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Ref: 13(1)/2023/PAD

December 12, 2023

PRESS RELEASE NO. 11/2023

BARC's innovative combination of radiation technology and onion-specific cold storage for extension of shelf-life while maintaining the quality of onions

The Bhabha Atomic Research Centre (BARC), the multi-disciplinary R&D unit under the Department of Atomic Energy, has achieved a groundbreaking milestone in the preservation of onions, addressing the persistent challenges of scarcity during lean periods, rotting, sprouting, and weight loss, resulting in significant post-harvest losses and market price fluctuations.

BARC has developed an integrated operating procedure utilizing irradiation and onion-specific cold storages, demonstrating the extension of the storage period for 'rabi' onions up to seven and a half months. This breakthrough not only ensures an extended storage life but also maintains the high quality of onions.

The KRUSHAK food irradiation facility in Lasalgaon, Nashik, Maharashtra, has been upgraded for conducting the preservation trials and technology demonstrations of the breakthrough protocol. BARC's optimised protocol involves the storage of radiation-processed onions under controlled conditions of temperature, humidity, and carbon-dioxide. The novel approach would help maintain the availability of quality onions, effectively control post-harvest losses and contribute to stabilise onion prices. To celebrate the successful completion of the preservation trials, a 'Kisan Mela' was organized at the KRUSHAK premises on December 8, 2023.

Dr. Ajit Kumar Mohanty, Secretary, Department of Atomic Energy & Chairman, Atomic Energy Commission, inaugurated the Integrated Storage and Technology Demonstration facility during the Kisan Mela, in the august presence of Shri Vivek Bhasin, Director, Bhabha Atomic Research Centre and other senior officials from DAE, the Government of Maharashtra, and the National Cooperative Consumers' Federation of India Limited. The 'Kisan Mela' was well received by the local farmers, representatives of Farmers Produce Organizations, and other stakeholders, and provided a platform for lively interactions for knowledge-sharing about advancing agricultural innovations by DAE.

The successful demonstration of the large-scale trial signifies a significant step forward in enhancing food preservation and hygienisation practices in India, showcasing BARC's commitment to agricultural innovation.

(Daniel Babu P.)



Dr. Ajit Kumar Mohanty, Secretary, DAE & Chairman, AEC, inaugurated the Integrated Storage and Technology Demonstration facility during the Kisan Mela in Lasalgaon, Nashik



Dr. Vivek Bhasin, Director, BARC distributing the samples of onions preserved using BARC technology during the Kisan Mela in Lasalgaon, Nashik



Onion-specific cold storage developed by BARC for preservation trials and technology demonstrations at the KRUSHAK food irradiation facility in Lasalgaon, Nashik



Extension of the storage period for 'rabi' onions up to seven and a half months using BARC's optimised protocol involving a combination of radiation technology and onion-specific cold storage



Interactions between the scientists of DAE and the local farmers and members of the Farmers Produce Organizations during the Kisan Mela in Lasalgaon, Nashik