



Course Title	Induced Genetic Variability in Plants
Duration	Virtual: 40 hours spread over 4 weeks (5 hours x 8 days)
Target Participant	undergraduate and graduate thesis/senior students pursuing BSc/MSc in Biology, Agriculture, or any related discipline; professional plant breeders or researchers in related fields; academic professionals/lecturers of related topics in the SHS and tertiary level; amateur plant breeders, plant hobbyists, and garden owners
Pre-requisite	background in basic Biology, Physics, Chemistry, Mathematics, and Plant Sciences with at least 15 undergraduate units of natural and physical sciences
Goal	To introduce the use of gamma radiation as a physical mutation agent to induce genetic variability in plants for the development of mutant varieties and widening of genetic base as well as the discovery of novel genes/traits.
Objectives	At the end of this course, participants are expected to: <ol style="list-style-type: none">1. Explain the effects of gamma irradiation as the basis of mutation in plants;2. Describe the different approaches in the induction of genetic variability in various kinds of economically important crops;3. Learn the important biotechnologies (modern and conventional) used for mutation induction and propagation in plants;4. Understand the current trends, techniques, and approaches in plant genetic diversification;5. Perform a radiosensitivity study; and6. Be acquainted with the irradiation facility of DOST-PNRI's for induction of genetic variability in plants.
Nature and Scope	This course will consist of lectures, exercises, write shop, and examinations. The performance of each participant shall be evaluated through the following: <ol style="list-style-type: none">1. Examinations (55%)2. Report on radiosensitivity study (30%)3. Attendance (15%) A certificate of completion will be issued to each participant who obtains an overall grade of at least 75%.



Application Requirements	(1) NTC Online Application; (2) Recommendation letter (if employed or currently enrolled) or Letter of Intent (if a garden owner or hobbyist); (3) Valid PRC ID or any government-issued ID (for non-PRC licensed)
Course Content	<ol style="list-style-type: none">1. Mutation Inducing Agents and Basis of Mutation2. Gamma Radiation and Irradiation Facilities3. Principles of Mutation Breeding4. Radiosensitivity Study5. Induced Genetic Variability for Self-pollinated Crops6. Induced Genetic Variability for Cross-pollinated Crops7. Induced Genetic Variability for Asexually propagated Crops.8. Techniques to Speed up Mutation Breeding9. Use of Plant Tissue Culture Techniques in Mutation Breeding10. Use of Molecular Techniques in Mutation Breeding11. Statistical Analysis and Report for Radiosensitivity Study12. Mutation Breeding Network and Collaborative Research13. Looking Back and Looking Into the Future