

## MULTI-ENVIRONMENT TRIALS OF POTATO CLONES AS POTENTIAL VARIETIES FOR CEREAL BASED SYSTEM OF INDO-GANGETIC PLAINS OF INDIA.

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Under changing agro-climatic conditions, new potato varieties will be required for planting early and in main crop season to fit potato into diversified cropping systems and agro-ecologies of India. New, early/medium maturing varieties with heat tolerance, high tuber dry matter and good storability are needed. Short maturing potato will give way for timely planting of succeeding crops such as rice and wheat. The Central Potato Research Institute of India has included the development of early and medium maturing potato varieties among its 2013-2020 research priorities (2). Out of 34.4 million tons of potato grown in India, about 31 million tons are produced in sub-tropical lowlands (1). The present study was undertaken to select early maturing, high dry matter, heat tolerant and good storage quality variety/varieties to introduce potato in new and non-traditional potato growing areas to improve food security and enhance farmer's income.

Four elite clones bred at the International Potato Center were evaluated at three locations: Burdwan-West Bengal, Ladol- Gujarat, and Karnal- Haryana under the All India Co-ordinated Research Project during 2011-12 & 2012-13 to identify candidate clones for release as varieties for cereal based systems of the Indo-Gangetic Plains (IGP) and for the Plateau region of India. The evaluation sites represent hot-humid, semi-arid and sub-humid agro-ecologies of West Bengal, Gujarat and Haryana, respectively. Region-specific popular varieties were planted for comparison. The field trials were conducted during winter under short days. The trial was planted one month earlier than the normal planting time in each region, in order to observe tuberization during relatively high temperatures. Sprouted tubers were planted at 60 cm X 20 cm spacing in a randomized block design with 3 replications each of 2.0 x 2.4 meter size. The clones and control varieties were dehaulmed at 90 days after planting. Total and marketable tuber yield (>20 gram), tuber dry matter content and tuber characteristics were recorded.

In two successive seasons, out of four clones and five control varieties, CIP clone 397065.28, gave the highest total tuber yield of 41.15 t/ha, 56.40 t/ha, and 45.26 t/ha at Karnal, Burdwan, and Ladol, respectively and was 51.5 %, 21.3%, and 14% higher than the best control varieties of regions. Marketable tuber yield of this clone ranged between 38.85 to 50.15 t/ha at three locations compared. The two year results revealed that the selected clone CIP-397065.28 was superior to both clones and control varieties in production. The tuber dry matter content of clone 397065.28 ranged from 17.1 to 21.7% at locations and was 11% higher than Kufri Badshah at Karnal, 4.1% higher than Kufri Jyoti in Burdwan and 16.8% greater than Kufri Badshah at Ladol, suggesting a promising future for storing in country stores. The selected clone has white skin and flesh color oval tubers. Based on two year performance, CIP 397065.28 has been recommended for on farm trials to be released as medium maturing variety for the cereal based system.

The release of CIP clone 397065.28 resistant to lowland tropical viruses as a new variety will improve food security and enhance income of potato growers by introducing potato into new areas of cereal systems

### References

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