

## ICRISAT identifies 40 germplasm lines of chickpea

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In yet another significant contribution to the fight against hunger and climate change, the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) has identified 40 germplasm lines of chickpea with resistance to extreme weather conditions such as drought, high temperature and salinity.

The climate resilient germplasm lines are expected to further strengthen ICRISAT's efforts to develop adaptation measures and support mitigation measures to help smallholder farmers in Asia and sub-Saharan Africa cope up with the changing climates.

A diverse chickpea mini core germplasm collection consisting of 211 lines was systematically evaluated to identify beneficial traits such as high yield and drought tolerance in the 40 lines. The evaluation of this collection also helped the ICRISAT Genebank team identify 31 lines with resistance to pests and diseases. Six germplasm lines of chickpea were found to have resistance for both extreme weather and for pests and diseases.

"We have been experiencing extreme weather events like the severe floods in India last year that devastated the northern states and recently, Typhoon Haiyan that ravaged the Philippines. You will see more of these extreme events which will also adversely affect agriculture. Under these circumstances, the findings by the ICRISAT Genebank team will help the smallholder farmers close crop yield gaps significantly," said Dr William Dar, director general ICRISAT.

The rich and diverse germplasm resources available at the ICRISAT Genebank have been helping plant breeders in Asia and sub-Saharan Africa as sources of beneficial traits to develop new high-yielding and resilient varieties with better quality to boost production of food crops like chickpea, even under a climate change regime.

The samples of seeds collected from the farmers' fields, having genes with desirable traits act as valuable materials for plant breeders in making new crosses and incorporating new unique characteristics into existing varieties.

Chickpea is an important legume in the world, with a total worldwide production of 11.6 million tons from 13.2 m ha of land. India accounts for 70.7% of the world chickpea production while Australia, Turkey, Myanmar, Ethiopia, Iran and Pakistan are among other important chickpea producers.

Rich in protein, starch, fiber, minerals, and vitamins, chickpea is one of the most nutritionally balanced pulses for human consumption. It is grown as a winter crop in the Indian subcontinent (October-November to March-April) on receding soil moisture, mostly on marginal soils and has the potential to feed millions of people.

The latest findings are the result of a 14-year effort by the team led by Dr Hari D Upadhyaya, head of Genebank at ICRISAT, published in the paper "Mini Core Collection as a Resource to Identify New Sources of Variation" featured in the prestigious journal *Crop Science* by the Crop Science Society of America (CSSA). Dr Upadhyaya recently received the most prestigious Crop Science Research Award from the CSSA.