

GOVERNMENT OF INDIA  
MINISTRY OF AGRICULTURE AND FARMERS WELFARE  
DEPARTMENT OF AGRICULTURAL RESEARCH & EDUCATION

**LOK SABHA**  
**UNSTARRED QUESTION NO. 2534**  
TO BE ANSWERED ON 16<sup>TH</sup> DECEMBER, 2025

**DEVELOPMENT OF CROP VARIETIES USING RADIATION TECHNIQUE**

2534. SHRI VISHWESHWAR HEGDE KAGERI:  
SHRI DULU MAHATO:  
SHRI JASHUBHAI BHILUBHAI RATHVA:  
SHRI MUKESHKUMAR CHANDRAKAANT DALAL:  
SHRI BALABHADRA MAJHI:  
SHRI KRISHNA PRASAD TENNETI:

Will the Minister of AGRICULTURE AND FARMERS WELFARE कृषि और किसान कल्याण मंत्री be pleased to state:

- (a) the details of crop varieties which have been developed during the last five years using radiation technique;
- (b) the features or characteristics of the newly introduced crop varieties that distinguish them from the earlier varieties;
- (c) whether any assessment or examination has been undertaken regarding the safety of these new varieties for consumption;
- (d) if so, the details of the studies or evaluations conducted in this regard; and
- (e) whether these crop varieties have been released after field trials for cultivation by the farmers and if so, the details thereof?

**ANSWER**

THE MINISTER OF STATE FOR AGRICULTURE AND FARMERS WELFARE  
कृषि और किसान कल्याण राज्य मंत्री (SHRI BHAGIRATH CHOUDHARY)

(a): During the last 5 years, a total of 23 varieties were released for cultivation by using radiation techniques. These include 7 varieties of rice, 5 of mustard, 3 of black gram (urad), 3 of sorghum (jowar), 2 of groundnut, one of mung bean, one of sesamum(til) and one of banana. Till date 72 improved crop varieties were developed through radiation and released for cultivation.

(b): The new varieties are released for different agro-climatic conditions of various states and different growing seasons (rainy, post-rainy and summer). These have key desirable traits like increased yield, larger seed size, seed dormancy, early maturity, higher nutrient content, resistance to lodging, improved disease resistance and wider adaptability to abiotic stresses.

(c) to (e): Yes, all varieties are absolutely safe for consumption. Radiation based mutagenesis only accelerates the natural process of mutation induction. Only seeds are exposed to radiation for inducing mutations in their DNA. This process does not make the seeds radioactive, and particularly, radiation-induced mutagenesis has been safely used for the last 8-9 decades worldwide to improve crop varieties. The newly developed mutants developed through use of radiations are thoroughly evaluated in the Indian Council of Agricultural Research (ICAR) / State Agricultural University (SAU) evaluation system to test their superiority and adaptability over the existing local, zonal and national check varieties in station, multi-location and adaptive trials in the field of actual farmers. The highest-performing genotypes are also evaluated for their nutritional-quality parameters such as oil content, carbohydrate content, protein and fat content etc. After this rigorous testing, based on its superiority (over check varieties), the newly developed mutant line is recommended for release by the varietal identification committees of ICAR/SAU. All these crop varieties are officially released for cultivation by farmers following successful field trials and evaluations conducted by ICAR or SAUs at multiple locations. In this regard, gazette notifications for release of newly developed crop varieties have been issued by Ministry of Agriculture and Farmers Welfare (MoAFW).

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