GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
RAJYA SABHA
UNSTARRED QUESTION NO-2245
ANSWERED ON 12/03/2026

ADOPTION OF NUCLEAR AGRICULTURAL TECHNOLOGIES

2245. Smt. Sangeeta Yadav

Will the PRIME MINISTER be pleased to state: -

(a) whether measures have been taken to promote the adoption of nuclear agricultural technologies in collaboration with State agricultural universities and research institutions to enhance farmer's income and food security of the nation.

(b) if so, the details thereof?

ANSWER

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

(a) & (b) DAE has taken multiple measures to promote the adoption of nuclear agricultural technologies in collaboration with State Agricultural Universities and Research Institutions to enhance farmer's income and food security of the nation.

Bhabha Atomic Research Centre (BARC) a constituent unit of DAE, has been collaborating with several State Agricultural Universities (SAUs) through Memoranda of Understanding (MoUs) for nuclear agricultural research, their validation, and subsequent dissemination for enhancing farmer's incomes and food security. Under its mutation breeding programme, BARC develops mutant lines using gamma irradiation and other mutagens. Some of these promising lines are transferred to SAUs and Research Institutes for multi-location trials (MLTs) where evaluation of improved attributes with respect to check varieties, screening and adaptive trials are carried out. Lines that emerge successful are eventually released for cultivation on farmer's field. Many Trombay crop varieties have been officially released after such collaborative evaluation with SAUs.

Through seed multiplication networks and breeder seed production, SAUs play a key role in disseminating Trombay varieties to farmers, while BARC continues to provide nucleus seed and technical guidance.

BARC provides advanced scientific facilities and expertise, which includes access to irradiation facilities (gamma chambers), molecular biology tools, isotope tracer facility, and radiometric analysis for soil-water-plant studies. Faculty and PhD/M.Sc. students from SAUs & research institutions often conduct part of their research work at BARC under collaborative projects.

In areas pertaining to agro-technologies, BARC partners with SAUs/ research institutions for field demonstrations and farmer participatory trials. Universities help validate performance under local farming systems, while BARC provides technical know-how.

BARC supports SAUs through training programmes, workshops, and technology transfer initiatives, including short courses on mutation breeding, radiation processing and advanced biotechnology. Scientists and students from SAUs receive training at BARC, strengthening national capacity building in nuclear agricultural sciences. DAE also participates in agricultural fairs and Krishi Melas organized by SAUs/research institutions to demonstrate new varieties / technologies developed by BARC.

Further, Board of Research in Nuclear Sciences (BRNS), an R&D funding arm under the Department of Atomic Energy (DAE), also supports State Agricultural Universities (SAUs) primarily through competitive research grants, infrastructure support and capacity building in nuclear and allied sciences applied to agriculture.

BRNS provides extramural research funding to faculty members of SAUs/research institutions for projects involving mutation breeding, molecular biology, radiation processing, isotope tracer studies, soil–water–plant interactions, food irradiation, biocontrol technologies and scientific equipment to undertake basic and applied research. BRNS-backed projects often lead to development of new crop mutants, stress-resilient lines or agro-technologies, which SAUs/research institutions subsequently test, release and disseminate to farmers.

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