

GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
LOK SABHA
UNSTARRED QUESTION NO.1746
TO BE ANSWERED ON 26.07.2017

FOOD AND SEED IRRADIATIONS

1746 . SHRI KONDA VISHWESHWAR REDDY:
SHRI P.K. BIJU:

Will the PRIME MINISTER be pleased to state:

- (a) whether the use of radiation in agriculture has resulted in developing improved varieties of seeds resulting in increase in the Gross Domestic Product (GDP) of the country and if so, the details thereof;
- (b) the different varieties of seeds that have been improved by the Department using this technology;
- (c) whether these seeds have any hazardous effect on the human health and if so, the details thereof;
- (d) the precautions that are being taken to avoid these health hazards; and
- (e) the details of food irradiation centres in the country, State/UT-wise along with the steps taken by the Government to build more such centres ?

ANSWER

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

- (a) Yes Sir, Bhabha Atomic Research Centre (BARC) is actively working in this area. Using radiation induced mutagenesis along with cross breeding, BARC has developed several varieties of oilseeds, pulses, rice and jute, which have been released and notified for commercial cultivation across the country. The major desirable traits in these crops include higher yield, seed size, improved agronomic and quality traits, early maturity and resistance to biotic and abiotic stresses. Several of these varieties enjoy high patronage among the farming community and are extensively cultivated in the country and contribute substantially to the total agricultural production in the country. BARC is also involved in breeder seed multiplication of its released varieties in the case of crops such as ground nuts and pulses.

According to IMF, GDP is a monetary measure of the market value of all final goods and services produced in a period (quarterly or yearly). Viewed in this context, the improved varieties of crops have substantially contributed to the GDP of the country.

(b) Using mutation (and conventional) breeding, Department of Atomic Energy (DAE) has developed 42 new varieties of crops. These varieties include oilseeds (groundnut, mustard, soybean and sunflower), pulses (urdbean, mungbean, pigeonpea, cowpea), rice and jute.

(c)&(d) Mutation breeding through nuclear radiation is mostly done using gamma rays or other ionizing radiations such as electron beam. The method does not render the irradiated material radioactive; it also does not involve insertion of foreign gene into the plant being improved. Irradiation only increases the rate of mutation inside target cells. Mutation is a natural process and, therefore, acceleration of the process using a radiation source is a widely accepted method of producing variability in the population. Plants showing favourable traits are selected and cultivated, ultimately culminating in the production of new varieties. The plants are also extensively tested for various parameters, including nutritional quality of the food, before they are released. Therefore, there is no health hazard to humans and animals that consume the food.

(e) List of Food Irradiation Plants in the country:

S. No.	Name of the Plant	Purpose	State/UT	Status/ Remarks
1	Radiation Processing Plant, BRIT, Vashi, Navi Mumbai – 400075	Food and allied products	Maharashtra	Commissioned in 2000
2	*KRUSHAK Irradiator, Lasalgaon, Nashik – 411037, Maharashtra	Food Products	Maharashtra	Commissioned in 2002
3	M/S A.V. Processors Pvt. Ltd., Ambernath (E), Thane, Maharashtra	Food & Medical Products	Maharashtra	Commissioned In 2005
4	*M/S Agrosurg Irradiators, Vasai, Thane, Maharashtra	Food, Packaging & Medical Products	Maharashtra	Commissioned In 2008.

5	*M/S Hindustan Agro Co-Operative Ltd., Rahuri, Ahmednagar, Maharashtra	Onion & Other Agricultural Produces	Maharashtra	Commissioned in 2012
6	*Maharashtra State Agricultural Mktg. Board, Navi Mumbai, Maharashtra	Food Products	Maharashtra	Commissioned in 2015
7	M/S Universal Medicap Ltd., Vadodara, Gujarat	Food & Medical Products	Gujarat	Commissioned In 2005.
8	*M/S Gujarat Agro Industries Corpn. Ltd, Bavla, Ahmedabad, Gujarat	Food Products	Gujarat	Commissioned in 2014
9	M/S. Microtrol, Bangalore, Karnataka	Food & Medical Products	Karnataka	Commissioned In 2006
10	M/S Innova Agri Bio Park Ltd., Malur, Dist. Kolar, Karnataka	Food & Medical Products	Karnataka	Commissioned In 2011
11	M/S Gamma Agro Medical Processing, Hyderabad, Telangana	Food & Medical Products	Telangana	Commissioned In 2008.
12	*M/S Jhunsons Chemicals Pvt Ltd., Bhiwadi, Rajasthan	Agro, Medical & Packaging Products	Rajasthan	Commissioned In 2010
13	M/S Organic Green Foods Ltd., Dankuni, Kolkata, West Bengal	Food, Packaging & Medical Products	West Bengal	Commissioned In 2004
14	M/S Impartial Agro Tech (P) Ltd., Unnao, Lucknow, Uttar Pradesh	Food & Medical Products	Uttar Pradesh	Commissioned in 2014
15	M/s Aligned Industries, Dharuhera, Rewari, Haryana	Food Products	Haryana	Commissioned in 2015

*Facility for low dose irradiation (for mango, Onion, Potato etc.)

The setting of more such facilities will depend upon the involvement of entrepreneurs. The process of setting a facility takes about 2-3 years. This would include from site selection, clearances, construction of the facility and in obtaining necessary documentations and licenses. Bhabha Atomic Research Centre (BARC) and Board of Radiation & Isotope Technology (BRIT) can provide the scientific and technical assistance.
