

Date & Venue:

The training will be held during 26 Nov - 01 Dec 2018 at Regional Agricultural Research Station, Karjat, Raigad, Maharashtra

Applicants will be selected on first-come-first-served basis. However, the candidates need to

- fulfill certain basic criteria.

Last date for receiving duly forwarded application forms at RARS, Karjat is 30-Oct-2018.

Participants, other than local candidate, will be provided with accommodation at RARS campus. Duly filled-in application may be sent to Dr. R. L. Kunkerkar, Co-convenor-cum-Course Coordinator, RARS, Karjat by 30-10-2018.

IMPORTANT DATES:

Last date for receipt of application **30-10-2018**

Intimation to selected candidates **31-10-2018**

Participants will be reimbursed maximum of III tier A.C. train fare for the shortest possible route from their HQs to RARS, Karjat (Dist: Raigad) and back on production of documentary evidence. Local hospitality (food & accommodation) will be provided by the organizers..

For more information, contact to:

Dr. R.L. Kunkerkar

(Co-convenor-cum-Course Coordinator)

Principal Scientist, Regional Agricultural Research Station (RARS), Karjat, Dist: Raigad; Maharashtra-410201.

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Short Term Hands on Training Programme on

Mutation Breeding for Crop Improvement

26 November to 01 Dec 2018

DBSKKV-Regional Agricultural Research Station, Karjat, Raigad, Maharashtra-410201



Organized by



Bhabha Atomic Research Centre (BARC), Mumbai
in collaboration with
DBSKKV-Regional Agricultural Research Station, Karjat, Raigad (Maharashtra)

[Sponsored by Board of Research on Nuclear Sciences (BRNS), Department of Atomic Energy (DAE),

Government of India]

Convener

Dr. V. P. Venugopalan

Associate Director
Bio-Science Group & Head,
Nuclear Agriculture & Biotechnology
Division, BARC, Mumbai-400085



Co-Convenor-cum-Coordinator

Dr. R.L. Kunkerkar

Principal Scientist,
Regional Agricultural Station(RARS), Karjat
Raigad, Maharashtra-410201

Local Organizing Secretary

Dr. A. K. Shinde

Associate Director of Research
RARS, Karjat, Dist: Raigad,
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Course

Research

Application Form

Short Term Training Programme on "Mutation Breeding for Crop Improvement"

26 November to 01 Dec 2018

DBSKKV-RARS, Karjat, Raigad, MH410201

Format for the application

(Type or write in capital letters)

Name (Dr./Mr./Mrs./Ms) :

Name of Organization :

Date of Birth :

Designation/Occupation

Areas of specialization :

Research Topic :

Years of experience :

Accommodation required : Yes / No

Address for correspondence :

Mobile

E-mail

Recommendations
Head of Dept. :

HoD
Signature &
Seal :

Signature
applicant

The participants can submit soft copy to the email rkramesh@rediffmail.com;adrkarjat@rediffmail.com at the earliest and also send the signed copy of the application form addressed to Dr. R. L.Kunkerkar (Co-Convenor-cum-Course Coordinator) through proper channel. Participants will be intimated about their selection latest by 31st October, 2018.



Introduction

About BARC: Bhabha Atomic Research Centre (BARC) is a premier research organization engaged in research work in the areas of nuclear and basic sciences. In the field of agriculture, BARC has been working for the past few decades on improvement of crop plants using mutation breeding. Through this programme, BARC has released more than 42 varieties of different crops in oil seeds, pulses and cereals. BARC works in collaboration with different State Agricultural Universities and ICAR institutes to train students/scientists on different aspects of mutation breeding and crop improvement.

About DBSKKV(Dapoli) & RARS (Karjat): Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth (DBSKKV), Dapoli is doing research work on different crops using induced mutation breeding in collaboration with BARC, Mumbai. Groundnut variety (TKG19A) and rice variety (TKR Kolam) developed jointly through induced mutation breeding have been released for cultivation. Regional Agricultural Research Station (RARS), Karjat [DBSKKV, Dapoli] is doing research work on improvement of rice varieties through mutation breeding under BARC-DBSKKV MoU collaboration programme. Some very promising mutant varieties of rice have already been developed and are at different stages of evaluation. TKR Kolam (BARCKKV13) jointly developed by BARC & RARS-Karjat (DBSKKV) was released this year. RARS, Karjat is celebrating centenary year during Aug 2018 to Aug 2019. On this occasion, RARS-Karjat in collaboration with BARC, Mumbai is organizing a six days training programme on Mutation Breeding for Crop Improvement. This programme will train young scientists/researchers and students on recent advances in the field of mutation breeding, emphasizing the use of radiation techniques for peaceful applications.

Aims/ Objectives of the workshop

The main objective is to train research community (scientists and students from SAUs, ICAR and other research institutes) to take up scientifically rigorous mutation breeding experiments and develop varieties suitable for poor and marginal farmers.

Syllabus

(A) Theory

- 1) Principles Practices of Mutation Breeding-I :** Principles of mutation breeding for sexually & asexually propagated crops Mutagens: Different types of mutagen (Physical & Chemical Mutagens) Mode of action of mutagens, radiolysis of H₂O
- 2) Principles & Practices of Mutation Breeding-II** Methodology & Screening Techniques Genetic, Examples (mutation Breeding for qualitative and quantitative traits)
- 3) In vitro mutagenesis:** Principles, Methodology for in vitro induced mutagenesis, screening in vitro mutants
- 4) Advanced techniques in inducing mutations in plants:** Ion beam, Electron beam, proton beam etc., Space/ Cosmic radiation Advantages/ Disadvantages
- 5) Molecular Mutation Breeding:** TILLING, Transposon induced mutagenesis, Insertional mutagenesis, Sequence based mutagenesis Site directed mutagenesis in plants, Molecular characterization of mutants, Molecular approaches to identify novel mutants in crop plants, MutMap
- 6) Miscellaneous :**

Role of epigenetics in mutation breeding, Epi R.I.L., Epimutants Statistical analysis (Principles/Theory) on mutant population, Mutation breeding at BARC Mutation breeding at IAEA, Vienna, Targeted mutation by recent genome editing techniques (CRISPR-Cas9), Irradiation as a tool for bio-pesticide/ bio-stimulant improvement

B) Practical

Determination of LD 50 dose/GR50/GR30 calculation Exposure of seeds to radiation, Preparation of seeds, Seedling height studies, Dose response curve, Computation of radiobiology experiment, Field/Lab. screening of mutants In vitro mutagenesis, Nonde-structive screening of mutants Analysis of mutants using molecular markers

C) Field visits (demonstration of mutation breeding experiment in field)



About Karjat : Karjat is a small town.. It is well connected with other parts of the country through road, rail. Nearest Rly station is Karjat. Nearest airport is Mumbai. RARS is located at a distance of 2km from Karjat railway station and about 60 km. from the Mumbai airport. Taxi and auto services are easily available from city centre to reach the university.

Who can participate in this workshop.

This workshop/Training Programme is meant for young researchers/scientists working in SAUs and research institutes, who are involved in crop improvement programme using in vivo and in vitro mutation techniques. About 20 participants will be selected for the training programme on first-come-first-served basis.

