GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO-2034
ANSWERED ON 11/02/2026

USE OF RADIATION-BASED AGRICULTURAL TECHNOLOGIES

2034. SHRI SUKANTA KUMAR PANIGRAHI
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Will the PRIME MINISTER be pleased to state:-

(a) whether the radiation-based technologies including radiation-induced mutagenesis and related breeding methods have been utilised for developing improved crop varieties with traits such as high yield, early maturity and stress tolerance in the country particularly for cultivation in Odisha, Haryana particularly in Bhiwani-Mahendragarh Lok Sabha Constituency and Maharashtra particularly Khandesh and Jalgaon Lok Sabha Constituencies;

(b) if so, the details thereof along with the varieties of crops developed and notified for commercial cultivation as on date, State-wise and crop-wise indicating those adopted or recommended in Odisha, Haryana particularly Bhiwani-Mahendragarh Lok Sabha Constituency and Maharashtra particularly Khandesh and Jalgaon Lok Sabha Constituencies;

(c) the extent to which radiation-based food preservation and post-harvest technologies including shelf-life extension, disinfestation methods and phytosanitary irradiation have been deployed in Odisha, Haryana particularly Bhiwani-Mahendragarh Lok Sabha Constituency and Maharashtra particularly Khandesh and Jalgaon Lok Sabha Constituencies to reduce agricultural losses and enhance export potential; and

(d) whether the Government has undertaken initiatives in collaboration with the State Agricultural Universities, ICAR institutions and Krishi Vigyan Kendras to promote nuclear agricultural technologies to enhance farmers' income and food security in Odisha, Haryana particularly Bhiwani-Mahendragarh Lok Sabha Constituency and Maharashtra particularly Khandesh and Jalgaon Lok Sabha Constituencies and if so, the details thereof including budgetary support provided along with the steps taken towards promotion, collaboration, scale adoption and building farmers' awareness?

ANSWER

THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (DR. JITENDRA SINGH)

(a) Yes. Using radiation induced mutagenesis along with cross breeding, Bhabha Atomic Research Centre (BARC), Mumbai a Constituent Unit of Department of Atomic Energy (DAE) has developed 72 varieties in oilseeds (groundnut, mustard, soybean and sunflower), pulses (urdbean, mungbean, pigeonpea and cowpea), rice, jute and banana, which have been released and notified for commercial cultivation for the entire country. Of these, 32 Trombay crop varieties have been released for cultivation in Odisha, Haryana and Maharashtra. These crop varieties have desirable traits such as high yield, early maturity, improved lodging resistant, biotic & abiotic stress tolerance etc. and thus benefiting farmers in the country.

(b) Following are the details of Trombay crop varieties released with their salient features:

Table1: Trombay crop varieties released and notified for commercial cultivation in Odisha

S. No.	Variety	Year of release
Groundnut		
1.	TAG 24	1992
2.	TG 37A	2004
3.	TPG 41	2004
4.	TG 38	2006
5.	TG 51	2008
6.	Mungbean	
7.	TARM-1	1997

Banana		
8.	Kaveri Vaaman (TBM-9)	2025

Table 2: Trombay crop varieties released and notified for commercial cultivation in Haryana

S. No.	Variety	Year of release
1.	Groundnut	
2.	TG 37A	2004
3.	TPG 41	2004

Table 3: Trombay crop varieties released and notified for commercial cultivation in Maharashtra

S. No.	Variety	Year of release
Groundnut		
1.	TAG 24	1992
2.	TKG 19A	1996
3.	TG 26	1996
4.	TPG 41	2004
5.	TLG 45	2007
6.	TAG 73	2021
Soybean		
7.	TAMS 38	2005
8.	TAMS 98-21	2007
Mustard		
9.	TPM 1	2007
10.	TAM 108-1	2021
Sunflower		
11.	TAS-82	2007
Mungbean/Greengram		
12.	TAP-7	1983
13.	TARM-2	1994
14.	TARM-1	1997
15.	TARM-18	1997
Urdbean/ Blackgram		
16.	TAU-1	1985
17.	TPU-4	1992
18.	TAU-2	1993
Pigeonpea		
19.	TT-6	1985
20.	TAT-10	1985
21.	TT-401	2007
22.	TJT-501	2009
23.	PKV-TARA	2013
Cowpea		
24.	TC 901	2018

Rice		
25.	TKR Kolam	2020
26.	Trombay Konkon Khara	2024
Sorghum (Jowar)		
27.	Trombay Akola Suruchi (TAKPS 5)	2023
Sesame		
28.	TLT- 10 (Trombay Latur Til)	2024

(c) With the aim of reducing post-harvest losses in various agri-produce through radiation technology, various commercial irradiation facility centres have been set up across various states of the country. There are two (2) commercial irradiation facilities in Haryana, nine (9) irradiation facilities in Maharashtra. Some of facilities among nine facilities in Maharashtra are also approved by the USDA-APHIS for irradiation of mango for export. These facilities are providing irradiation services for broad spectrum food and allied commodities.

List of Food Irradiation Plants operational in the State of Haryana and Maharashtra:

S. No.	Name of the Plant
1.	Radiation Processing Plant, BRIT, Vashi, Navi Mumbai, Maharashtra
2.	KRUSHAK Irradiator, Lasalgaon, Nashik, Maharashtra
3.	M/s A.V. Processors Pvt. Ltd., Ambernath (E), Thane, Maharashtra
4.	M/s Agrosurg Irradiators, Vasai, Thane, Maharashtra
5.	M/s Hindustan Agro Co-Operative Ltd., Rahuri, Ahmednagar, Maharashtra
6.	Maharashtra State Agricultural Mktg. Board, Navi Mumbai, Maharashtra
7.	M/s AV Gamma Tech LLP, Ambernath, Maharashtra
8.	M/s Akshar Gamma Sterile LLP, Ambernath, Thane, Maharashtra
9.	M/s. Vishvesh Agro Med Pvt Ltd., Mihan, Nagpur
10.	M/s Aligned Industries, Dharuhera, Rewari, Haryana
11.	M/s Microtrol Sterilisation Services Pvt. Ltd. Bawal, Haryana

(d) Yes, DAE has been consistently evaluating their developed breeding lines/mutants in different crops and their release in different agro-climatic zones in respective states in collaboration with State Agricultural Universities (SAU) and various ICAR institutes.

BARC has MoUs with Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola; Mahatma Phule Krishi Vidyapeeth, Rahuri; Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli in Maharashtra.

BARC along with SAUs multiply seeds of released varieties and supply to various state seed corporations, national seed corporations, Krishi Vigyan Kendras, Farmer Producer Organizations, NGOs, seed companies and farmers. BARC also conducts awareness programmes through their outreach programmes, regular scientific conferences and participates in Kisan Melas to spread the information about their improved crop varieties.

Funds of around ₹9.85 crores have been provided through Board of Research in Nuclear Sciences (BRNS) towards collaborative research in the field of agriculture and food security in Odisha, Haryana and Maharashtra in last decade.

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