



OBITUARIES

Dr. Neelamraju Ganga Prasada Rao

Padma Shri Dr. Neelamraju Ganga Prasada Rao, born on September 5, 1927 in Korisapadu, Prakasam District, Andhra Pradesh pursued his graduation at Agricultural College, Bapatla, during 1946-49 and obtained B.Sc. (Ag.) degree in 1949. Subsequently, he did Associateship at Indian Agricultural Research Institute (IARI), New Delhi in 1958 and received Ph.D. degree in 1968 from Bihar University, Patna. He joined as Research Assistant at the Department of Agriculture, Hyderabad (1950-58) and later became Lecturer in Agricultural Botany, College of Agriculture, Osmania University, Hyderabad (1958-60). In 1961, Dr. Rao joined IARI as Sorghum Botanist and Associate Coordinator and subsequently became Project Coordinator of the All India Coordinated Sorghum Improvement Project at IARI, New Delhi in 1968. Dr. Rao worked as ICAR Professor of Eminence from 1978 to 1980 at IARI Regional Station, Hyderabad. From 1980 to 1983, Dr. Rao served as Regional Sorghum Breeder for West Africa in ICRSAT at Ahmedu Bello University, Samaru, Zaria, Nigeria. He was appointed as Vice Chancellor of Marathwada Agricultural University, Parbhani, Maharashtra in 1984 and completed his tenure in 1987. Being an eminent scientist, he was selected as Chairman, Agricultural Scientists Recruitment Board, ICAR for a full term of 5 years from 1987 to 1992.

Dr. N.G.P. Rao was a reputed researcher and teacher. For over three decades, he conducted both basic and applied research on breeding and agronomy of several dryland crops namely, sorghum, grain legumes, oilseeds, cotton, and cropping systems. His special interest was on sorghum research. CSH-1, the first commercial sorghum hybrid developed in India by Dr. Rao is occupying a large area in Maharashtra, Karnataka, Andhra Pradesh, Tamil Nadu and Madhya Pradesh. It has contributed towards quantum jump in sorghum yield influencing lives of millions of people in drought prone and climatically vulnerable areas. This has further led to the establishment of large hybrid seed industries in public and private sectors. Dr. Rao was awarded the C. Subramaniam Individual Gold Medal for developing the first commercial sorghum hybrid in India. Dr. Rao and his colleagues developed eight Sorghum hybrids (CSH-2 to CSH-9), of which CSH-1, CSH-5 and CSH-9 were cultivated in about 8-9 million hectares. For his pioneering work and contributions, Dr. Rao came to be known as the father of hybrid sorghum in India.

Dr. Rao became FAO/UNDP Consultant for sorghum in Sudan, Somalia, and Yemen in 1976. To

learn more about hybrid sorghum research and production, he visited University of Nebraska, USA during 1963-64 and 1969. He was, Member, Advisory Committee on sorghum and millet research in some US Universities and ICRISAT centre in Zimbabwe. He chaired/participated in conferences in Australia, Senegal, Kenya, Zambia, Bosnia, Pakistan, etc. He also organized the first international conference on sorghum in India. After 33 years in research, and one term each as Vice Chancellor and Chairman ASRB, Dr. Rao retired. Post-retirement, he continued to participate in agricultural research and development activities as advisor to several institutions and programmes like NATP and NAIP. He edited and published "AP Vision 2020 – Strategy for Sustainable Agricultural Growth", "Cotton Research in AP", and "Training for Agricultural Development in India".



For his great service to mankind, Dr. Rao was awarded with several awards, viz., C. Subramaniam Individual Award (Gold Medal), 1966, Shanti Swarup Bhatnagar Prize, 1967, National Tonnage Club of Farmers Award, 1970, Rafi Ahmed Kidwai Prize, 1975, Memento by Karshak Samaj, A.P., 1978, Vasvik Foundation Award, 1979, AISMAN Award, 1986, Silver Jubilee Distinguished Scientist Award by Andhra Pradesh Academy of Sciences, 1988, Golden Jubilee Award, Indian Society of Genetics and Plant Breeding, 1991 and Atmangaurav Award, 2003. He was honored by ICAR by awarding him Professor of Eminence, 1978-80. Dr. Rao was also conferred with the degree of D.Sc. (h.c) by the Chandrasekhar Azad University of Agriculture and Technology, Kanpur in 1993.

Dr. NGP Rao was the Fellow of several academies including the Indian National Science Academy, National Academy of Sciences, India, National Academy of Agricultural Sciences, Andhra Pradesh Academy of Sciences and the Indian Society of Genetics and Plant Breeding of which he was also Vice President (1979) and President (1980). Dr. Rao also served as President of the Society for Sorghum and Millet Improvement, India.

He left for his heavenly abode on July 28, 2016 at an age of 89 years. The members of the Indian Society of Genetics and Plant Breeding mourn his sudden demise and pay their homage and pray for heavenly peace of the departed soul.

S. M. S. Tomar
Editor, IJGPB

Dr. Subrahmaniam Nagarajan

Dr. Subrahmaniam Nagarajan, born on November 7, 1945 in Chennai, Tamil Nadu educated at the PS High School, Mylapore, Chennai. He graduated in agriculture from Agriculture College, Coimbatore, Tamil Nadu Agricultural University, Coimbatore in 1966 and M.Sc. from Indian Agricultural Research Institute (IARI), New Delhi in 1969. Subsequently, he obtained his Ph. D. degree in 1973 from University of Delhi. During this period he got Pre-Doctoral Fellowship in the Department of Plant pathology at Wageningen, Netherland in 1971. In 1974, he joined the ICAR-IARI, New Delhi as wheat pathologist. He became Alexander von Humboldt Fellow, University Giessen from 1978 to 1980. He joined as Principal Scientist and Head, IARI Regional Station, Flowerdale, Shimla in 1980 and in 1988 he was appointed as Assistant Director General in ICAR, New Delhi. He left Delhi to join as Project Director, Directorate of Wheat Research, Karnal in 1993. He joined back ICAR-IARI, New Delhi as Director in 2002. He became Chairperson of the Protection of Plant Varieties and Farmer' Rights Authority, Department of Agriculture & Cooperation, Ministry of Agriculture, Govt. of India, New Delhi in 2005 and completed the full tenure of 5 years.

Dr. Nagarajan conducted a series of epidemiological investigations during his Ph.D. work and propounded a theory using climatic data explaining the nature and recurrence of wheat stem rust (*Puccinia graminis tritici*) and leaf rust (*P. recondita tritici*) in India. These rules suggested that the urediniospores originating from the hills of Nilgiris spread to Central India under the influence of tropical cyclone that occurs in the Bay of Bengal during November. The understanding of rust dynamics led to formulation of disease management strategy to contain rust dissemination. Similarly, the nature and recurrence of the leaf rust (*P. recondita tritici*) and the stripe rust (*P. striiformis*) over the Indo-gangetic plains was explained by him. He termed it as "Puccinia Path" in India. Based on these assumptions he suggested "Gene Deployment" as a strategy to control the rust in India. He also developed gene matching technique to postulate the resistance genes in the variety before its official release. He was associated with the identification of two new leaf rust resistance genes, *Lr48* and *Lr49*. He had proposed a system of grading the wheat grains that helped the wheat trade a lot. Dr. Nagarajan and his colleagues developed a wheat variety DBW 14 for the eastern gangetic plains. A chemical molecule inducing male sterility in cereals,

wheat in particular, was granted patent to his team. He introduced wheat cultivation in the tropical hills of Indonesia.

Dr. Nagarajan was decorated with various prestigious awards and honours, viz., Rafi Ahmed Kidwai Award of the ICAR (1978-79), Award of Distinction of the 13th International Plant Protection Congress, Hague, Netherland (1995), M.O.P. Iyengar Lecture Award of the University of Madras (2000), Om Prakash Bashin Award (2001), Chaudhri Ram Dhan Singh Award for contribution to wheat improvement (2002), Prof. K.S. Bilgrami Memorial Medal (2004), Dr. Norman E. Borlaug Award (2005), Dr. Amrik Singh Cheema Award of the Young Farmer's Association of Punjab (2005), Dr. B.P. Pal Gold Medal 93rd Indian Science Congress for contribution to Science and Technology, wheat pathology and wheat improvement (2006). He also received the Silver Jubilee Commemoration Medal of INSA (2006), Lal Bahadur Shastri Memorial Lecture award in 2008, Dr. M.S. Swaminathan Award and Gold Medal, 2009 and was conferred with the lifetime achievement award by the Indian Society of Mycology and Plant Pathology in 2012.

Dr. S. Nagarajan was the Fellow of the Indian National Science Academy, National Academy of Agricultural Sciences, National Academy of Sciences, Allahabad, and Alexander von Humboldt Foundation, Germany. He was the Chair of Excellence to the Department of Environment and Forests and also served as an Advisor, LANSa at the MSSRF, Chennai. Besides, he was member of various committees including Central Pesticide Registration Committee, GEAC, RCGM, etc. He published about 140 research papers, 50 book chapters and two textbooks.

Dr. S. Nagarajan left for his heavenly abode on Sunday the 25th December, 2016 at the age of 71 years. The members of the Indian Society of Genetics and Plant Breeding mourn his sudden demise and pay homage and pray Almighty for heavenly peace of the departed soul.



S. M. S. Tomar
Editor, IJGPB

Dr. Munshi Singh

Dr. Munshi Singh was born on 5th October, 1934, in village Mauhari in the Hathras district of Uttar Pradesh. He did his early education in Hathras and obtained his Master degree from B.R. College, Agra in 1954. He joined the Indian Agricultural Research Institute (IARI), New Delhi as Research Assistant in 1960. He obtained his Ph. D. degree in 1968 from Agra University under the guidship of Dr. A.B. Joshi.

Dr. Singh joined IARI, New Delhi as Senior Research Assistant (1965) and later became Jr. Class I Officer (Cotton Breeder) in 1969. Subsequently, Dr. Singh became Sr. Class I (Cotton Breeder) in 1970 at IARI Regional Station, Coimbatore and later he joined back the Division of Genetics, IARI as Cotton Geneticist. After initiation of Agricultural Research Service (ARS) by the ICAR, he became Scientist S-4. He served as Professor of Genetics for a brief period in 1984 and then became Head of the Division of Genetics and continued till 1987. In 1988, he again took over the charge of Professor of Genetics. After devoting 33 years of service in cotton breeding, Dr. Singh opted for voluntary retirement in April 1993. Subsequently, he joined as consultant (Cotton Specialist) in a multinational private organization, Bioseed International and was stationed at Vietnam. During this period, he made significant contribution to cotton improvement in Vietnam also.

As a Cotton Breeder, Dr. Singh could develop three varieties, namely, **Pusa 761** (1985), **Pusa 31** (1988) and **Pusa 8-6** (1997) for North Cotton Zone comprising the states of Punjab, Haryana, North

Rajasthan and western Uttar Pradesh. Pusa 31 was the first superior fibre quality (40 counts) cotton variety. Dr. Munshi Singh was an excellent teacher and a diligent researcher. He adopted a breeding strategy to combine high staple strength, number of



bolts, size of the bolts with five locules, number of branching etc. in *Gossypium hirsutum*. His interest was in inter-specific hybridization between *G. hirsutum* and *G. barbadense* to generate parental genotypes for developing high yielding cotton hybrids. He established the cultivation of *Gossypium barbadense* in North Zone. Dr. Singh authored more than 100 research papers as well as a monograph on Cotton. For his outstanding contributions, he was awarded the Life-time achievement award by the Indian Society for Cotton Improvement (ISCI).

Dr. Singh also served as Secretary of the Indian Society of Genetics and Plant Breeding (1989 to 1994). During his tenure a Golden Jubilee Symposium (International) on "Genetics Research and Education: Current Trends and Next Fifty Years" was organized in New Delhi in 1991.

Dr. Munshi Singh left for his heavenly abode on 13th August, 2014, at the age of 79 years. The members of the Indian Society of Genetics and Plant Breeding mourn his sudden demise and pay homage to him and pray Almighty for heavenly peace of the departed soul.

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