

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

LOK SABHA
UNSTARRED QUESTION NO. 2690
TO BE ANSWERED ON 16TH DECEMBER, 2025

GENOME-EDITING RESEARCH BY ICAR

2690. SHRI CHINTAMANI MAHARAJ:

SHRI MANISH JAISWAL:

SHRI RODMAL NAGAR:

SHRI KHAGEN MURMU:

SHRI RAJKUMAR CHAHAR:

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

- (a) the current status of the latest research being undertaken in the field of genome-editing by the Indian Council of Agricultural Research (ICAR) and other national research institutions and the total number of crops under research;
- (b) whether any recent regulatory reforms, Intellectual Property Rights (IPR) related guidelines or biosafety assessments have been undertaken to ensure the responsible and safe use of genome-edited crop varieties and if so, the details of the said reforms/evaluations;
- (c) the present status of product development through the application of genome-editing in various crops in the country;
- (d) whether any specific schemes, pilot projects or collaboration programmes are being considered for establishing biotechnology-based farming, genome-edited crop trials or agricultural innovation centres in Hazaribagh and Ramgarh districts and if so, the details thereof; and
- (e) the initiatives taken to ensure the timely transfer of genome-edited technologies from research institutions to field-level adoption including partnerships with private innovators and start-ups?

ANSWER

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

- (a): Genome editing research has been initiated in Indian Council of Agricultural (ICAR) on 24 field crops and 17 horticultural crops. In addition, Department of Biotechnology (DBT), Council for Scientific and Industrial Research (CSIR) are also undertaking research on genome editing in 10 crops.

(b): Ministry of Environment, Forests and Climate Change (MoEF&CC), Govt. of India exempted the Site-Directed Nuclease-1 (SDN1) and Site-Directed Nuclease-2 (SDN2) genome edited crop free of exogenous introduced DNA from GM regulation rules (Rules 7-11 of Rules 1989) vide OM F.NO. C-12013/3/2020-CS-III dated 30 March, 2022. Further, the Biosafety issues have been addressed following the 'Guidelines for the Safety Assessment of Genome Edited Plants, 2022' of Department of Biotechnology (DBT), Ministry of Science and Technology, Govt. of India issued vide OM No. File No. PID-15011/1/2022-PPB-DBT dated 17.05.2022 and "Standard Operating Procedures for Regulatory Review of Genome Edited Plants under SDN-1 and SDN-2 Categories" vide OM No. File No. PID-15011/1/2022-PPB-DBT dated 04.10.2022.

The inventors have provided Freedom to Operate (FTO) provision for using genome editing technology for research purpose.

(c): Two genome edited varieties of rice have been developed by ICAR. Biotechnology Research and Innovation Council - National Institute of Plant Genome Research, New Delhi has developed low glucosinolate genome edited line in mustard, which is being evaluated under ICAR - All India Coordinated Research Project trials.

(d): ICAR-Indian Institute of Agricultural Biotechnology, Ranchi has been established as a Centre for genome editing with a total budget of Rs 23.89 crores under the ICAR funded project. This Institute has initiated genome editing research in Soybean, Peanut, Sunflower, Urd bean and Cotton. Varieties developed by ICAR Institutes are made available for cultivation in different agro-climatic zones including Hazaribagh and Ramgarh districts.

(e): System is in place to take the genome-edited technologies viz., rice varieties DRR Dhan 100 and Pusa DST rice 1 from research Institutes to field level adoption after their release and notification as per Section 5 of Seed Act 1966. The commercialization of such varieties to private innovators and start-ups is done after registration with the Protection of Plant Varieties and Farmers Rights Authority.
