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M.S. Swaminathan is one of the world's leading scientists. He played a catalytic role in India's green revolution between 1960 and 1982. From April 1982 to January 1988 he served as Director General of the International Rice Research Institute (IRRI).

For the decade prior to assuming his post with IRRI, Dr. Swaminathan was at the forefront of one of the most remarkable agricultural accomplishments in recent history—moving India from having the largest food deficit in the world to producing enough grain to feed all of its people. From 1954 to 1972, he worked at the Indian Agricultural Research Institute, New Delhi, mainly in the field of wheat improvement. He served as Director General of the Indian Council of Agricultural Research; Secretary of the Department of Agricultural Research and Education (1972-79); and Principal Secretary of the Ministry of Agriculture and Irrigation (1979-80). He was member in charge of agriculture and rural development in India's Planning Commission from 1980 to 1982.

Born in Tamil Nadu, India, on August 7, 1925, he received his Ph.D. in Genetics from Cambridge University in 1952 and has received over 33 honorary doctorates (D.Sc.) from institutions spanning three continents. In addition to being a Fellow of the Indian National Science Academy and the Royal Society of London, Dr. Swaminathan is a Fellow of the Science Academies of Sweden, Italy, United States, USSR and China. He is the Founder Fellow of the Third World Academy of Science. He is the current President of the

National Academy of Agricultural Sciences of India and the World Wide Fund for Nature - India. He was President of the International Union for the Conservation of Nature and Natural Resources (IUCN) during 1984-90.

Over a period of 40 years, Dr. Swaminathan has worked in collaboration with scientists and policy makers on a wide range of problems in basic and applied plant genetics and agricultural research and development. Among his more important contributions are:

1. elucidation of the origin and differentiation of potato species;
2. understanding of genetic relationships among wheat species;
3. accomplishment of difficult crosses in potato species;
4. standardisation of techniques for the induction of polyploidy (i.e. doubling the number of chromosomes) in several economic plants;
5. elucidation of the factors influencing the induction and recovery of mutation in wheat and rice and elaboration of the relationships between the secondary effects of food irradiation and the assessment of the wholesomeness of irradiated food;
6. identification of barriers to high yields in

- wheat and the initiation of the wheat breeding programme involving the "Norin" dwarfing genes obtained from Mexico;
7. development of the concept of "crop cafeterias", "mid season corrections in crop-scheduling", risk distribution agronomy and alternative cropping strategies for different weather conditions;
 8. purposeful manipulation of genes in improving the yield, quality and stability of performance of wheat, rice and potato;
 9. development of whole village or watershed operational research projects based on principles of ecology and economics and promotion of the concepts of ecological economics and economic or developmental ecology;
 10. development of disaster management strategies based on relief and rehabilitation measures in the most seriously affected (MSA) areas and improved crop productivity in the most favourable (MFA) areas, and elaboration of the concepts of "drought code" and "good weather code";
 11. management of the disastrous drought of 1979 as Secretary to the Government of India in the Ministry of Agriculture and Development of a scientific Monsoon Management Strategy;
 12. collection and conservation of plant genetic resources, particularly of rice and wheat;
 13. development of the National Demonstration and Lab to Land programmes for the effective dissemination of research results among small farmer households;
 14. Organisation of coastal systems research and biovillages.
 15. Organisation of Genetic Resources Centres for Sustainable agriculture and for adaptation to sea level rise.

At IRRI, he placed issues relating to sustainable

rice production as well as intra-generational and inter-generational equity top on the research agenda. He served as a Founder-Trustee and later Chairman of the Board of the International Council for Research on Agro-Forestry (ICRAF) during 1977-1982.

He served as Chairman of the U.N. Advisory Committee on Science and Technology for Development during 1981-84 and was Independent Chairman of the FAO council during 1981-85. In 1982, he organised a Society for the Promotion of Wasteland Development (SPWD) as a professional non-governmental organization committed to the ecological restoration of degraded land in different parts of India. He was founder-chairman of SPWD from 1982 to 1985. He served as Chairman of the Advisory Panel of Food Security, Agriculture, Forestry and Environment to the World Commission on Environment and Development (WCED). The reports of his panel was published in March 1987 by Zed Books Ltd., under the title "Food 2000 : Global Policies for Sustainable Agriculture".

He has published over 300 papers in national and international journals and several books, including "Building a National Food Security System" (Indian Environmental Society, 1981) and "Science and Integrated Rural Development" (Concept Publishing Company, New Delhi, 1982). Along with Prof. S.K. Sinha, he edited a book on "Global Aspects of Food Production" (Tycooly, 1987). He has chaired several national and international committees of experts, including the Indian Expert Group on Programmes for Alleviation of Poverty, Eradication of Leprosy and Blindness and the eco-development of Himalayas and Western Ghats.

Among his many distinguished awards are the Ramon Magsaysay Award for Community Leadership (1971), the first award for serving the cause of women in development (1985), Padma Shri (1967), Padma Bhusan (1972) and Padma Vibhusan (1989) awards by the President of India. In 1986, he received the Albert Einstein World Award on Science. On 6 October 1987, he became the first laureate of the World Food Prize, regarded widely as the equivalent of a Nobel Prize in Agriculture. On the occasion of his receiving the first World Food Prize at the Smithsonian Institution,

Washington, in October, 1987, Mr. Javier Perez de Cuellar, Secretary General of the United Nations wrote, "Dr. Swaminathan is a living legend. His contributions to agricultural science have made an indelible mark on food production in India and elsewhere in the developing world. By any standards, he will go into the annals of history as a world scientist of rare distinction".

While receiving the Jawaharlal Nehru Birth Centenary Award 1992-93 instituted by the Indian Science Congress Association, Dr. Swaminathan said, "Sharing of common genetic resources has been the backbone of global food security, and if the free flow of genetic material and information is disrupted the consequences

will be serious. The implications of plant patenting and the destruction of common property resources would severely affect mostly the poor, and women in particular".

Dr. Swaminathan is currently developing a Research Centre at Madras for sustainable Agricultural and Rural Development based on the integration of traditional and frontier technologies. He is also serving as a Visiting Professor at the Centre for biotechnology of the Anna University, Madras, and as Andrew D. White Professor-at-large of the Cornell University, United States of America.

