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DEPARTMENT OF ATOMIC ENERGY

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BARC DEDICATES 8 NEW TROMBAY CROP VARIETIES TO FARMERS

Over the past several decades, Bhabha Atomic Research Centre (BARC), Mumbai has played a pivotal role in developing new crop varieties by employing radiation-based mutation breeding techniques. This method, which involves exposing seeds to radiation (such as gamma rays or electron beam) for inducing beneficial genetic changes, has enabled BARC to develop climate resilient, non-GMO, high-yielding crops that are suited to India's diverse agricultural conditions. Recently, BARC, in collaboration with different state universities, has released eight new crop varieties - five cereals and three oilseeds- for commercial cultivation across various states. Dr. Ajit Kumar Mohanty, Secretary of the Department of Atomic Energy (DAE) and Chairman of the Atomic Energy Commission, emphasized the critical role played by BARC in transforming agriculture in India, aligning with national goals to improve farmer's income, enhance crop resilience, and bolster food and nutritional security. Celebrating this significant achievement, Shri Vivek Bhasin, Director BARC, emphasized the importance of these new varieties, calling it a boon for farmers who will benefit from the crops that are early-maturing, disease resistant, climate resilient, salt tolerant and produce more yield than the existing options. He also highlighted that, in its 70th year, BARC has now dedicated a total of 70 crop varieties to the farmers and people of India.

Details of the New Crop Varieties

Wheat

Rapidly changing climatic conditions, particularly the prevalence of higher temperatures during the grain-filling stage, negatively impacts production of wheat. Trombay Jodhpur Wheat-153 (TJW-153), developed in collaboration with the Jodhpur Agricultural University for Rajasthan, is notable for its ability to tolerate early and terminal heat stress, addressing a critical need in this area. This variety is resistant to fungal diseases like Blast and powdery mildew, both of which significantly reduce yield, thus ensuring a stable crop output in Rajasthan's arid conditions. Trombay Raj Vijay Wheat (TRVW-155), developed

with Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya, Gwalior, for Madhya Pradesh, has a higher nutritional value (enhanced zinc and iron content), better chapati-making quality and is also, resistant to fungal diseases such as Blast and powdery mildew. Incidentally, this is for the first time that wheat varieties have been released by BARC.

Rice

Our country is bestowed with a rich diversity of natural rice landraces. But, unfortunately, due to their poor yield and other problems, these landraces are not actively cultivated by farmers. In the state of Chattisgarh, the rice bowl of India, BARC has played a major role in developing a mutant of the popular, soft-cooked rice landrace, 'Luchai', which was released as 'Bauna Luchai-CTLM'. This dwarf variety retains the soft-cooked property, but shows lodging resistance (i.e. doesn't topple under rainy/windy conditions), early maturity and greater grain yield than the Luchai parent. Furthermore, a selection from rice landrace Layacha, traditionally known for its therapeutic and medicinal properties, was released as 'Sanjeevani' in Chhattisgarh. The brown grain of Sanjeevani rice, which contains more than 350 different phytochemicals, is known to improve immunity and enhance antioxidant responses. Both 'Bauna Luchai-CTLM, and 'Sanjeevani' were released in collaboration with Indira Gandhi Krishi Vishwavidyalaya (IGKV), Raipur, for the state of Chhattisgarh.

In states like Maharashtra, that have a long coastline, intrusion of salt water makes the soil saline, resulting in poor growth of rice plants. Trombay Konkan Khara, developed for coastal saline soils in collaboration with Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, shows 15% higher grain yield under saline conditions, enabling rice cultivation in otherwise non-arable brackish soils.

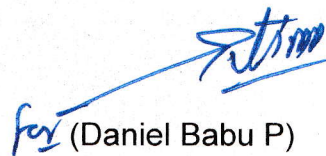
Oilseeds

Presently, only 40-45% of our oil seed requirement is fulfilled by our domestic production. Towards achieving 'Atmanirbharta' in the production of oilseeds, an important objective of the government, high-yielding improved varieties of mustard, sesame and groundnut have been released. The 'Trombay Jodhpur Mustard 2 (TJM 2)' that has 14% yield superiority over the existing varieties was released for the state of Rajasthan in collaboration with Agriculture University, Jodhpur. TJM 2 has very good oil content (40%) and is also resistant to fungal diseases such as powdery mildew and white rust.

For the very first time, a sesame (til) variety has been developed by BARC using gamma ray irradiation. This Trombay Latur Til-10 (TLT-10) variety developed in collaboration with Vasantao Naik Marathwada Krishi Vidyapeeth, Parbhani, for Maharashtra, is bold seeded and has a greater seed yield (about 20%) than the existing til varieties.

Continuing BARC's legacy in groundnut improvement, a new mutant derivative, Trombay Groundnut 88 (TG 88), is released as 'Chhattisgarh Trombay Mungfali (CGTM)' in collaboration with IGKV, Raipur. CGTM has high oil content (49%) and is suitable for cultivation in rainy as well as summer seasons of the Chhattisgarh state.

Dr. Mohanty further stated that the release of this new suite of crop varieties reflects DAE's commitment to advancing agricultural science and collaborating with state agricultural universities to produce location-specific improved crop varieties.

A handwritten signature in blue ink, appearing to read "Daniel Babu P.", written over a horizontal line.

(Daniel Babu P)
Head, Public Awareness &
Media Interaction Division, DAE