

## **Dr Kuldeep Singh, FNAAS**

**Director, ICAR- National Bureau of Plant Genetic Resources, New Delhi**

Dr Kuldeep Singh is Director at ICAR-National Bureau of Plant Genetic Resources, New Delhi since August 2016.

He received his Master and Ph D degrees in Plant Breeding from Punjab Agricultural University (PAU) Ludhiana and is recipient of Sardar Iqbal Singh Gold Medal. He started his career as an Assistant Wheat Breeder at PAU, Ludhiana in 1990 and continued till 1999. During this period, he was associated with development and release of three wheat varieties and establishment of basic genetic material and protocols for development of



wheat haploids through wheat x maize crosses and for hybrid wheat. Between 1992 to 1995, he worked as a Post-Doctoral Fellow at International Rice Research Institute (IRRI), Philippines, wherein a complete series of secondary trisomics in rice were developed and used for mapping centromere positions in the classical and molecular linkage maps of rice. This led to corrected orientation of the linkage maps and defining positions of the centromeres on the 12 linkage groups in rice and laid foundation for generating correct physical map of rice and the rice genome sequence. Dr Singh worked as Molecular Geneticist (1999-2007), Senior Molecular Geneticist (2007-2016) and Director (Nov 2010 – Jan 2015) at the School of Agricultural Biotechnology, PAU, Ludhiana.

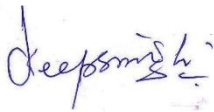
He was involved in wide hybridization in wheat and rice, gene identification and mapping (gene conferring resistance to bacterial blight, blast, brown plant hopper and sheath blight in rice; novel genes conferring resistance to stripe rust, leaf rust, cereal cyst nematode, Karnal bunt and powdery mildew in wheat), molecular breeding (marker assisted selection in rice). So far released 10 varieties in rice following MAS and these varieties are occupying more than 70 % area in Punjab state of India. He has identified about a dozen new genes in rice and wheat which confer resistance to diseases, insects, nutritional and productivity traits. Some of the newly designated genes include *Xa38*, *xa45*, *Bph3*, *Bph34*, *Pi67*, etc. He was involved in developing three varieties of wheat and eight of rice with Punjab Basmati 1 being the first MAS based semi-dwarf and bacterial blight resistant variety in the country. Dr Singh has led the successful sequencing of chromosome 2A of wheat from India under international collaboration in wheat genome sequencing consortium which has opened up new avenues in wheat research and improvement. Reference sequence of wheat was finally published in 2018 in journal Science. He has more than 280 research publications including 143 in peer reviewed international journals such as *Science*, *Scientific Reports*, *PNAS*, *Genetics*, *TAG*, *PLoS ONE*, *Crop Science*, *Molecular Breeding*, *Theor Appl Gene*, *Genome*, *Euphytica*, *GRACE*, *Indian J Genet*, etc.

As a popular teacher, Dr. Singh has taught 13 different courses in Genetics, Plant Breeding and Molecular Genetics and Genomics at PAU, Ludhiana for undergraduate and postgraduate students. He established three teaching programmes leading to award of B.Sc., M.Sc. and Ph.D. degrees in

Biotechnology. He guided 14 M Sc and 14 Ph D students and four of them were recipients of Monsanto Beachel - Borlaug International Scholarships. In addition, he has been member of advisory committee for ~80 post graduate students.

At NBPGR, his major emphasis is on identification and collections germplasm based on gap analysis, especially of the crop wild relatives; streamlining of national and international exchange of germplasm; large-scale characterization and utilization of germplasm using largescale field based phenotyping, high throughput genomics; trait discovery; gene mapping and in-situ conservation of crop wild relatives; and DNA fingerprinting of crop varieties. For this, he has mobilized funding to the tune of more than 2800 million INR. Dr Singh is member of more than 20 national and international scientific committees of several institutes, including Asia chair for the bureau of the international treaty for plant genetic resources for food and agriculture (ITPGRFA), Rome and co-chair for GLIS.

Dr Singh is recipient of The Borlaug Global Rust Initiative Gene Stewardship Award – 2018 and SciGenom Research Foundation Excellence in Science award – 2018, and Headmaster Niranjan Singh Memorial Award - 2019.

A handwritten signature in blue ink, appearing to read 'Kuldeep Singh', with a stylized flourish at the end.

Kuldeep Singh

March 11, 2021