

2.5

National Hunger

2.5.1 Access to Food Security Knowledge

MRIIRS Weblink to SDG 2:

<https://mriirs.edu.in/sdg02-zero-hunger/>

Access to Food Security Knowledge

Goal 2.5 of the Sustainable Development Agenda addresses the genetic diversity of domesticated and wild relatives of farmed plants and animals. In order to maintain genetic variety effectively, seed and plant banks are essential. One of these strategies needs to be in situ genetic resource management. SDG 2.5's remaining goals are related to getting access to these resources, participating in the rewards of using them, and applying related traditional knowledge. MRIIRS provide platform to the farmers to speak and discuss their problem, queries with experts from the field of agriculture and nutrition by the medium of conferences and seminar. The details of the following are provided below:

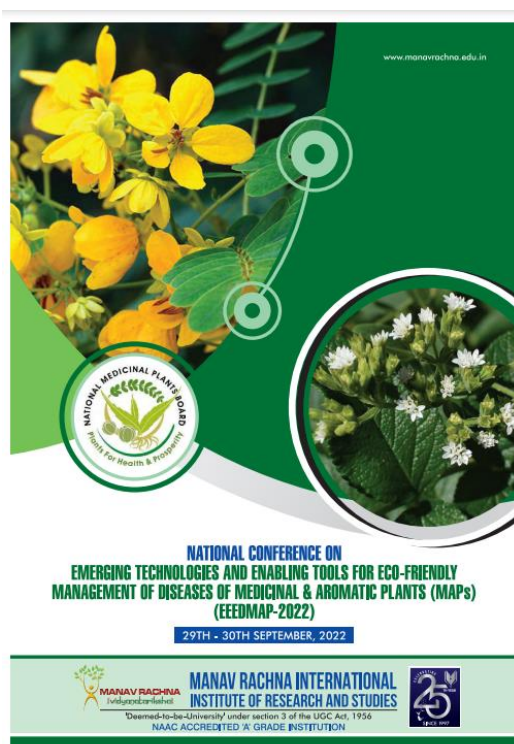
- A. Sample events as organized by MRIIRS for farmers
- B. Report of Tricho Agronica Pvt. Ltd.– Bioformulation on Project titled A Novel Eco-friendly Solution Against Fungal Pathogens in Tomato

A. Events Organized for Farmers:

- **National Conference On “Emerging Technologies and Enabling Tools For Eco-Friendly Management Of Diseases In Medicinal & Aromatic Plants” (EEEDMAP 2022)**

Department of Biotechnology and MR Centre For Medicinal Plant Pathology (MR-CMPP) FET, Manav Rachna International Institute of Research and Studies organized a two-day National Conference on “Emerging Technologies and Enabling Tools for Eco-Friendly Management of Diseases in Medicinal & Aromatic Plants” (EEEDMAP 2022) which was supported by the National Medicinal Plants Board (NMPB), Ministry of AYUSH, Government of India (GOI). **The conference was attended by students, faculty members, local farmers** and participants from all over India, viz CSIR-NIScPR, Pusa, University of Patanjali, Haridwar, University of Delhi, Delhi, Banasthali Vidhyapeeth, Madurai Kamraj University, Tamil Nadu, JNV University, Jodhpur, UPES, Dehradun, MIT, Pune, JP Institute of Technology, Noida, JECRC University, Jaipur, Shoolini University, Solan, HP, Banaras Hindu University, Banaras, GGSIP University, Delhi, and MDU, Rohtak.

The inaugural session was graced by the Chief Guest Dr. Chandrashekhar Sanwal, Deputy CEO, IFS, NMPB, Ministry of AYUSH, GOI. The ceremony also witnessed the presence of Hon'ble Keynote Speaker, Prof. P.C. Trivedi, Former Vice Chancellor- 5 Universities; Dr Sanjay Srivastava, Vice Chancellor, MRIIRS; Dr. Pradeep Kumar, Pro-Vice Chancellor and Dean, Faculty of Engineering and Technology; Mr. R. K Arora, Registrar MRIIRS. Prof. (Dr.) Nidhi Didwania , Convener, highlighted the objective of the conference "Health of Healthy Plants".



SCOPE OF THE CONFERENCE

According to the Botanical Survey of India, India is home to more than 8,000 species of medicinal plants. The country has a rich history of traditional healing systems, many of which still use these plants. According to the WHO, at least 25% of all modern medicines are derived, either directly or indirectly, from medicinal plants. The Indian forests are the principal repositories of large number of medicinal and aromatic plants, from where the raw materials are collected predominantly for manufacture of drugs and perfumery products.

As one of the measures to conserve the precious species, commercial cultivation began which inadvertently brought the problem of pests and diseases leading to crop loss of various magnitude. Also, too much emphasis has been put on the potential for discovering new wonder drugs, and merge on the innumerable problems associated with the already known and cultivated MAPs. Medicinal plants are vulnerable to be attacked by several pathogens resulting crop loss in terms of both quantity as well as quality. Post-harvest loss is also a great problem of medicinal plants where toxins are produced by the pathogens. Thus, plant diseases create challenging problems in commercial agriculture and pose real economic threats. Therefore, the "health of these healthy plants" should be concerned. Medicinal plants being used in health-care system and chemical methods of management of pests and diseases are becoming obsolete. It is a must that non-chemical, eco-friendly safer methods of management are essential. Preparedness for combating against the biotic stresses of medicinal plants is prerequisite for horizontal

expansion of medicinal plants acreage in future. The medicinal plants need to be conserved effectively for the future and the time is right to utilize the global demand for Indian Medicinal plants and their bioactive metabolites by sustainable production of healthy and diseases free quality plant material through emerging technologies, biopesticides & biotechnological tools. The proposed conference will provide a platform to discuss and provide a framework for the conservation and sustainable use of plants in medicine.

The conference aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results on different aspects of Medicinal and Aromatic Plants. This will not only enlightens the young scientist, faculty, students, researchers, conservationists, academicians from different disciplines viz. Biological Sciences, Biotechnology, Ayurveda, Pharma & Medicine, Alternative medicine etc. about the supreme importance of Medicinal & Aromatic Plants but also will open their mind for the research work to be carried out in this highly potential field. It also provides a

premier interdisciplinary platform for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns as well as practical challenges encountered and solutions adopted in the fields against major pathogens of Medicinal and Aromatic Plants. We hope to make this national gathering an medicinal and aromatic plants particularly, educational and inspiring for young scientists who will get an opportunity to interact with leading experts.



Prof. P.C. Trivedi gave an insight about the phytodiversity and talked about the Eco-Friendly Management of Diseases of Medicinal & Aromatic Plants. This was followed by two sessions which were conducted by Dr. A N Shukla, Scientist E, Biodiversity Division of the Ministry of Environment, Forest and Climate Change (MoEF & CC), New Delhi; Dr. Jeetendra Kumar Vaishya, Research Officer (Medicinal Plants / Agronomy), National Medicinal Plants Board, Ministry of AYUSH, Government of India, Mr. Sameer Kant Ahuja, Chief Manager, Regulatory Multani Pharmaceuticals Ltd. and Mrs. Reeva Sood, Director, Tanishka Herbals.

On the second day, the progressive farmers from Faridabad & Palwal, Mr. Bijendra Singh Dalal & team participated in the conference with full enthusiasm and were interested in cultivation of Medicinal Plants with the support of MR-CMPP, MRIIRS and NMPB. This was followed by a lecture session (invited talk) by Eminent Scientist, Professor N K Dubey, Head, Department of Botany, Faculty of Science, Banaras Hindu University, Varanasi. He delivered an exceptional talk in which he emphasized the importance of botanical pesticides with reference to the origin of mycotoxin and how nature had played the role of doctor in the absence of advancement in the past.

Following this Dr. A. A. Ansari, Former Scientist E, Botanical Survey of India (BSI), famously known as the "Crotalaria Man", delivered a detailed overview on plant pathogens on different species of medicinal plants.

Dr. Jeetendra Vaishya, National Medicinal Plants Board (NMPB) highlighted the following recommendations made by the participants: Strategies should be in place for the post-harvest management of the medicinal plant produce; Need of inventorization and taxonomic identification of biodiversity in the Aravalli ranges for conservation of Medicinal Plants; and Special attention is to be made to the utilization of resources (agro-economics) whereby farmers should be made aware of the expensive medicinal plants so that they may expand their cultivation.

NMPB supported the recommendations and agreed to extend full support for carrying out research and extension activities in the newly established Manav Rachna Centre for Medicinal Plant Pathology (MR-CMPP).

The proposed conference provided a platform to discuss and provide a framework for the conservation and sustainable use of Medicinal & Aromatic plants.

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फरीदाबाद ◇ हरियाणा

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 By **Dinesh Bhardwaj** - October 3, 2022

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Faridabad Hindustan ab tak/Dinesh Bhardwaj : 3 अक्टूबर। डिपार्टमेंट ऑफ बायोटेक्नोलॉजी एंड एमआर सेंटर फॉर मेडिसिनल प्लांट पैथोलॉजी (एमआर – सीएमपीपी), फैकल्टी ऑफ़ इंजीनियरिंग एंड टेक्नोलॉजी, मानव रचना इंटरनेशनल

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By Spbharat — On Oct 3, 2022



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3 October - 2022 by [Deepak Sharma](#)



- **Manav Rachna Centre for Medicinal Plant Pathology (MR-CMPP)**

Quality Council of India (QCI) (established by the Government of India) shown interest with Manav Rachna Centre For Medicinal Plant Pathology (MR-CMPP) for sponsored collaborative research under Voluntary Certification Scheme for Medicinal Plant Produce (VCSMPP). This also has a reference from the State Medicinal Plants Board (SMPB), Haryana.

They intend to have a partnership comprising the following 4 aspects:

1. Experts to develop packages of practices for cultivation and collection of the various medicinal plant species
2. Certification of Demo Plots (Group certification) for medicinal plants growers, collectors, and areas.
3. **Training and sensitization workshops for producers**, consumers, Government Departments, State Forest Department officers etc.
4. One day Training program (Workshop) on GAP or GFCP of Medicinal Plants

Under this collaboration a capacity building cum sensitization training under the Voluntary Certification Scheme for Medicinal Plant Produce (VCSMPP) is scheduled in Manav Rachna International Institute of Research and Studies on 19th November 2022 One (1) day training program (Workshop) on GAP or GFCP for Medicinal Plant and caters to 50 farmers (majorly) from NCR Haryana.

B. Manav Rachna Start-up Initiatives for Sustainable Agriculture And Support Farmers



TRICHO AGRONICA PVT. LTD

Lab-to-Land : An eco-friendly approach



FIELD TRIALS IN 4 AGRO-CLIMATIC ZONES



RECOMENTDATIONS

SKUAST, Srinagar: Foliar spray with oil bioformulation at 1×10^9 CFU can replace 75% chemical in controlling Septoria leaf spot, Cercospora leaf spot, early blight, late blight, buckeye fruit rot and Alternaria fruit rot disease and also increase the yield of 25.22%.

UHS, Bengaluru: Spray with oil bioformulation at 1×10^9 CFU can replace 50% chemical in reducing the intensity of early and late blight disease of tomato and also increase the yield of 97.47%.

IARI, Delhi: Oil bioformulation at 1×10^8 CFU was effective against fungal and bacterial diseases and enhance early flowering and fruiting in the tomato plant at lower doses like 4 and 6 ml per liter twice in one crop season.



M/s Tricho Agronica Pvt. Ltd

In the recent years there has been a heart warming paradigm shift of demographics in the Indian corporate landscape and the country has witnessed a titanic surge in the number of women entering the economic wave. M/s Tricho Agronica Pvt Ltd, Department of Biotechnology, Faculty of Engineering & Technology, MRIIRS is the Start-Up company have all women team members as stake holders. The Start-Up has received a grant of Rs 172 lacs under Indian Oil Startup Scheme (IOSUS), a "Start-up India" initiative that aims to support innovative ideas that have significant business potential, social relevance and/or are focused on environment protection. Further, such validated PoCs may be supported for commercialization through equity participation. The vision of the company is to provide Lab to Land- an eco-friendly approach. It aims to promote, develop and provide eco friendly products and technologies in safer, cost effective and sustainable manner. The mission of the company involves an eco friendly approach for sustainable agriculture understanding the nature of market, farmer"s aspirations and providing appropriate solution to them through organic farming keeping in mind the environment and health issues. Injudicious and long period utilization of synthetic agrochemicals in agriculture has led to toxic pesticide residues, appearance of pests, resistance and resurgence, environmental contaminations, negative impacts on human health and non-target organisms thus, leading to pernicious effects on food chain of the ecosystem. This has

forced the researchers and pesticide industries to shift their focus to more reliable, sustainable and eco-friendly products. Bio formulations are a potential alternative to currently used agrochemicals and the need of the hour. The global biopesticides market was worth US\$3.3 billion in 2017 and the opportunity in the market is projected to surge to a valuation of US\$9.5 billion by 2025. The market is anticipated to rise at an impressive CAGR of 13.9% during the forecast period 2017–2025. Keeping these perspectives in view the company has designed its first bio formulation product „Bio elixir“ which is a remedy for bull’s eye pathogen at low cost. The synergistic effect of the bio elixir constituents has the capability to increase systemic resistance in plants by increasing photosynthesis process in plants. It is the bio fertilizer and a bio fungicide organic formulation which is available in the powder form. It is a non-chemical based formulation to reduce disease of tomato plant combining with features for enhancing soil structure and fertility, maintaining soil biological activities and promoting plant growth & biomass. The farmers will be highly benefited as it is very effective against those Alternaria isolates which has developed resistance against chemical fungicides. This will not only promote biodynamic agriculture but will also encourage eco-friendly sustainable lifestyle. M/s Tricho Agronica Pvt. Ltd. stands in spirit to this endeavor and is also committed for consolidating efforts towards improving crop productivity leading to food security with enhanced organic footprints.



SDG- 2 ZERO HUNGER



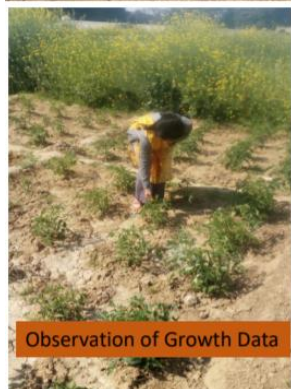
Field Preparation



Transplantation (Net House)



Transplantation



Observation of Growth Data



Disease Free Plants



Healthy Crop

Crop Cycle



Treatment Plants

Healthy Tomato Plants

Plants Bearing Fruits

SDG- 2 ZERO HUNGER



Crop cycle at BCKV, Kalyani



Crop cycle at SKUAST, Srinagar



Appreciation given by Sh. Atul Kothari, Secretary, Shiksha Sanskriti Uttan Nyas, New Delhi and Sh. Subodh Bishnoi Ji, S K Rajasthan Agricultural University, Agriculture Research Station, Ganganagar



Exhibited Tricho Agronica Pvt. Ltd. at IASE University (Institute of Advanced Studies in Education) in Sadar Sahar, Rajasthan.

- **7th International Conference At ICAR-Indian Agricultural Research Institute (IARI), Pusa Campus, New Delhi, India**

The start-up was exhibited and well appreciated at the 7th International Conference on “Phytopathology in Achieving UN Sustainable Development Goals” at ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India, during January 16-20, 2020. The IPS along with 12 most prominent plant protection societies/institutions within and outside the country have come together to celebrate 2020 as the International Year of Plant Health and planned to bring the world plant pathologists/microbiologists/biotechnologists on a common forum to discourse the

issues related to plant pathogens, the disease they cause, the threat they pose to global agriculture and method & strategies to combat them. More than 50 international delegates from France, Germany, Japan, Washington State, Thailand, Nigeria also presented their work along with 1000 delegates all over India at the conference. An invited expert talk was also delivered on “Plant Pathologists entrepreneurship and policy perspectives for food security” at the conference. Dr. R. N. Kharwar, BHU and Dr. Pankaj Baiswar, ICAR Research complex thanked Dr. Nidhi Didwania for her valuable time and Research-based expertise in the field of Plant Pathology and awarded the Best Paper Presentation Award in the session on Plant Pathology Entrepreneurship. She also acted as a session chair at one of the Technical sessions at the conference.



Tricho Agronica Pvt. Ltd. in the Exhibition



7th International Conference on “Phytopathology in Achieving UN Sustainable Development Goals” at ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India, during January 16-20, 2020.