

Techniques in Mass production, quality control of bio-fertilizers & microbial bio-pesticides

Course Synopsis	<p>Under this training, the trainees are provided with hands on experience on mass production of different types of biofertilizers and microbial bio-pesticides and their quality control. This training programme imparts knowledge on various aspects of Production Protocol for biofertilizers & microbial biopesticides, such as techniques for isolation, identification of agriculturally beneficial microbes, which are using as biofertilizers and biopesticides preparation, types of biofertilizers, biopesticides and their role in plant health management, registration guidelines for biopesticides, preparation and maintenance of pure cultures of fungus and bacteria and production protocol and formulations for bio-fertilizers (<i>Rhizobium</i>, <i>Azotobacter</i>, <i>Azospirillum</i>, PSB/ KRB, VAM etc) and bio-pesticides (NPV, <i>Trichoderma</i> Spp, <i>Pseudomonas</i> Spp, <i>Beauveria</i> spp, <i>Metarhizium</i>, <i>Verticillium</i>, etc), quality assessment and quality management of biofertilizers & biopesticides. The trainees will also be provided with hands-on practices on quality standards such as testing of Quality control of biofertilizers as per FCO, 1985 and quality control of Biopesticides as per CIB&RC guidelines. The trainees will also be explained about the establishment of microbial biopesticide laboratory, requirements to get accreditation as per ISO-17025. etc. This included both microscopic counts as well as bioassay methods for assessing quantity / quality.</p>
Course Duration	02 Weeks
Justification/ Rationale	<p>NIPHM is a National level premier institute under the administrative control of the Department of Agriculture, Ministry of Agriculture & Farmer's welfare, Government of India. NIPHM is promoting environmentally sustainable Plant Health Management practices in diverse and changing agro-climatic conditions through capacity building programmes. The value of bio-inputs (bio-fertilizers & bio-pesticides) as a part of INM and IPM programs has led to a notable increase in their use in India. Usage of bio-fertilizers is playing very vital role in organic farming for enhancement of soil fertility. Use of bio-pesticides for successful biological control of pests mainly depends on their quality and timely application. There is a need for capacity building, capacity in quality assessment and quality management of biofertilizers and biopesticides. In this context, NIPHM is conducting training programme on "Techniques in Mass production, quality control of bio-fertilizers & microbial bio-pesticides". NIPHM has a notified laboratory vide Gazette notification No:132, dated 12.03.2013 of GOI, and has been given the functions of Central Insecticide Laboratory in respect of bio pesticides under Section 16 of Insecticide Act, 1968. Hence, this particular training is highly practical oriented with hands-on practice sessions on quality analysis and quality standards.</p>
Aims & Objective of the course	<p>To impart knowledge and skills on</p> <ol style="list-style-type: none">Mass production of bio-fertilizers and quality control aspects.

	<p>b) Application methods of bio-fertilizers</p> <p>c) Mass production of different biopesticides viz., such as NPV, <i>Trichoderma viridae</i>, <i>Pseudomonas spp</i>, EPF etc</p> <p>d) Providing hands-on practices on quality standards such as testing of <i>Helicoverpa armigera</i>, Nuclear Polyhedrosis virus (HaNPV), <i>Trichoderma</i>, <i>Pseudomonas</i>, entomopathogenic fungi.</p> <p>e) The establishment of microbial biopesticide laboratory, requirements to get accreditation as per ISO-17025.</p>
Expected Outcome of the course	<p>During the training course the participants will acquire skill /hands-on practices in the following areas:</p> <ul style="list-style-type: none"> ● Mass production of bio-fertilizers ● On-farm production of biofertilizers ● Quality control of biofertilizers. ● Mass production of bio-pesticides ● On-farm production of bio-pesticides ● Quality control of different bio-pesticides ● Legal aspects of bio-pesticides and registration issues. ● Protocol for establishment of bio-pesticide quality analysis laboratory
Eligibility conditions of the participants	Graduate, Post Graduate and PhD in Agriculture and allied subjects