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| 3. **Training Program on “Mass Production and quality control of biopesticides”** |
| **Course Synopsis** | Under this training, the trainees are provided with hands on experience on mass production of different microbial biopesticides and their quality control. This training programme imparts knowledge on various aspects of Production Protocol for microbial biopesticides, various aspects of the registered biopesticides under Insecticide Act, 1968, preparation and maintenance of pure cultures of fungus and bacteria and production protocol and formulations for bio pesticides such as NPV, Trichoderma viridae, Pseudomonas spp, Entomopathogenic fungi, etc. The trainees will also be explained about the establishment of microbial biopesticide laboratory, requirements to get accreditation as per ISO-17025. Use of biopesticides for successful biological control of pests and diseases mainly depends on their quality and timely application. There is a need for capacity building, capacity in quality assessment and quality management of biopesticides. The trainees will also be provided with hands-on practices on quality standards such as testing of Helicoverpa armigera, Nuclear Polyhedrosis virus (HaNPV), Trichoderma, Pseudomonas, entomopathogenic fungi, etc. This included both microscopic counts as well as bioassay methods for assessing quantity / quality.  |
| **Course Duration** | 02 Weeks |
| **Justification/ Rationale**  | **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 microbial biopesticides as a part of Integrated Pest Management (IPM) programs has led to a notable increase in their use in India. Use of biopesticides 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 biopesticides. In this context, NIPHM is conducting training programme on “Quality control of microbial biopesticides”. 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.  |
| **Aims & Objective of the course** | To impart knowledge and skills on * Mass production of different biopesticides viz., such as NPV, *Trichoderma viridae*, *Pseudomonas spp*, Entomopathogenic fungi, etc
* Providing hands-on practices on quality standards such as testing of Helicoverpa armigera, Nuclear Polyhedrosis virus (HaNPV), *Trichoderma,* *Pseudomonas*, entomopathogenic fungi.
* The establishment of microbial biopesticide laboratory, requirements to get accreditation as per ISO-17025.
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| **Expected Outcome of the course** | During the training course the participants will acquire skill /hands-on practices in the following areas: * 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
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| **Eligibility conditions of the participants**  | Graduate, Post Graduate and PhD |