

**Institute of Forest Genetics and Tree Breeding
Coimbatore – 641 002.**

**TRAINING ON ‘APPLICATION OF BIO-FERTILIZERS’
(Sponsored by MoEF & CC, Govt. of India under Forest training and
Capacity building for other stake holders)**

Date: 28 to 30 November 2017

Course Co-ordinator: Dr. A. Karthikeyan, Scientist-E, IFGTB Coimbatore

Institute of Forest Genetics and Tree Breeding (IFGTB) organized three days training programme on ‘Application of Bio-fertilizers from 28th to 30th November 2017. The excessive use of chemical fertilizers has generated several environmental problems including the ozone layer depletion and acidification of water. To overcome these problems the bio-fertilizers are being used in Agriculture and Forestry as they are natural, beneficial, eco-friendly and user friendly. Generally, the bio-fertilizers are beneficial microorganisms involved in breakdown of organic matter, N₂ fixation, and secretion of plant growth substances and they increase the availability of mineral nutrients in soil. They also provide essential nutrients to the plants, control soil and root borne diseases and maintain soil structure. Their uses are very much considered as important in plant growth improvement of forest tree seedlings as the conventional media used to raise quality and healthy seedlings in nursery as well as their establishment in planting sites are generally low in nutrients and beneficial microbial populations. Certain group of beneficial bacteria and fungi are considered as bio-fertilizers in agriculture and forestry.

These bacteria and fungi are freely available in topsoil and usually associated with plants on a symbiotic relationship. The fungi or bacteria receive nutrition from the plant tissue and in turn supplies the required N₂ or P to the host plants. This relationship helps the plants to survive in stressed conditions. However, the application methods, time of inoculation and uses of biofertilizers which are not much known by the other stakeholders like School teachers, College teachers, NGO’s, Environment Co-ordinators, Media persons, Environmental activists and people involved in tree planting programmes. Therefore, the institute organized the training programme to train the other stakeholders on application of bio-fertilizers with the funding support from Ministry of Environment, Forest & Climate Change, Govt. of India under the Forest training and Capacity building for other stakeholders.

A total of 27 participants including School teachers, College lecturers, Media, Environmental Co-ordinators, NGOs and people involved in tree planting programmes participated in the training programme. The training was inaugurated by Dr. S. Murugesan, Director of the Institute on 28th November 2017 and delivered the inaugural address. In his inaugural address, he emphasized the importance of bio-fertilizers and quoted the examples of successful bio-products developed by the Institute. He also said that presently soil fertility is adversely affected by the chemical fertilizers. He added that this training will provide knowledge on bio-fertilizers and the application techniques in nursery as well as field. He requested all the participants to utilize the training to learn the techniques and application of Biofertilizers. Dr. V. Mohan, Scientist – G of the institute welcomed the participants during the inauguration of the training. Dr. A. Balu, Scientist-G of the institute delivered a special address on bio fertilizers. Dr. A. Karthikeyan Scientist E & Course coordinator of the training programme elaborated the overview of the three days training programme. At the end of the inaugural programme, Dr. J.P. Jacob Scientist-F has given vote of thanks.

After the inauguration, Dr. T. Muthukumar, Associate Professor, Dept of Botany, Bharthiar University, Coimbatore delivered a lecture on ‘AM fungal Bio-fertilizers and their role in Agriculture to the trainees. Dr. V. Mohan Scientist-G has delivered a lecture on Beneficial microbes and their role in Forestry’ in the afternoon session of the training programme on 28th November 2017. The trainees were also trained in isolation, identification and multiplication of Arbuscular mycorrhizal fungi in Forest Pathology lab of the institute. The techniques of multiplication and production of Arbuscular mycorrhizal fungi in VAM bio fertilizer unit at IFGTB were demonstrated to the trainees. On the second day of the training programme, the trainees visited a Private Biofertilizer production company called Green Life Biotech laboratory at Somanur. Dr. S. Eswaramoorthy, Managing Director of the Company gave a detailed presentation on of bio-fertilizers and demonstrated the process of bio-fertilizer production. He also added that the company has turnover of Rs. 2 Crore / year on bio fertilizers. Many Farmers and Agro industries all over the country are using the bio-fertilizer products such as Green Spirilla (*Azospirillum*), Green Azoto (*Azotobacter*), Green Aceto (*Gluconacetobacter*), Green Rhizo (*Rhizobium japonicum*), Green Phospho (*Phosphobacterium*), Green K (Potash mobilizing bacterium) and Green Dual (*Bacillus subtilis*) and Zinc mobilizing bacterium. The trainees showed enthusiasm, interacted well and got clarified many points during the visit to the company.

On the third day of training programme, Dr. A. Karthikeyan Scientist-E has delivered a lecture on 'Bio-fertilizers in afforestation of waste lands'. They were also taught to develop a bio-fertilizer product in the laboratory and apply in field conditions. The training programme concluded on 30th November 2017 with valedictory address by Dr. S. Murugesan Director of the Institute. The feedback of the trainees about the training programme showed that the trainees acquired lot of knowledge on bio-fertilizers. The trainees also showed much interest to participate in the similar kind of training programmes in future. During the Valedictory Session, Dr. S. Murugesan, Director of the Institute distributed the Participation certificates to the trainees. The participants appreciated the efforts taken by IFGTB for organizing the training programme and expressed that the training was very much useful to them. At the end of the concluding session, Dr. A. Karthikeyan, Scientist-E and Course Co-ordinator thanked all for successful completion of the training programme.



Inaugural session of the programme



Introduction of participants



Inaugural address by Dr. S. Murugesan, Director, IFGTB.



Lecture delivered by Dr. T. Muthukumar, Asso. Professor, Bharathiar University, Coimbatore



Lecture delivered by Dr. V. Mohan Scientist-G



Lecture delivered by Dr. A. Karthikeyan, Scientist-E



Practical class on AM fungi isolation



Demonstration on AM fungi multiplication in VAM fungi production unit.



Demonstration on production of bio fertilizers by Dr. S. Eswaramoorthy. Managing Director. Green life biotech laboratory Pvt. Ltd. Somanur



Bio-fertilizer products at Green life biotech Laboratory Pvt. Ltd.



Practical class on isolation of beneficial microbes



Practical class on product development



Distribution certificates to the trainees by Dr. S. Murugesan, Director, IFGTB.

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Group photo of the training programme