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Wheat genetic resources and their exploitation for sustainable food security in India

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Today, wheat is grown on more land area than any other commercial crop and continues to be the most important food grain source for humans. This golden cereal is the most important winter crop grown during rabi season from October to April. India, one of the greatest success stories of Green Revolution, has been highly recognised due to its significant contribution of approx. 12% to the global wheat basket for food security to mankind. India is maintaining its second position of wheat producing nations since last 12 years and the continuous record breaking wheat harvest to the tune of 94.88 million tons during 2011-12 crop season and 92.46m tones during 2012-13. The successful wheat improvement programme is resultant of breeding efforts based on very rich Indian wheat biodiversity that represents three species under cultivation. National repository at NBPGR, New Delhi has maintained nearly 25000 wheat accessions and more than 11000 wheat accessions maintained in germplasm repository at the DWR, Karnal serves as the main source of active germplasm collection for wheat improvement programme in India. The wheat genetic resources of Indian origin have been widely used in global wheat improvement programmes as these are the potential sources of abiotic stress tolerance and better quality traits. More than 400 wheat genotypes have so far been released since 1965 for commercial cultivation under different production conditions in the six wheat producing mega-zones in India. The genetic enhancement in wheat cultivars was achieved through combination of various traits and their evaluation under national coordinated evaluation system. Recent cultivars have not only contributed to the gain in yield potential but these have been providing sustainability to yield levels through resistance to biotic and abiotic stresses. There is need to emphasize more on pre-breeding activities for parental building so that more genetic variability can be developed for further strengthening of wheat improvement programme for sustainable national as well as regional food security.

Biography

Sanjay Singh has completed his Doctorate degree in Genetics & Plant Breeding in 1999 from Banaras Hindu University, Varanasi, India and thereafter associated in wheat research and coordination as wheat breeder at the Directorate of Wheat Research, Karnal, the nodal centre for wheat & barley research in India. Released 09 wheat varieties and registered 11 wheat genetic stocks for various traits. He has published 188 research papers/abstracts/chapters, etc., pertaining to wheat crop in particular in journals of national/international repute. He received several awards including Lal Bahadur Shastri Young Scientist Award (ICAR) in 2007 and Young Scientist Award of the Council of Science and Technology, UP in 2008.

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