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**For immediate release**

## **ICRISAT identifies climate resilient germplasm to support chickpea breeding**

**Hyderabad, 24 January 2014:** 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.

"Climate change is here and is happening. 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 ICRISAT Director General Dr William Dar.

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.

Eighty-nine cultivars of chickpea based on ICRISAT-bred materials and germplasm conserved in its genebank have been released in different countries across Asia and sub-Saharan Africa over the past few years significantly benefiting smallholder farmers in these dryland regions.

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.

The ICRISAT Genebank serves as a world repository for the collection of germplasm of its five mandate crops – sorghum, pearl millet, chickpea, pigeonpea and groundnut; and six small millets. With over 120,000 germplasm accessions of the mandate crops assembled from 144 countries, it is one of the largest international genebanks. The Genebank has over 20,000 different chickpea germplasm lines from 60 countries.

ICRISAT’s mandate crops are extensively grown by resource-poor farmers in the semi-arid tropics where stresses from extreme weather and pests and diseases limit the crops’ productivity and seed quality. To make these crops more competitive, nutritious, and profitable, new sources of variations for agronomic and nutritional traits and stress resistances have to be discovered in the germplasm to support crop breeding for the development of high-yielding climate resilient cultivars.

The Global Crop Diversity Trust and CGIAR donors fund the ICRISAT Genebank’s activities for the conservation, characterization and distribution of germplasm (seeds) for the benefit of agriculture and food security for humankind. ICRISAT is a member of the CGIAR Consortium. The activity was undertaken as part of the CGIAR Research Program on Grain Legumes.

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The **International Crops Research Institute for the Semi-Arid-Tropics** (ICRISAT) is a non-profit, non-political organization that conducts agricultural research for development in Asia and sub-Saharan Africa with a wide array of partners throughout the world. Covering 6.5 million square kilometers of land in 55 countries, the semi-arid tropics have over 2 billion people, and 644 million of these are the poorest of the poor. ICRISAT innovations help the dryland poor move from poverty to prosperity by harnessing markets while managing risks – a strategy called Inclusive Market- Oriented development (IMOD).

ICRISAT is headquartered in Patancheru near Hyderabad, Andhra Pradesh, India, with two regional hubs and five country offices in sub-Saharan Africa. It is a member of the CGIAR Consortium. About ICRISAT: [www.icrisat.org](http://www.icrisat.org)  
For scientific information: <http://EXPLOREit.icrisat.org>

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