Proceedings of the International Conference on
"Plant Health in Asia: Research Priorities and Partnerships"
17th to 18th December, 2024

Organized by

The Department of Agricultural and Horticultural Sciences (AHS), Vignan's Foundation for Science Technology and Research (VFSTR) organized " **International Conference on "Plant Health in Asia: Research Priorities and Partnerships** " on 17th - 18th December, 2024, at VFSTR (Deemed to be University), Vadlamudi, Guntur in collaboration with Asia-Pacific Association of Agricultural Research Institutions (APAARI), and European Plant Health Research and Coordination III (EUPHRESCO III), knowledge partners International Crops Research Institute for the Semi-Arid tropics (ICRISAT), Centre for International forestry Research (CIFOR), World Agroforestry, Centre for Agriculture and Bioscience International (CABI), Indian Phytopathological society, Acharya N.G. Ranga Agricultural University (ANGRAU), Dr. Y.S.R. Horticultural University (YSRHU), Plant Protection Association of India (PPAI). The two day programme was organized in six technical sessions and 2 key note sessions besides inaugural session, two panel discussion sessions and valedictory session.

Prelude:

The two-day event of the International Conference was organized with an intention to congregate the experts in the field of ―Plant Health in Asia: Research Priorities and Partnerships to establish better connections in the field of Plant Health Research. The conference's key objective was to identify and prioritize critical plant health issues while fostering the development of potential partnerships aimed at addressing these challenges. By focusing on the identification of key plant health concerns, the conference aimed to promote collective action and innovative solutions. Moreover, it emphasized the importance of building strong partnerships between researchers, policymakers, industry leaders, and farmers to effectively tackle plant health issues on a global scale.

The conference holds great importance as it serves as a platform for bringing together policymakers, academicians, researchers and development institutes, industry, and farmers to the field. The primary purpose is to meet global food security challenge demands, feeding two billion more people by 2050, which requires innovations in plant health research to protect crops from pests and diseases. Pests currently cause 20-40% of global crop yield losses, costing $290 billion annually. Healthy crops are crucial for sustaining agricultural trade, ensuring compliance with international standards, and maintaining market access. Poor plant health can lead to trade restrictions and economic losses. Thus, effective plant health management is essential for global food security and competitive trade. The six sessions are organized around five sub-themes: i) Molecular Breeding and Gene Editing Approaches for Biotic Stress, ii) Changing pest scenario, Epidemiology, Forecasting & Monitoring in relation to Climate change (Insect pests), iii) Changing pest scenario, Epidemiology, Forecasting & Monitoring in relation to Climate change (Plant Diseases), iv) Sanitary, Phytosanitary and Quarantine Regulations, v) Artificial Intelligence and IoT for Plant Health Management.

During the conference, a total of 22 invited papers (6 Keynote and 16 Lead) and 19 oral presentations were presented across various sessions. Additionally, 8 abstracts were displayed for poster presentations, adding to the wealth of knowledge shared. Furthermore, the conference featured two panel discussions focusing on: i) Panel Discussion of Farmers, ii) Panel Discussion of Industries. The recommendations from each session are summarized below.

Day 1: 17th, December 2024

Inaugural session

The inaugural session started with inviting the dignitaries on to the dais; Dr. T. Ramesh Babu, Dean School of Agriculture and Food Technology, Vignan's Foundation for Science Technology and Research (VFSTR), Dr. M. Malakondaiah, Former Director General of Police, A.P. & Member, Executive Council, VFSTR, Dr. Ravi Khetarpal Executive Director, Asia - Pacific Association of Agricultural Research Institutions (APAARI), Bangkok; Dr. Baldissera Giovani Coordinator, European Plant Health Research and Coordination (EUPHRESCO III); Dr. K. S. Varaprasad Project Manager (USDA- SPS Project) APAARI & Former Director, ICAR-IIOR, Hyderabad, Dr. Lavu Rathaiah Hon'ble Chancellor, VFSTR & Chairman, Vignan Group of Institutions; Col. Prof. P. Nagabhushan Hon'ble Vice Chancellor, VFSTR; All the dignitaries had stepped forward to light the lamp. Dr. T. Ramesh Babu, Dean SAFT, VFSTR and Organizing Committee Chair enlightened about the purpose of the International Conference on ―Plant Health in Asia: Research Priorities and Partnerships‖-2024.

Dr. Babu expressed his immense pride and great honour in extending a warm welcome to all attendees of the International Conference on- "Plant Health in Asia: Research Priorities and Partnerships" and outlined the conference's agenda, which focuses on innovating and promoting sustainable agriculture models aimed at enhancing nutritional security and fostering economic prosperity. Additionally, he highlighted the initiation of consultancy services designed to empower farmers and entrepreneurs by establishing resilient agroforestry systems and integrating traditional wisdom and also emphasized the state government's vision to transition 6 million farmer households and 2 million landless workers in Andhra Pradesh by 2035. Encouraging all participants, he urged them to actively engage in the conference, leveraging this unique opportunity to exchange knowledge, collaborate, and contribute to the advancement of plant health research and practices.

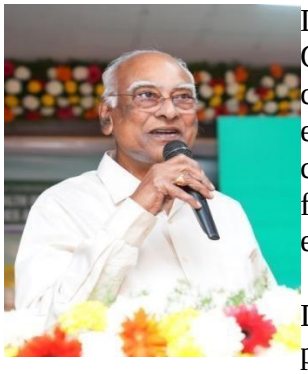
Dr. M. Malakondaih, Former Director General of Police, A.P., & member, Executive Council, VFSTR, expressed gratitude to all the delegates and dignitaries who made the effort to attend the conference, emphasizing that Dr. Ravi Khetarpal is an expert, and it is a privilege for him to have him as Conference Chair. It was hoped that the discussions taking place would be beneficial to the farming community.

Dr. Ravi Khetarpal, Executive Director, Asia-Pacific Association of Agricultural Research Institutions (APAARI), Bangkok, Chairman of the Global Forum on Agricultural Research (GFAR), mentioned that APAARI was established by the FAO of the United Nations about 35 years ago and is now seeking its own independent legal status as an intergovernmental organization (IGO) in Thailand. The organization works with the mission of improving agri-food research and innovation systems in Asia and the Pacific. Emphasizing the global projects undertaken by APAARI, Dr. Ravi noted that another key point for the organization is its involvement in the world of agroecology, in partnership with Rythu Sadhikara Samstha (RySS), Govt. of A.P., India, which was also highlighted. Dr. Ravi expressed confidence that they are on the verge of achieving something great. Commending Vignan University, Dr. Ravi acknowledged its great potential. Having served on the school research board, he has seen firsthand the efforts being made beyond capacity. He noted that Vignan University excels in areas where no other institution competes, giving it a unique selling point. Dr. Ravi is confident that the university will continue to move forward and achieve its goals. Despite being located in a corner of Guntur, Vignan University is steadily making its mark on the international map and is poised to gain global recognition through numerous collaborations and high-quality research.

Dr. Baldissera Giovani, Coordinator, European Plant Health Research and Coordination (EUPHRESCO III), expressed his profound happiness, stating that standing in front of the audience as a representative of EUPHRESCO was a great honour, and expressed his gratitude for hosting the event in such a beautiful location full of young people, who represent the next generation of talented professionals to be guided by the professors who possess today‘s knowledge. Dr. Baldissera shared that he felt a sense of disconnection between people, which is why EUPHRESCO III has emerged. EUPHRESCO III is a global phytosanitary research coordination initiative that spans different countries and regions, including South East Asia. Emphasizing that, in his view, global efforts refer to ensuring that all actors are represented and that all perspectives are considered in order to meet the diverse needs of various people and representatives from local authorities.

Dr. K. S. Varaprasad, Adviser, Biosecurity and Bioresources, expressed his gratitude towards Dr. Baldissera for accepting the proposal from Dr. Ravi Khetarpal to hold the conference this year and mentioned that it is very inspiring to work with EUPHRESCO. He stated that APAARI is extremely happy to collaborate with Dr. Baldissera's team. Dr. Varaprasad applauded the beloved Chairman of VFSTR, noting that he is not only an entrepreneur but also exemplifies excellence in performance in whatever he does. He expressed that VFSTR is the best host he has ever seen, offering all the necessary facilities, and he is extremely thankful. Dr. Varaprasad shared his pride in being associated with Dr. Vijay Kumar, highlighting that working with him has always provided an extra privilege whenever he travels to any country outside of India. Having visited 45 countries,

Dr. Varaprasad noted that they initiated the agro ecology program in Andhra Pradesh in collaboration with these countries, many of which are now working with global organizations. He acknowledged that this represents a significant opportunity for India and Asia, as the first two phases of EUPHRESCO were not global and were mostly confined to EUPHRESCO itself, while the third phase has expanded to a global scale. Dr. Varaprasad drew attention to the undeniable fact that the younger generation must possess professional competence and a strong commitment to managing such projects, as well as the essential infrastructure, laboratories, and human resources to lead the project and foster global networking.



Dr. Lavu Rathaiah, Hon'ble Chancellor of VFSTR & Chairman of Vignan Group of Institutions, praised the conference on plant protection as a commendable initiative in a sector where 60 percent of the population is engaged in agriculture. Even minor advancements in this field, he noted, could lead to significant improvements. The conference was expected to foster productive discussions, particularly in areas where small enhancements in production could create a substantial impact.

Dissatisfaction was expressed regarding previous loan policies that prevented farmers with four to five acres of land from securing loans. However, with the recent amendment by the RBI, loans can now be obtained without security. The feasibility of natural farming under current conditions was questioned, citing Sri Lanka as an example where government policies promoting natural farming resulted in failure and food shortages. The viability of natural farming was emphasized as dependent on production levels matching those of conventional methods, highlighting the necessity of scientific research and validation before widespread adoption. The importance of natural pest control methods was also underscored, as they could help address concerns about consuming contaminated food. Additionally, the role of IoT technology in enhancing agricultural management was highlighted.

.Dr. T. Vijay Kumar, IAS (Retd), Executive Vice-Chairman, Rythu Sadhikaraka Samstha (RySS) & Advisor, Department of Agriculture and Cooperation, Govt. of Andhra Pradesh, INDIA. In his address, he highlighted the significant growth of RySS, which started in 2016 with 40,000 farmers and has now reached 1 million participants statewide. He emphasized that natural farming progresses gradually and is a voluntary choice for farmers, contrasting it with Sri Lanka's abrupt elimination of chemical fertilizers and – "Natural Farming Mimics Nature to boost biodiversity, resilience, and planetary health while addressing the CLIMATE CHANGE". He also noted farmers are natural scientists who experiment, learn, and lead transformative changes in agriculture. He cited remarkable benefits of natural farming, including increased yields, lower costs, and higher net incomes, beginning in the first year, illustrating its resilience to disasters, sharing examples of banana and cotton crops surviving floods while chemically farmed crops suffered extensive damage. He concluded his address with the inspiring statement, "Every farmer has the power to heal the planet."

Col. Prof. P. Nagabhushan, Hon'ble Vice Chancellor, VFSTR, expressed that he was wondering about maintaining plant health, stating that the reason for maintaining plant health is to increase yield and extract more from the plant. He highlighted that the Government of India has recognized the importance of acknowledging previous learning and the inherent knowledge gained by farmers in the field of agriculture, which is beneficial, and from their experiences, much valuable knowledge can be gained, allowing them to be equated with diploma holders and reach greater heights. He highlighted that ―Farming should be embraced as entrepreneurship, elevating its status and inspiring innovation while making it aspirational to attract youth and encourage women to see farmers as ideal life partners, driving rural prosperity.

The compendium for the conference and Book on Good Agricultural Practices (GAPs) in Palms (Coconut, Oil Pam and Palmyrah) was released by the dignitaries present on the dais.

Dr. T. Naresh, Coordinator, AHS, first and foremost expressed sincere appreciation to Dr. Vijay Kumar, IAS (Retd), for his inspiring presence and words of encouragement, which set the tone for the event. He extended his immense gratitude to Dr. Ravi Khetarpal, Chairman of the Conference, for his unwavering support. He expressed that the conference is going to be enlightening and thought-provoking and acknowledged his privilege to extend heartfelt gratitude to all those who have graciously made time in their busy schedules to attend. To the esteemed speakers and panellists, he expressed that he is indebted to all the upcoming sole contributions, stimulations, discussions, and innovative perspectives. He stated that the expertise is going to elevate the quality of the conference and enrich our understanding. He extended his gratitude to all the sponsors and partners who have been instrumental in bringing the event to fruition. He extended a warm thanks to the Organizing Committee and Technical Committee for their dedication. He further stated to everyone that we should all carry the momentum forward and continue striving for excellence in respective fields.

Keynote Presentations

Chairperson: Dr. Ravi Khetarpal, Executive Director, APAARI, Bangkok.

Co- Chairpersons: 1) Dr. S. V. Ramana Rao, Principal Scientist (Agrl.Economics) ICAR-IIOR, Hyderabad.

2) Dr. C. Kannan, Principal Scientist (Plant Pathology), ICAR-IIRR, Hyderabad.

Rapporteurs: 1) Dr. Rajanand Hiremath, Asst. Professor, AHS, VFSTR

2) Dr. Pandu U., Asst. Professor, AHS, VFSTR

During this session, two prominent keynote presentations took center stage and captivated the delegates.

1. Plant Health in the Era of Agri-food Systems Transformation

- Dr. Ravi Khetarpal

Dr. Ravi Khetarpal, Executive Director of APAARI, Bangkok, delivered an insightful presentation titled "Plant Health in the Era of Agri-food Systems Transformation," addressing plant health challenges and opportunities in the Asia-Pacific region. He emphasized the growing importance of plant health in ensuring sustainable agricultural practices and food security.

The presentation outlined key objectives, beginning with the mitigation of pesticide residues to enhance food safety. He also stressed the need to improve trade opportunities through better residue management practices.

- A significant focus was on managing aflatoxin contamination to be addressed through the – "One Health Approach". He also highlighted the need for improving phytosanitary trade compliance, particularly in Bangladesh.
- He discussed several ongoing projects aimed at addressing objectives like focuses on developing strategies to reduce pesticide residues in agricultural produce, aflatoxin management to ensure food safety and public health, and efforts to enhance phytosanitary standards. Building robust compliance frameworks to meet international standards was emphasized as a critical strategy. Capacity development was underscored as a cornerstone of plant health management.
- Dr. Ravi concluded by advocating for a 360-degree approach to capacity development, integrating research, policy, and practical interventions.

2. Plant Health Research Coordination: An International Endeavour

- Dr. Baldissera Giovani

Dr. Baldissera Giovani, Coordinator, EUPHRESCO III, delivered an enlightening presentation focusing on the current status of plant health research under European conditions. He provided an overview of the EUPHRESCO research and development landscape, emphasizing its role in advancing plant health through coordinated efforts. He highlighted the importance of focusing research on sustainable plant protection methods against pests and pathogens.

- The presentation shed light on the organizations, research institutes, academia, and industry networks actively engaged in plant health research. He also discussed recent

research initiatives, including the study of *Spodoptera frugiperda* (fall armyworm) invasion and associated pathogens in Europe.

- Building a global network under EUPHRESCO III was presented as a critical goal to make research more impactful. Further, he emphasized the need for a regional prioritization system to facilitate the engagement of stakeholders. He outlined the importance of aligning research with phytosanitary needs at various levels. Identifying and addressing these requirements at the national, regional, and global levels was deemed essential for effective plant health management. The role of international collaboration in combating plant health threats was underlined as a vital strategy.
- Dr. Giovani highlighted the benefits of building synergies between research and industry to advance practical solutions. The presentation emphasized the significance of proactive measures to prevent the spread of invasive species and pathogens and presented EUPHRESCO III as a model framework for fostering global cooperation.
- The presentation concluded with a call to expand EUPHRESCO III‘s global reach for better coordination and impact and for South East Asia to contribute by providing research expertise and political support to global phytosanitary research coordination.

Recommendations from the keynote presentation:

1. Advocate for the **One Health Approach** to manage aflatoxin contamination and pesticide residues, linking plant health to broader environmental, animal, and human health systems.
2. Enhance phytosanitary standards through capacity-building programs for farmers, exporters, and policymakers, ensuring compliance with international trade standards.
3. Establish frameworks similar to **EUPHRESCO III** in Asia to prioritize regional research needs, address pest and pathogen challenges, and foster collaboration across countries.
4. Build global networks linking Asian and European research efforts, focusing on shared challenges like the invasion of pests (e.g., fall armyworm) and emerging plant pathogens.
5. Facilitate collaborations between academia, industry, and policymakers to translate research outcomes into scalable, practical solutions.
6. Implement a **360-degree approach to capacity development**, integrating education, research, and extension services to equip stakeholders with the necessary skills and knowledge.
7. Establish regional centers of excellence for plant health research, focusing on local and global threats to agriculture.
8. Encourage partnerships between governments, research organizations, and the private sector to co-develop innovative solutions for plant health issues.
9. Invest in scalable technologies for sustainable agriculture and export-driven production systems.




Technical session I

Chairman	:	Dr. TVK Singh, Former Dean of Agriculture, PJTSAU, Hyderabad, Telangana State, India
Co-Chairperson	:	1) Dr. B. K. M. Laksmi, Principal Scientist & Head, MRS, Nuzvid. 2) Dr. K. Sireesha, Principal scientist (Ento.), Horticultural research station, Lam, Dr. Y.S.R. Horticultural University
Rapporteurs	:	1) Dr. B. Srinivasulu, Asst. Professor, AHS, VFSTR 2) Dr. P. Praveen Kumar, Asst. Professor, AHS, VFSTR

During this session, three distinguished lead papers and one oral presentation took center stage and captivated the delegates.

1. Global Status and Effective Management Options for tackling the South East Asian Thrips, *Thrips parvispinus* (Karny, 1922)

- Dr. Sridhar V.

Dr. Sridhar V, Principal Scientist (Entomology), ICAR-IIHR, Bangalore, presented on the global status and management of the invasive pest *Thrips parvispinus*, a significant threat to horticultural crops such as chilli. He attributed its spread to globalization, climate change, and ineffective early detection, highlighting its severe economic impact, with yield losses exceeding 85% in affected areas.

- Management strategies emphasized an Integrated Pest Management (IPM) approach, including cultural practices, biological controls, and eco-friendly chemical treatments. He also noted the effectiveness of white traps for monitoring and control, stressing the need for collaborative research to fill knowledge gaps in the pest's bioecology.

2. An overview of fruit flies (Diptera: Tephritidae) of south and southeast Asia

- Dr. K. J. David

Dr. K. J. David, Senior Scientist, ICAR-NBAIR, Bengaluru, presented an overview of fruit flies in South and Southeast Asia, underlining their diversity and economic implications. With over 5000 species globally and around 330 identified in India, fruit flies like *Bactrocera dorsalis* and *Zeugodacus cucurbitae* were highlighted for their significant crop damage, particularly to fruits.

- Dr. K. J. David emphasized that *Tephritidae* not only infest fruits and leaves but also target shoots, such as with bamboo shoot flies. Additionally, some species within this family also attack weeds.
- Dr. David emphasized the importance of taxonomic and phylogenetic studies to address identification challenges and recommended sustainable pest management strategies, including male annihilation techniques and improved focus on natural parasitoids.

3. Mitigating threats from emerging insect pests in Bangladesh

-Dr. Nirmal Kumar Dutta

Dr. Nirmal Kumar Dutta, Chief Scientific Officer & Head, Entomology Division, Bangladesh Agricultural Research Institute (BARI), Gazipur 1701, Bangladesh, set forth that Bangladesh's rich biodiversity makes it highly vulnerable to invasive pest species, especially with the liberalization of global trade. Emerging pests like the fall armyworm (FAW), rugose spiraling whitefly, and bagworms have become major agricultural threats in recent years.

Dr. N. K. Dutta stressed that the indiscriminate use of chemical insecticides has worsened pest problems, leading to resistance development and environmental harm. However, biopesticides have emerged as a sustainable alternative, with over 109 brands now available in Bangladesh. The use of natural enemies like parasitoids and predators, combined with biopesticide-based technologies, has reduced chemical pesticide usage by 11.5% in 12 years. This progress reflects the country‘s commitment to adopting eco-friendly pest management practices.

Furthermore, challenges such as lack of awareness, inaccessibility of resources, and inadequate implementation of policies need to be addressed. Collaborative efforts among scientists and stricter enforcement of national and regional strategies are essential. Continued research and development, supported by governmental initiatives, will further strengthen Bangladesh‘s resilience against invasive pest threats.

4. Invasion of *Thrips parvispinus* in chilli ecosystem of Andhra Pradesh and its management.

- Dr. K. Sireesha

Dr. K. Sireesha, Principal Scientist (Ento.), Horticultural Research Station, Lam, Dr. Y.S.R. Horticultural University, underscored the importance of importance of destructive pest black thrips on chilli ecosystem of Andhra Pradesh and its management practices.

- She highlighted the pest's polyphagous nature, adaptability to diverse environments, and rapid reproduction, making it a significant agricultural threat. Originating from the Asian tropics, particularly Thailand, this pest has spread to regions like Southeast Asia, Northern Australia, India, and New Zealand.

- She also stressed on economic impact of thrips is significant, with up to 90% yield loss observed in some chilli-growing areas like Guntur, Palanadu, and Prakasam. Their damage is characterized by upward curling of leaves, browning, and reduced photosynthesis, particularly during rainy seasons.
- Dr. K. Shireesha emphasized the differences between *Scirtothrips dorsalis* and *Thrips parvispinus.*
- Dr. Shireesha suggested that control efforts for *Thrips parvispinus* should focus on the flowering and later stages of the crop, rather than targeting the pest from the beginning of the crop cycle.
- Dr. K. Shireesha elaborated the effective management strategies like Integrated Pest Management (IPM) approaches, combining cultural, biological, and chemical measures to minimize crop damage while ensuring environmental safety.

Recommendations from the Technical Session I:

1. Prioritize research on the bioecology, population dynamics, and ecological adaptations of invasive species like *Thrips parvispinus*, *Silba capsicarum*, and fall armyworm in diverse agroecosystems.
2. Develop and integrate advanced diagnostic tools, including molecular markers and remote sensing, for rapid identification and monitoring of emerging pests.
3. Expand studies on IPM strategies that combine cultural, biological, and chemical controls, focusing on pest-specific approaches like white traps for thrips and male annihilation techniques for fruit flies.
4. Investigate the interaction between host plants and pests, emphasizing breeding or engineering crop varieties resistant to pests and their associated viruses.
5. Promote the use of natural bioagents, such as parasitoids and predators, in combination with eco-friendly interventions like neem cake and reflective mulches.
6. Conduct detailed taxonomic studies of cryptic species and species complexes, such as the *Bactrocera dorsalis* complex, using morphological and molecular techniques.
7. Model pest outbreaks under different climate scenarios to predict and mitigate potential threats.
8. Strengthen collaborations among farmers, researchers, policymakers, and international organizations like CABI to enhance pest surveillance, exchange knowledge, and implement effective management strategies.
9. Facilitate workshops and training programs to raise awareness about pest management among stakeholders.


Concurrent Technical Session II

Theme: Molecular Breeding and Gene Editing Approaches for Biotic Stress

Chairman	:	Dr. Alapati Satyanarayana, Former director of Extension, ANGRAU & Present Executive Director, Sangam Seeds
Co-Chairperson	:	1) Dr. D. Vijay Ramu, Dean PCF and Dean School of Biotechnology and Pharmaceutical Sciences, VFSTR **2)** Dr. B. Kalyan Babu, Principal Scientist (Biotechnology), ICAR-IIOPR, Pedavegi, Andhra Pradesh
Rapporteurs	:	1) Dr. P. Susmitha, Asst. Professor, AHS, VFSTR 2) Ms. V. Priyanka Raj, Asst. Professor, AHS, VFSTR

During this session, three distinguished lead and one oral presentation delivered valuable insights and research findings to the delegates.

1. Sustainable pulses production through plant health

-Dr. Alapati Satyanarayana

Dr. Alapati Satyanarayana, Former director former director of Extension, ANGRAU, and present executive director, Sangam Seeds, chaired the session and was the lead speaker, emphasizing the importance of sustainable pulses production.

- Discussed the low productivity of pulses due to agronomic, environmental, and socio-economic factors, addressing the stagnation in pulse production and outlining government policies aimed at enhancing output.
- Specific varieties of blackgram, such as LBG-645 and LBG-685, were highlighted, along with the damaging effects of Yellow Mosaic Virus (YMV) and the genetics of resistance to this disease.
- In relation to redgram, he pointed out the threats posed by *Helicoverpa* pod borer and diseases like wilt, advocating for alternative agricultural methods that avoid chemical use.

2. Molecular Breeding and Gene Editing Approaches for Improving Plant Health

-Dr. M. Sujatha

Dr. M. Sujatha, Emeritus Scientist (Plant Breeding) ICAR-IIOR, Hyderabad, presented on the evolution of molecular breeding technologies, discussing various

publications and advancements in molecular marker technologies, including SSRs, SNPs, and Marker-Assisted Selection (MAS).

- Enlisted about new approaches of transgenic crops like CRISPR-Cas9 gene Editing and RNA interference (RNAi), heat- and drought-tolerant traits
- Discussed about gene editing process and its importance
- Gene editing technologies like CRISPR-Cas9 are being used to enhance biotic stress tolerance in rice and major crops by introducing resistance to pathogens, pests, and viruses. This involves editing genes related to immunity or susceptibility, enabling crops to withstand diseases and reduce yield losses.
- Enlightened about current genome editing projects at CGIAR centres for biotic stress.

3. Molecular breeding and Genome editing for plant health management: Special reference to Oil palm (*Elaeis guineensis*)

-Dr. B. Kalyan Babu

Dr. B. Kalyan Babu: Principal Scientist (Biotechnology), ICAR-IIOPR, Pedavegi, Andhra Pradesh, discussed the crossing of Tenera and Pisifera sps in oil palm The crossing of Tenera (a hybrid between Dura and Pisifera species) and Pisifera in oil palm is aimed at improving yield and disease resistance. Tenera‘s high oil yield and Pisifera‘s disease resistance are combined to create more productive and resilient varieties.

- Highlighted the integrated genomic approaches like Bulk Segregant Analysis (BSA), Whole-Genome GWAS, and Bioinformatics combine genetic mapping, association studies, and computational tools to identify key loci associated with traits. These methods accelerate crop breeding by enabling precise gene identification and trait improvement. And also followed by validation of population at the farmers level
- Discussed GWAS for yield and oil yield GWAS for yield and oil yield in crops identifies genetic loci associated with these traits by correlating phenotypic data with genetic markers across a population. This helps pinpoint specific genes involved in high yield and oil content, aiding in the development of improved varieties through marker-assisted selection.

4. Genome editing for imparting grey mold resistance in castor (*Ricinus communis L.*)

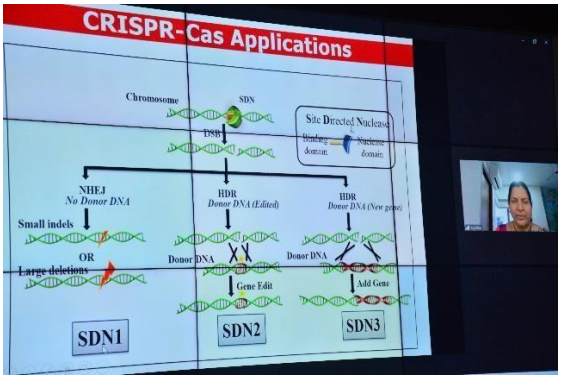
- Dr. B. Usha Kiran

Dr. B. Usha Kiran, Sr. Scientist (Agril. Biotechnology), ICAR-IIOR, Rajendranagar, Hyderabad, discussed the key components for genome editing in castor, include the CRISPR-Cas9 system for precise gene targeting and delivery vectors such as Agrobacterium or ribonucleoprotein complexes for efficient transformation. These tools enable the modification of genes related to traits like oil content and stress resistance.

- Listed approaches for tackling grey mold resistance in castor, like the use of molecular breeding to identify and introduce resistant genes through markers and genetic modification. Additionally, integrated pest management strategies and the development of fungicide-resistant varieties are explored to reduce disease impact.
- Enlightened about CAS 9 efficacy in castor Cas9 efficacy in castor has been demonstrated for precise gene editing, enabling targeted modifications for traits like oil content and stress resistance. The system shows promise in generating transgenic lines with improved agronomic characteristics, enhancing breeding efforts in castor.

Recommendations from the Concurrent Technical Session II:

1. Develop optimized CRISPR-Cas9 protocols for a wide range of crops, including pulses, oil palm, and castor, focusing on resistance to major biotic stresses like fungal diseases, insect pests, and viral pathogens.
2. Explore alternative genome-editing tools such as base editing and prime editing to achieve more precise and efficient genetic modifications.
3. Expand the use of marker-assisted selection (MAS) and genome-wide association studies (GWAS) to identify biotic stress-resistant traits in crops.
4. Establish high-throughput SNP-based CAPS marker systems for early-stage varietal identification and resistance screening.
5. Focus on the genomic analysis of key genes, such as those involved in immune responses and secondary metabolite biosynthesis, to improve tolerance mechanisms.
6. Implement functional validation of candidate genes through RNA interference (RNAi) and transgenic approaches.
7. Crop-Specific Research Initiatives- Develop superior hybrid varieties through advanced molecular breeding, focusing on high oil yield, disease resistance, and dwarfness for better management for oil palm.
8. Promote collaborative research projects among national and international institutes to accelerate the development of sustainable agricultural practices through genome editing.



Concurrent Technical Session III

Theme: Changing pest scenario, Epidemiology, Forecasting & Monitoring in relation to Climate change (Insect pests)

Chairman : Dr. Gururaj Katti, Principal Scientist (Entomology) & Head (Crop Protection), ICAR-IIRR, Hyderabad

Co-Chairperson : 1) Dr.Srinivas Parimi, Director – Field Development and Technical Partnerships, Provivi Inc., Hyderabad
2) Dr. M. Visalakshi, Principal Scientist (Entomology), AICRP on Biological Control, RARS, Anakapalle

Rapporteurs : 1) Dr. T. Naresh, Coordinator-AHS, VFSTR
2) Dr. L. Geethanjali, Asst. Professor, AHS, VFSTR

In this session, three pivotal lead papers and eleven oral presentations were delivered.

1. Novel Technologies in Management of Cotton Plant Health

- Dr. N.V.V.S. Durga Prasad

Dr. N.V.V.S. Durga Prasad, Associate Director of Research RARS, Lam, Guntur, emphasized the initial increase in cotton production through Bt technology but noted the challenges faced over the past nine years due to insect resistance.

- Outlined key constraints like sucking pests, bollworms, and leaf curl virus, and introduced novel technologies such as AI- powered pheromone traps, specialized lure application technology, and genetically engineered cotton hybrids expressing pest-resistant genes.
- Policy recommendations suggested prioritizing hybrids with pest tolerance based on performance in different conditions.

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2. Fall Army Worm: An Overview

-Dr. J. C. Sekhar

Dr. J. C. Sekhar, Principal Scientist, ICAR-Indian Institute of Maize Research, Hyderabad, enlightens the importance of Fall armyworm (FAW) as emerging major pest in India. In 2018, it was first reported in Kerala. It is known for attacking crops like maize, causing significant economic losses. Screening resistant germplasms has been a priority in combating FAW, with institutions like CIMMYT leading efforts in testing over 6,000 maize varieties.

- Studies on biosynthesis of secondary metabolites and phytohormone alterations in maize have provided insights into natural resistance mechanisms. Additionally, RNA interference (RNAi) technologies and semi chemicals such as pheromones have enhanced the ability to monitor and manage FAW populations effectively.
- Dr. J. C. Shekhar highlighted the importance of biological control methods, which play a significant role in FAW management. Conservation agriculture, intercropping, and maintaining parasitoid diversity have shown potential in suppressing FAW outbreaks. Egg parasitoids, larval predators, and encapsulated Bt formulations are among the effective biopesticides used against FAW.

- Furthermore, Dr. J.C. Shekar also emphasized the research a priority continues to evolve, focusing on genomic analyses to identify significant single-nucleotide polymorphisms (SNPs) linked to FAW resistance.

3. Integration of Pheromones into pest management practices of Asia – experiences from Indonesia

-Dr. Srinivas Parimi

Dr. Srinivas Parimi, Director–Field Development and Technical Partnerships, Provivi Inc., Hyderabad, highlighted the importance of pheromones in IPM. QUEM SOMOS has developed 15 pheromones whereas Provivi manufactures pheromones with proprietary biocatalyst and low cost raw materials to reduce the steps needed to synthesize pheromones with higher production for which Green chemistry award was given.

- Dr. Parimi listed Proviiv products like:
  1. Pheron RSB against rice yellow stem borer (50% insecticide reduction and 74% yield)
  2. Provivi FAW against FAW (30% insecticide reduction and 72% yield win rate was achieved)
  3. Pherogen Spray FAW–against FAW (40% insecticide reduction and 82% yield win rate was achieved)
- He also informed about some collaborations of Godrej Agrovet with Provivi for achieving sustainable rice and maize production. Syngenta biologicals and Provivi were developing products against devastating pests in key crops across Asia.

Oral presentations included Dr. M. Sesha Maha Lakshmi, Professor (Entomology), Technical Officer (Polytechnics), ANGRAU, Lam, Guntur, discussed solar light traps for monitoring insect pests, emphasizing the use of IoT tools and the effectiveness of light traps against pink bollworms.

Dr. M. Sampathkumar, Senior Scientist (Agrl. Entomology) Division of Germplasm Collection and Characterization, ICAR- NBAIR, Bangalore focused on the occurrence of invasive insect pests in horticultural crops, linking their emergence to globalization and free trade. He specifically addressed the mango soft scale and apple leaf blotch miner, recommending biological control measures and highlighting the role of pest alerts in managing these threats.

Dr. G. Shali Raju, Scientist (Entomology), Krishi Vigyan Kendra, Venkataramannagudem, presented research on the population dynamics of the mango fruit fly, correlating infestation levels with weather parameters, while Dr. P. Damodar Reddy Asst. Professor, Department of Entomology, JC Diwakar Reddy Agricultural College, examined the influence of seasonal weather on the Rugose Spiralling Whitefly in guava.

Research scholars also contributed valuable findings follow.

- The effects of plant essential oil compounds on *Spodoptera litura* proteins, revealing the potential of phytochemicals as contact toxicants and repellents.
- Characterization of Bacterial Gut Symbionts of Diamondback Moth, *Plutella xylostella* focused on the bacterial gut symbionts of the Diamondback Moth, proposing future research directions aimed at symbiont-based pest control strategies and optimizing pest diets.

Recommendations from the Concurrent Technical Session III:

1. Enhance the development of Genetically Engineered crops with tolerance to multiple pests, including sucking pests, bollworms, and emerging invasive species like the Fall Armyworm.
2. Look forward to new area of research, particularly on microbiome/microbiota, a key area to be explore further.
3. Employ genomic tools such as SNP analysis and RNA interference (RNAi) technologies to accelerate the identification of resistant crop germplasm.
4. Develop AI-powered, IoT-integrated pest monitoring tools like pheromone traps equipped with cameras, acoustic devices, and solar light traps.
5. Establish databases and models for pest population dynamics and correlations with weather parameters to forecast outbreaks effectively.
6. Enhance biological control efforts by conserving natural enemies (e.g., parasitoids and predators) and promoting conservation agriculture practices.
7. Strengthen quarantine measures and pest alert systems to minimize the entry and spread of invasive pests like the mango soft scale and apple leaf blotch miner across agro-ecological zones.
8. Conduct region-specific studies on invasive pests to develop targeted management strategies, including chemical and biological controls.
9. Test crop and pest resilience under simulated climate change conditions to anticipate and mitigate future challenges.

Concurrent Technical Session IV

Theme: Changing pest scenario, Epidemiology, Forecasting & Monitoring in relation to Climate change (Plant Diseases)

Chairman	:	Dr. Paul WJ Taylor, Technical Coordinator, APAARI
Co-Chairperson	:	1) Dr. P. Kishore Varma, Principal Scientist (Plant Pathology), RARS, Lam
Rapporteurs	:	1) Dr. M.L.N.Nandini, Asst. Professor, AHS, VFSTR 2) Mrs. T. Umamaheswari, Asst. Professor, AHS, VFSTR

During this session, one lead paper and five oral presentations were delivered.

1. Diseases in rice and their management – current scenario and future path for a sustainable production

- Dr. C. Kannan

Dr. C. Kannan, Principal Scientist (Plant Pathology) at ICAR-IIRR, Hyderabad, delivered an insightful presentation on the current state of rice production and its challenges, focusing on the management of false smut disease in rice.

- Emphasizing integrated disease management, he outlined strategies such as cultural practices, the use of disease-resistant varieties, biological control agents (BCAs), and chemical control methods.
- He also highlighted advancements in microbial bioformulation technology as an eco-friendly alternative to agrochemicals. The isolation of microbial secondary metabolites from strains of *Trichoderma* led to the commercialization of compounds like masovia lactone and six pentyl-2H-pyrone.
- The need for capacity-building initiatives among farmers was also highlighted.

Oral presentations included Dr. B.K.M. Lakshmi, Principal Scientist (Plant Pathology) & Head, Dr.YSRHU-Mango Research Station, Nuzvid, AP, discussed the emerging threat of sooty mold to mango production in Coastal Andhra Pradesh. She presented findings on major mango diseases, particularly focusing on sooty mold caused by the fungus *Capnodium sp.*, which thrives on sugary secretions from sucking pests.

Dr. S.V. Ramana Rao, Principal Scientist (Agri. Econ) at ICAR-Indian Institute of Oilseeds Research, Hyderabad, presented on the role of partnerships in fostering plant health through bio-inoculants, stressing the challenge of producing sufficient food to meet global demands. The presentation highlighted the importance of partnerships with institutions for technology transfer and training, as well as engaging Farmer Producer Companies (FPCs) to ensure efficient distribution of bio-inoculants.

Dr. M. Mutyala Naidu, Principal Scientist (Hort.) & Head, Dr. YSRHU Horticultural Research Station, Mahanandi, Nandyal (Dt.), A.P., focused on viral diseases in banana production, discussing significant viruses like banana bract mosaic virus and banana bunchy top virus. Highlighted the susceptibility of certain banana varieties and proposed management strategies such as producing virus-free planting materials and implementing quarantine measures.

Dr. Nandappa Chorgasti, Assistant Professor at Malla Reddy University, Hyderabad, shared his findings from a survey on chilli diseases in Telangana, particularly anthracnose,

which poses a severe threat to chilli cultivation. He collected and identified various isolates, confirming the presence of pathogenic *Colletotrichum* species.

Lastly, Ms. Niveditha Pollumahanti, Project Associate II at the DBT One Health Project, NABL Accredited Food Microbiology Laboratory, National Meat Research Institute, Hyderabad, addressed the screening and isolation of Listeria monocytogenes from organic and non-organic leafy vegetables in Hyderabad. She found a higher contamination risk in non-organic vegetables and assessed the virulence of the pathogen, emphasizing the need for stringent quality control and regular monitoring to enhance food safety.

Recommendations from the Concurrent Technical Session IV:

1. Promote IDM practices that combine cultural, biological, and chemical approaches to minimize pest and disease impact while reducing environmental harm.
2. Scale up the use of bio-control agents (BCAs) and microbial formulations as eco-friendly alternatives to chemical pesticides.
3. Focus on interdisciplinary research to develop advanced tools for disease forecasting and monitoring under changing climate conditions.
4. Encourage studies on the genetic diversity and virulence of pathogens to better understand disease dynamics.
5. Strengthen disease surveillance and forecasting systems to anticipate outbreaks in the context of climate change.
6. Develop and disseminate region-specific management practices that address emerging diseases in key crops such as rice, mango, banana, and chillies.
7. Encourage the cultivation of climate-resilient and disease-resistant crop varieties.
8. Foster public-private partnerships (PPP) for scaling up bio-inoculant production and distribution.
9. Implement the "4P Approach" (Promote, Partner, Participate, Progress) to engage youth in agriculture and plant health initiatives.

Concurrent Technical Session V

Theme: Sanitary, Phytosanitary and Quarantine Regulations

Chairman	**:**	Dr. Baldissera Giovani, Coordinator, EUPHRESCO III
Co-Chairperson	**:**	1) Dr. S. V. S. Gopala Swamy, Principal Scientist (Entomology), RARS, Lam 2) Dr. Harikishan Sudini, Principal Scientist and Head- Science Quality and Strategy, ICRISAT, Hyderabad
Rapporteurs	**:**	1) Dr. Vishnupandi Senthil Kumar, Asst. Professor, AHS, VFSTR 2) Dr. G. Siva Nagaraju, Asst. Professor, AHS, VFSTR

During this session, two pivotal lead papers were delivered.

1. Mycotoxins as Global Risks for Food and Nutrition Security: Need for One Health, One world Approach

-Dr. M. K. Naik

Dr. M. K. Naik, Former Vice-Chancellor of KSNAHU, Shivamogga, began by discussing the significant issue of aflatoxin contamination in chillies within Telangana State, shedding light on the quantitative and qualitative estimation of phytotoxins.

- Highlighted the production of various aflatoxins, including Cap17, caf 23, caf 43, and caf 48, using ELISA techniques.
- Presented findings from analyses conducted in Gulbarga, Beilary, and Raichur districts, along with results from farm trials aimed at improving groundnut management through Good Agricultural Practices (GAP).
- Dr. Naik provided recommendations from a 'One Health' roadmap, emphasizing the need for comprehensive strategies that integrate food security, nutrition, and health.

2. A Holistic approach to Aflatoxin management in Groundnut is Key for safe and fair trade

-Dr. Harikishan Sudini

Dr. Harikishan Sudini, Principal Scientist and Head of Science Quality and Strategy at ICRISAT, Hyderabad, initiated his presentation by underscoring the necessity of a holistic approach to aflatoxin management in groundnuts to ensure food safety. Elaborated on mycotoxins and aflatoxins, sharing alarming reports of incidents such as the death of ten elephants in an Indian national park and further cases of elephants succumbing after consuming infected kodo millet.

- Focused on the secondary metabolites produced by various strains of Aspergillus, specifically AFB1, AFB2, and AFG2, detailing their toxicological implications and presenting a range of approaches to address aflatoxin contamination, highlighting interventions aimed at reducing the risks associated with aflatoxins in food systems.
- Dr. Sudini concluded his presentation by emphasizing the need for research to focus on the developmental biology, biochemistry, and gene expression of the peanut seed coat to enhance understanding and utilization of its natural resistance mechanisms against *A. flavus* and aflatoxin contamination.

Recommendations from the Concurrent Technical Session V:

1. Conduct comprehensive studies on the occurrence, distribution, and impact of mycotoxins, such as aflatoxins, in diverse crops and regions, emphasizing contamination hotspots like Telangana, Gulbarga, Bellary, and Raichur.
2. Develop and refine **quantitative and qualitative diagnostic tools**, such as ELISA and advanced molecular techniques, to improve the detection and monitoring of aflatoxin contamination.
3. Promote the adoption of Good Agricultural Practices (GAP) and crop-specific interventions to mitigate mycotoxin risks at the farm level.
4. Advance research that integrates plant health, soil health, and sustainable farming practices as part of a resilient food health system under the -One Health‘ framework.
5. Investigate the role of seed coat biology in resisting fungal infections, focusing on biochemical pathways, such as the inhibitory effects of ferulic acid and lignin content, as demonstrated in peanut varieties like 55-437.
6. Train farmers in the use of mycotoxin detection methods, linking them to platforms like **www.nurture.com** for quality testing and market access.
7. Strengthen sanitary and phytosanitary (SPS) regulations with a focus on regional and global compliance, ensuring safe and fair trade of agricultural products.
8. Foster collaboration between research institutions, policymakers, and industry to address aflatoxin management comprehensively.

Concurrent Technical Session VI

Theme: Artificial Intelligence and IoT for Plant Health Management

Chairman : Dr. M. K. Naik, Former Vice Chancellor, KSNAHU, Shivamogga

Co-Chairperson :
1) Dr. Sunil Kumar, Principal Scientist, Utkar
2) Ms. Madhu Manjari, Agri Digital Tools Coordinator- South Asia, CABI International

Rapporteurs :
1) Dr. Mahesh Vinayak Hadole, Coordiator, AE, VFSTR
2) Dr. Md. Anwar Ali, Asst. Professor, AHS, VFSTR

During this session, two pivotal lead papers and one oral presentation was delivered.

1. Human centric Design approaches for sustainability and scalability of farmers' advisory through CABI PlantwisePlus digital Advisory tools

- Ms. Madhu Manjari

Ms. Manjari, Agri Digital Tools Coordinator- South Asia, CABI International, highlighted CABI's establishment of plant clinics in over 27 countries, showcasing their commitment to delivering science-based agricultural knowledge to farmers.

- She pointed out the key features of CABI tools, such as gender inclusivity, free access, multilingual support, and user-friendly interfaces in web and mobile applications, designed to promote sustainable agricultural practices. Furthermore, CABI offers digital learning courses in nine languages, comprehensive plant health information, and crop protection support, all grounded in a human-centric design approach that addresses stakeholders' challenges.
- The chair suggested expanding this focus to include soil and crop-centric considerations, along with addressing the literacy rates among the targeted farming communities, as digitization requires a certain level of literacy.
- The presentation concluded with an overview of the human-centric design processes, tool validation, challenges faced, and a SWOT analysis of the initiatives.

2. Drone based package of practices for wet direct seeded rice – Innovation and challenges

- Dr. N. Ramagopalavarma

Dr. N. Ramagopalavarma, Principal Scientist (Entomology), Institute of Rice Research, PJTSAU, Hyderabad, introduced drone technology's transformative potential in Indian agriculture, sharing field experimental results and discussing the development of standard operating protocols for seven crops, including groundnut, cotton, and rice.

- Dr. Varma elaborated on pest detection models and the role of AI and machine learning in developing specific application algorithms. He highlighted a NABARD project utilizing drones for direct seeding in wet-seeded rice, noting the extensive data generated to optimize drone operations.
- The speaker compared the efficacy of drone spraying with conventional methods, asserting that drones are more economical and efficient.
- The chairman noted the importance of considering buffer zones during spray applications to protect water bodies and amphibian species.

Oral presentation incudes "Drone-based Granular Spreader: SOPs for Application of Granular Insecticides in Rice." She detailed her experimental results and parameter

optimization for a disc-type UAV-based spreading device, conducting a comparative study with conventional methods, underscoring the advantages of drone technology in agricultural practices. The session concluded with a robust discussion, allowing participants to exchange ideas and insights.

Recommendations from the Concurrent Technical Session VI:

1. Expand research to incorporate human-centric design approaches alongside crop- and soil-centric strategies. Tools and technologies should address stakeholder needs while also considering crop health, soil conditions, and ecological sustainability.
2. Conduct literacy assessments within farming communities to design digital solutions that are inclusive, user-friendly, and accessible, even in low-literacy regions.
3. Conduct long-term validation studies to ensure the reliability and scalability of digital advisory tools across diverse agro-climatic regions.
4. Research and standardize drone-based Standard Operating Procedures (SOPs) for granular insecticide spreading and crop protection applications, ensuring optimal effectiveness and minimal environmental impact.
5. Enhance AI and machine learning models for pest detection, crop health assessment, and predictive analytics to provide precise, real-time solutions for farmers.
6. Develop datasets that capture crop-specific pest behaviors, disease patterns, and climatic variables to improve AI algorithm accuracy.
7. Conduct awareness campaigns and workshops on the use of IoT devices and AI tools to encourage widespread adoption and improve digital literacy among farming communities.
8. Encourage cross-border research on pest and disease control, particularly for invasive species that impact multiple regions.
9. Develop a SWOT-based evaluation framework to assess the scalability and sustainability of AI and IoT tools, ensuring they align with regional needs and challenges.
10. Implement robust monitoring mechanisms to measure the real-world impact of digital tools and drone technologies on crop yield, pest management, and environmental health.

Day 2: 18th December 2024

Keynote and Lead Papers Presentations

Chairman : Dr. K.S. Varaprasad
Adviser, Biosecurity and Bioresources

Co-Chairperson : 1) Dr. Gururaj Katti, Principal Scientist (Entomology) & Head (Crop Protection), ICAR-IIRR, Hyderabad
2) Ms. Madhu Manjari, Agri Digital Tools Coordinator- South Asia, CABI International

Rapporteurs : 1) Dr. Chandra Surya Rao M, Asst. Professor, AHS, VFSTR
2) Dr. T. Prabhakar Rao, Asst. Professor, AE, VFSTR

A total of three keynote and one lead papers were delivered during this session.

1. **Policy Dimensions of SPS compliances for Agricultural Trade Facilitation: Bangladesh as Case study**

– Dr. K. S. Varaprasad

Dr. K.S. Vara Prasad, Project Manager (APAARI-EUPHRESCO III & USDA-SPS) & Former Director, ICAR- NBPGR, Bengaluru, keynote presentation provided an in-depth examination of strategic interventions to address the challenges of Sanitary and Phytosanitary (SPS) compliance in Bangladesh, emphasizing the vital role of the Asia- Pacific Association of Agricultural Research Institutions (APAARI) and its partners in enhancing capacity development and regulatory alignment to facilitate agricultural trade.

- Key challenges identified included export denials due to excessive pesticide residues, insufficient quarantine infrastructure, and limited stakeholder awareness of SPS protocols.
- Dr. Prasad proposed targeted training modules, public-private partnerships, and modernization of diagnostic and quarantine facilities as practical solutions. He highlighted notable achievements, such as advancements in quarantine inspection frameworks and a marked decrease in biopesticide residues.
- The presentation concluded with recommendations to establish a national Maximum Residue Limit (MRL) framework and expand the diagnostic laboratory network to support a resilient agricultural export system.

Following this, Dr. Sarath Babu queried the insufficient emphasize on capacity building in Bangladesh, to which Dr. Ravi Khetarpal responded that the brief tenure of governmental officers hinders effective communication and that systemic corruption has led to a lack of financial resources for capacity-building initiatives.

2. **Challenges for Mitigating Risks of Incursion by Exotic Plant Pathogens**

- Dr. Paul WJ Taylor

Professor Dr. Paul Taylor, Technical Coordinator, APAARI, then discussed the pressing plant health challenges in South and Southeast Asia, focusing on diagnostics, disease management, and sustainable practices.

- He emphasized the importance of advanced molecular diagnostic methodologies, such as PCR and LAMP, for bolstering biosecurity.

- Dr. Taylor presented case studies on significant phytopathological threats, including anthracnose and fusarium wilt, advocating for regional cooperation and capacity-building efforts, such as masterclasses and breeding disease-resistant crop varieties.
- A recommendation was made for EUPHRESCO to increase its engagement in the Asian region to effectively tackle these challenges through collaborative efforts.

3. Plant Health in Asia: The IPPC perspective

- Ms. Sarah Brunel

Ms. Sarah Brunel, Implementation & Facilitation Lead, IPPC Secretariat, FAO, Italy, highlighted the critical role of plant health within the One Health framework, addressing the rapid spread of invasive pests due to globalization and climate change, which pose threats to ecosystems and public health.

She discussed the IPPC e-Phyto Solution, which has facilitated over 7 million secure exchanges globally, enhancing efficiency in agricultural trade. Other transformative initiatives, such as the Phytosanitary Capacity Evaluation framework, were also spotlighted.

4. Crop biosecurity against plant viral diseases in Asia: Challenges

- Dr. V. Celia Chalam

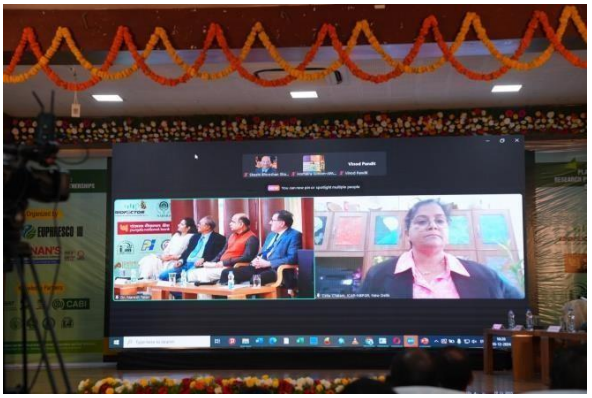
Dr. V. Celia Chalam, Principal Scientist & Head, Division of Plant Quarantine, ICAR-National Bureau of Plant Genetic Resources, Pusa Campus, New Delhi, addressed crop biosecurity challenges from plant viral diseases, stressing the need for robust quarantine measures and standardized procedures for germplasm exchange. She highlighted the significant operations of ICAR-NBPGR's centres, which have processed over 700,000 germplasms, reinforcing the necessity of stringent quarantine systems.

1. Dr. Sashi B. Sharma reinforced the importance of capacity enhancement through CABI's initiatives and the need for region-specific SPS measures.
2. He urged collaborative efforts that align regional priorities with international standards, and he advocated for a comprehensive biosecurity bill to protect agricultural systems from invasive pests.

Recommendations from the keynote presentation:

1. Developing a National Maximum Residue Limit (MRL) Framework- Research should focus on creating a robust MRL system for pesticide residues tailored to local crop and trade requirements.
2. Design targeted training modules for stakeholders, emphasizing long-term capacity building and knowledge retention among government officers.
3. Enhance partnerships among institutions such as APAARI, EUPHRESCO, and CABI to address transboundary plant health challenges effectively.
4. Expand research into PCR and LAMP methodologies to improve early detection and management of phytopathological threats.

5. Enhance the collection and integration of plant health data within the One Health framework, ensuring timely detection and response to emerging threats.
6. Conduct research to establish SOPs for drone-based pest control and granular insecticide applications, focusing on minimizing environmental impact.
7. Advocate for a national biosecurity policy that aligns with global standards and addresses the increasing threats of invasive pests and diseases.
8. Digital Certification Systems: Expand the use of e-Phyto solutions for efficient, secure, and traceable germplasm exchanges.
9. Leverage funding opportunities from EUPHRESCO to address regional priorities, especially in diagnostics, pest management, and sustainable trade practices.



Panel Discussion of Farmers

Moderator : Sri Y. Venkateshwar Rao, Chairman, Rytunestam Foundation

Coordinator : Dr. T. Ramesh Babu, Dean SAFT, VFSTR

Panelist

1. Sri V. Sambireddy, Kollipara
2. Sri U. Chakrapani, Eluru
3. Sri Sharath Babu
4. Sri K. Ramakrishna
5. Sri Harikrishna

Rapporteur Dr. Harisha N, Assistant Professor, AHS, VFSTR.
Dr. Y. Varaprasad, Assistant Director, AHS, VFSTR.

Sri Y. Venkateshwar Rao, addressed the gathering, highlighting the detrimental effects of excessive agrochemical usage on soil and water health. He acknowledged the initial decline in crop yields when transitioning to organic manures, bio-pesticides, and bio- agents but noted that yields stabilize over time. He urged farmers to share their experiences and emphasized the importance of farmer-led extension activities for Technology Transfer (ToT). He also suggested implementing 30 crop kit trials at the farmer level.

Dr. T. Ramesh Babu, Dean, SAFT, VFSTR, welcomed the participants and elaborated on the theme of plant health. He discussed the mission of APAARI and EUPHRESCO III, stressing the importance of "Research Priorities and Partnerships" for improving the farming community's well-being. Dr. Babu emphasized Public-Private-Farmer partnership models and ToT approaches such as Lab-to-Land, Land-to-Lab, and Farmer- to-Farmer initiatives. He also committed to organizing the *Polam Badi Programme* with the partnership of Bio Factor Pvt. Ltd and farmers under this partnership model to enhance knowledge-sharing among farmers and between farmers and the industry.

Sri Boda Laxminarayana underscored the role of bio-fertilizers and bio-control agents in promoting plant health and suggested measures to improve soil organic carbon.

Sri Hari Krishna, Panelist, advocated for Integrated Farming Systems with livestock to enhance soil microorganisms. He encouraged the use of organic fertilizers, green manures, and bio-control agents, emphasizing their role in reducing crop maladies and improving soil organic carbon. He also urged farmers to conduct pilot studies to explore the feasibility of organic farming.

Sridhar Kollipara recommended utilizing bio-inoculants, fish meal, Panchagavya, and calotropis leaf extract to preserve soil flora and fauna.

Hon'ble Lavu Rathaiah, Chairman, VFSTR, stressed the importance of ensuring viable incomes for organic commodities through premium pricing. He encouraged collaborative research on natural farming and the adoption of farm mechanization, IoT, Artificial Intelligence, and Machine Learning for effective farm management. He also emphasized

the need for practical exposure to farm-level innovations.

Sri U. Chakrapani, Panelist, advocated for intercropping systems using organic fertilizers in horticultural crops like turmeric, oil palm, coconut, and guava. He urged farmers to adopt IoT and sensor-based technologies and encouraged scientists to conduct pilot studies for identifying feasible solutions.

Sri Sambi Reddy, Panelist, shared the success story of the Shrestha FPO in Kollipara. He raised awareness about Good Agricultural Practices (GAP), value addition, branding, and the export potential of organic commodities.

Sri Katta Ramakrishna, an ICAR awardee, emphasized the benefits of crop rotation with pulse crops in enhancing soil fertility and health. He advocated the use of Farm Yard Manure (FYM) in combination with bio-fertilizers to reduce issues like dry root rot in Bengal gram.

Sri Saarath Babu expressed optimism about the conference's potential to drive positive changes in soil and plant health practices.

Dr. Ravi Ketharpal, Executive Director, APAARI, congratulated the farmers on their active participation. He emphasized regional and national partnerships with agricultural institutions, innovative technology adoption, and linking farmers to global markets through triangular cooperation among universities, industries, and farmers.

Dr. Baldissera Giovsani, EUPHRESCO III Coordinator, highlighted the interconnectedness of soil, plant, animal, and human health. He lauded the partnership approach for enhancing global productivity and commended the farmers for their active engagement.

Sri Venkata Rao Kadapa, Bio Factor suggested solutions for organic carbon improvement through their products in the Chilli Crop. He promised to supply organic bio factor products on a free basis to conduct field testing.

The panel discussion concluded with the felicitation of panel members and farmer participants by the Dean of SAFT, along with the AHS fraternity, in recognition of their valuable contributions.

All the farmer participants expressed happiness with the resolutions of panel discussion

Recommendations from the farmer's panel discussion:

1. Transition to organic manures, bio-pesticides, and bio-control agents to improve soil health, water quality, and crop resilience over time. Expect an initial decline in yields, but anticipate stabilization with proper management.
2. Adopt IFS to improve soil microorganism diversity, enhance soil health, and provide multiple income streams.
3. Conduct small-scale trials to evaluate the feasibility of organic farming and identify effective practices for broader implementation.
4. Explore Artificial Intelligence and Machine Learning for farm management, yield prediction, and pest control.

5. Share experiences and practices through Farmer-to-Farmer (F2F) initiatives, creating a community-driven knowledge pool.
6. Engage in field-level programs to bridge gaps between research, industry, and farmer practices.
7. Collaborate with companies like Bio Factor for free field testing of organic products to improve organic carbon levels in chilli farming.
8. Include pulses in crop rotations to fix nitrogen, enhance soil fertility, and reduce pest and disease incidences.
9. Engage with universities, industries, and farmer groups for collaborative research, funding opportunities, and innovative technology transfer.
10. Participate in research initiatives on natural farming practices to improve productivity and sustainability.
11. Conduct 30-crop kit trials at the farmer level to evaluate new technologies and practices for wider adoption.

Panel Discussion of Industries

Coordinator : Dr. B. Sarath Babu, President, Plant Protection Association of India (PPAI)

Panelist

1. Dr. K. S. Thyagarajan
2. Shri. L. N. Reddy
3. Mr. Sushanth Manasa
4. Shri. Venkat Rao

Rapporteur Dr. S. Karthikeyan, Coordinator, FT, VFSTR.

Dr. Syed Irshaan, Assistant Professor , FT, VFSTR.

Dr. B. Sarath Babu, President of PPAI, aptly began the session by emphasizing the importance of partnerships among farmers, industrialists, public-private universities, and research centers. This sentiment set the tone for a collaborative and solution-oriented dialogue.

Key Insights from the Panel:

- **Dr. K. S. Thyagarajan** brought attention to India's 39th rank in the 2024 Global Innovation Index and emphasized sustainable and safer formulations in pesticides. He highlighted emerging areas like bioherbicides, biopesticides, and the innovative use of natural substances such as essential oils, plant extracts, and even spider and bee venom for pest control.
- **Shri. L. N. Reddy** focused on the critical balance between biological and chemical fertilizers, stressing their role in improving soil health and plant productivity. The concept of **metabiome**, introduced by Dr. Sukumar, was particularly noteworthy as a sustainable microbial solution addressing climate change and drought mitigation. The connection between global fertilizer dynamics and plant protection chemicals was thoughtfully articulated.
- **Mr. Sushanth Manasa** showcased Farm Sathi's innovative electric farm robots designed for efficient farming practices. By reducing operation costs, eliminating the need for skilled labor, and enhancing productivity, these robots represent a step forward in empowering farmers to double their income.
- **Shri. Venkat Rao** shed light on the need for short-duration crops and uniform harvesting methods, addressing photosensitivity and operational efficiency in farming practices.

Recommendations from the industrialists' panel discussion:

1. Prioritize innovations in bio-solutions that align with environmental safety and regulatory standards.
2. Scale up the development and deployment of electric farm robots, like those from Farm Sathi, to reduce operational costs, eliminate dependence on skilled labor, and boost productivity.

3. Research further automation technologies tailored to Indian agricultural needs, considering smallholder farms and diverse crop systems.
4. Invest in R&D for nano-fertilizers and water-soluble fertilizers that optimize nutrient delivery, reduce wastage, and mitigate environmental impact.
5. Collaborate with research institutions to align agricultural practices and outputs with WTO agreements to enhance global market opportunities for Indian products.
6. Partner with private universities and industry leaders to develop a comprehensive data-generation bank that informs plant protection advisories and policy frameworks.
7. Design industry-backed pilot programs to test and demonstrate new technologies and sustainable solutions at the farm level.
8. Develop customized nutrient plans using soil health data and precision agriculture tools.
9. Encourage value addition through processing, branding, and export-oriented production.

Recommendations of ICPHA 2024

1. **Advocate for the One Health Approach to manage aflatoxin contamination and pesticide residues, linking plant health to broader environmental, animal, and human health systems.**

   APAARI's *role in policy advocacy**,** regional collaboration, and promoting sustainable agriculture makes it an ideal organization to coordinate efforts to integrate agricultural practices with human, animal, and environmental health systems.*
   APAARI promote methods like crop rotation, timely harvesting and pest control. Conducts training on proper drying, sorting and storage to prevent mold growth. It promotes the use of non toxigenic strains of Aspergilllus to outcompete the toxigenic ones in the field.

2. **Establish frameworks similar to EUPHRESCO III in Asia to prioritize regional research needs, address pest and pathogen challenges, and foster 1collaboration across countries.**

   APAARI *should take the lead in establishing a regional research framework in Asia and* ***SAUs / Universities / Research Institutions*** *will play a critical role in implementing and adapting research to local conditions.*

3. **Prioritize research on the bioecology, population dynamics, and ecological adaptations of invasive species like *Thrips parvispinus**, Silba capsicarum**,* and fall armyworm in diverse agroecosystems.**

   EUPHRESCO *would likely be the most effective choice for coordinating high-level, interdisciplinary research on invasive species in diverse agroecosystems, while* ***APAARI*** *could complement this with regional studies, particularly for the Asia-Pacific area.* ***State Agricultural Universities / Universities / Research Institutions*** *would be crucial for field-based research, but global collaboration would enhance the impact and scope of their work.*

   APAARI's risk identification tools like GIS mapping, farmers reporting systems can be adapted to track thrips outbreaks. Collection of samples for identifying samples and detecting resistance patterns, Explore biological control options such as introducing predatory insects or entomopathogenic fungi.

4. **Model pest outbreaks under different climate scenarios to predict and mitigate potential threats.**

   EUPHRESCO *focuses on the coordination of phytosanitary research, which includes plant protection, pest forecasting, and biosecurity research, particularly in the context of climate change and has Strong focus on pest prediction, biosecurity, and phytosanitary research.*

5. **Develop optimized CRISPR-Cas9 protocols for a wide range of crops, including pulses, oil palm, and castor, focusing on resistance to major biotic stresses like fungal diseases, insect pests, and viral pathogens.**

APAARI *can leverage research networks and collaborations*

across countries where crops like pulses, oil palm, and castor are of significant agricultural importance. ***SAUs / Universities / Research Institutions*** *often have strong connections to local farming communities and real-world agricultural challenges, which gives them an edge in testing and applying CRISPR-Cas9 technologies for practical crop improvement.*

APAARI prioritizes genes or pathways for editing such as those related to disease resistance, insect deterrence, or toxin neutralization.. It focusses on improving efficiency in gene delivery systems (AG mediated, particle bombardment etc). focusses on research to validate off target effects and gene editing prescion under regional conditions.

6. **Crop-Specific Research Initiatives- Develop superior hybrid varieties through advanced molecular breeding, focusing on high oil yield, disease resistance, and dwarfness for better management for oil palm.**

APAARI *stands out as the most suitable organization, given its regional focus on the Asia-Pacific region, where oil palm is a major crop. APAARI's ability to foster collaboration across multiple countries in the region makes it ideal for advancing molecular breeding strategies for oil palm hybrids*.

APAARI mobilizes research on Genotypying-By-Sequencing(GBS) and QTL mapping for key traits like:

A) High mesocarp-to-fruit ratio (High oil content)
B) Shorter trunk weight or slow vertical growth (For easy harvesting)
C) Resistance to Basal stem rot (Ganoderma)

7. **Develop AI-powered, IoT-integrated pest monitoring tools like pheromone traps equipped with cameras, acoustic devices, and solar light traps.**

EUPHRESCO *is the best-suited organization for developing AI-powered, IoT-integrated pest monitoring tools. Their advanced focus on phytosanitary research, pest forecasting, and data analytics, combined with their strong international collaboration network, makes them ideal for integrating AI, IoT, and remote sensing technologies into pest management systems. EUPHRESCO's expertise will allow them to design and deploy sophisticated pest monitoring systems across diverse agricultural systems in Europe and beyond.*

8. **Enhance biological control efforts by conserving natural enemies (e.g., parasitoids and predators) and promoting conservation agriculture practices.**

> ***EUPHRESCO's*** *research is centered on sustainable plant protection practices, which include biological control and the promotion of IPM systems that reduce the use of synthetic chemicals. EUPHRESCO supports the development of agroecological approaches, which align well with conservation agriculture practices.*
>
> ***It focusses on enhacing habitat conditions to support existing natural enemies, managing non-crop vegetation (Hedge rows and flowering strips) to provide refuge, nectar and alternative prey***
> ***It aligns with sustainable farming by promoting practices like Reduced tillage and soil cover which help to preserve habitat for ground dwelling predators.***
> ***Cover cropping can harbor natural enemies during off season***

9. **Promote IDM practices that combine cultural, biological, and chemical approaches to minimize pest and disease impact while reducing environmental harm.**

> ***EUPHRESCO*** *is uniquely positioned to lead the promotion of IDM practices, particularly given its focus on sustainable plant protection. Its strong research base, capacity for collaboration, and expertise in integrated pest management make it an ideal choice for promoting IDM at a broader level*

10. **Strengthen disease surveillance and forecasting systems to anticipate outbreaks in the context of climate change.**

> ***SAUs / Universities / Research Institutions*** *conduct extensive field research, which is essential for validating disease forecasting models in real-world conditions. They can implement pilot disease surveillance programs that integrate local data and climate forecasts.*

11. **Conduct comprehensive studies on the occurrence, distribution, and impact of mycotoxins, such as aflatoxins, in diverse crops and regions, emphasizing contamination hotspots like Telangana, Gulbarga, Bellary, and Raichur.**

> ***SAUs' / Universities / Research Institutions*** *connection with farmers allows them to evaluate the real-world impact of mycotoxins and advise on pre-harvest management strategies to mitigate contamination. They conduct region-specific studies and have the infrastructure to assess aflatoxin contamination in crops grown in these hotspots, including groundnut**,** maize, and rice.*

12. Develop and refine **quantitative and qualitative diagnostic tools**, such as ELISA and advanced molecular techniques, to improve the detection and monitoring of aflatoxin contamination.

> ***EUPHRESCO, ICRISAT*** *has the capacity to engage in the development of high-throughput molecular techniques, such as qPCR*

(quantitative PCR) and CRISPR-based diagnostics, for sensitive and rapid detection of aflatoxins.

13. **Conduct literacy assessments within farming communities to design digital solutions that are inclusive, user-friendly, and accessible, even in low-literacy regions.**

    SAUs / Universities / Research Institutions *can design user- friendly digital tools that are specifically tailored to the needs of farmers in their regions, taking into account local literacy levels**,** language, and cultural factors.*

14. **Research and standardize drone-based Standard Operating Procedures (SOPs) for granular insecticide spreading and crop protection applications, ensuring optimal effectiveness and minimal environmental impact.**

    EUPHRESCO *is involved in research on precision agriculture, which includes improving the efficiency and effectiveness of pesticide application. Their network could contribute to the development of SOPs that focus on precision pest control and environmental impact reduction**.***

15. **Developing a National Maximum Residue Limit (MRL) Framework- Research should focus on creating a robust MRL system for pesticide residues tailored to local crop and trade requirements.**

    APAARI *is the best to coordinate the development of a National MRL framework for pesticide residues, with* ***SAUs / Universities / Research Institutions*** *focusing on empirical research and local implementation.*

16. **Expand research into PCR and LAMP methodologies to improve early detection and management of phytopathological threats.**

    APAARI *should take the lead in coordinating regional research on PCR and LAMP methodologies, ensuring that diagnostic tools are adapted to the diverse agricultural ecosystems of the* ***Asia- Pacific region****.*

17. **Adopt IFS to improve soil microorganism diversity, enhance soil health, and provide multiple income streams.**

    SAUs / Universities / Research Institutions *have expertise in crop production**,** livestock management, and soil science, making them well-equipped to design and implement integrated systems that promote diverse income streams and improve soil health**.***

18. **Explore Artificial Intelligence and Machine Learning for farm management, yield prediction, and pest control.**

SAUs / Universities / Research Institutions *have in-depth knowledge of local agricultural challenges**,** making them ideal for developing context-specific AI applications that can improve farm management in specific regions**.***

19. **Scale up the development and deployment of electric farm robots, like those from Farm Sathi, to reduce operational costs, eliminate dependence on skilled labor, and boost productivity.**

    SAUs / Universities / Research Institutions *can engage directly with farmers to understand their needs, allowing them to tailor the development of electric farm robots to the specific challenges of different regions (e.g., smallholder farms**,** specific crop types, and labor issues**).***

20. **Collaborate with research institutions to align agricultural practices and outputs with WTO agreements to enhance global market opportunities for Indian products.**

    APAARI *is well-placed to work with governments, regulatory bodies, and international organizations to ensure that Indian agricultural practices comply with global standards, including those set by the WTO.*

Valedictory session

The conference, organized by the Asia Pacific Association for Agricultural Research Institutes (APAARI) and the European Plant Health Research and Coordination (EPRHRESCO III), was a resounding success, characterised by meaningful discussions, innovative ideas, and valuable partnerships. Below is an elaborate account of the speeches and expressions of gratitude from key speakers during the conference.

Dr. K. S. Varaprasad, Project Manager (USDA-SPS Project) APAARI & Former Director, ICAR-IIOR, Hyderabad, in his address, expressed his heartfelt gratitude to all those involved in organizing the conference. He conveyed his sincere appreciation for the level of the international conference, which exceeded his expectations. Dr. K.S. Varaprasad highlighted the serene campus of Vignan University, emphasizing the vibrant student community and the extensive involvement of all sectors in the Research Academy. He remarked that the active participation from diverse sectors and the constructive deliberations, even when marked by differences of opinion, were essential for the fruitful outcomes that the conference aimed to achieve. His speech was an acknowledgement of the collaborative spirit that made the event a resounding success.

Dr. Paul WJ Taylor, Technical Coordinator, APAARI, conveyed his deepest appreciation, describing the conference as an absolute pleasure. He mentioned how the event provided him with an impressive opportunity to engage in various research works and contribute to discussions that left a positive impact. Dr. Paul WJ Taylor expressed particular admiration for the students who participated and the individuals responsible for organizing the event. He also acknowledged the involvement of stakeholders, such as farmers, who played a critical role in bringing a real-world perspective to the discussions and also shared his experience that the event had successfully bridged the gap between research and practical applications, making it a memorable experience for all attendees.

Dr. Ravi Khetarpal, Executive Director, Asia-Pacific Association of Agricultural Research Institutions (APAARI), Bangkok, in his address, shared his immense gratitude, emphasizing that the event was made possible by the efforts of an individual—a man from Italy residing in France, whose passion for India had brought all the participants together. Dr. Ravi Khetarpal highlighted a key observation from the conference, stressing the importance of partnerships, particularly in the context of the farmers‘ panel. He proposed that a global coordination program should be established where farmers from around the world could be brought together to share their perspectives and contribute to meaningful projects. Dr. Ravi Khetarpal also underscored the valuable contributions of the private sector, acknowledging how companies with vast knowledge and visionary outlooks could play a pivotal role in fostering innovation and advancing research.

Dr. Baldissera Giovani, Coordinator, European Plant Health Research and Coordination (EUPHRESCO III), began his speech by applauding the conference organizers for successfully hosting such a large-scale event involving multiple stakeholders. He described it as a unique experience and praised the logistics and coordination that made the event run smoothly. Dr. Baldissera shared his profound sense of happiness, stating that he never felt alone during the conference, as there was always a protective and supportive presence around him. He also shared his perspective on the importance of institutionalising future initiatives to ensure the sustainability of the global network. Dr. Baldissera stressed that while passionate individuals may drive initiatives today and tomorrow, only institutionalisation would guarantee the long-term success and forward momentum of global partnerships.

Dr. S.V. Ramana Rao, Principal Scientist (Agri. Economics) ICAR-IIOR, Hyderabad, expressed his belief in the vast potential of Vignan University, particularly in the area of innovation. He praised the university for having a highly intelligent and capable student body, encouraging them not to merely seek jobs but to create opportunities for others. Dr. S.V. Ramana Rao emphasized the importance of topics like plant health and the development of ecosystems, noting that Vignan could lead in these fields by fostering practical, forward-thinking solutions. He conveyed his trust in the institution's ability to take the lead and make a significant impact in plant health and related areas.

Col. Prof. P. Nagabhushan, Hon'ble Vice Chancellor, VFSTR, expressed his deep gratitude towards Dr. Ravi Khetarpal for his positive approach and ability to find optimism in challenging situations. He highlighted how Dr. Ravi Khetarpal's constructive observations had set an example for the delegates to follow. Col. Prof. P. Nagabhushan also expressed his gratitude to Dr. T. Ramesh Babu, Dean, SAFT, VFSTR, for his visionary work in involving farmers in the academic and research spheres. He lauded the concept of public-private-farmer partnerships (PPFP), emphasizing that this approach was key to integrating farmers more deeply into research and policy discussions. This concept was seen as a game-changer in building sustainable, inclusive partnerships for the future.

Dr. B. Sarath Babu, President, Plant Protection Association of India (PPAI), in his speech, reflected on the strong partnership he shares with Dr. Katti and Dr. TVK Singh in the Plant Protection Association of India. He expressed his immense satisfaction with the conference's proceedings, recalling how Dr. Ramesh Babu's work in organizing international conferences on plant health management had made a significant impact. Dr. Babu also acknowledged the pivotal role played by Dr. K.S. Varaprasad as the president of the society, making the event a monumental success. His words celebrated the continued collaboration and the strength of partnerships that had emerged from the conference.

Dr.Pandu. U, Asst. Professor, AHS, VFSTR, on behalf of the Organizing Committee, expressed immense privilege and profound gratitude for the opportunity to host the International Conference on —Plant Health in Asia: Research Priorities and Partnerships‖.. He specifically extended his appreciation to the knowledge partners for their invaluable cooperation in making the event a success. Dr. Pandu also acknowledged the crucial role played by the keynote speakers in providing insightful perspectives on plant health research and the importance of fostering strong partnerships. He took the opportunity to thank all the faculty members, researchers, and volunteers whose tireless efforts ensured the smooth execution of the conference, highlighting their significant contributions to its success.

In conclusion, the International Conference on Plant Health in Asia was not only a platform for presenting cutting-edge research but also a gathering that fostered collaboration, innovation, and partnerships across multiple sectors. The reflections and expressions of gratitude from key figures underscored the importance of continued cooperation between academic institutions, the private sector, farmers, and other stakeholders to address global challenges in plant health. The event marked a significant step forward in building a global network for research, knowledge-sharing, and sustainability in plant health management.

VIGNAN'S FOUNDATION FOR SCIENCE, TECHNOLOGY & RESEARCH ★ VADLAMUDI

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International Conference on
PLANT HEALTH IN ASIA :
RESEARCH PRIORITIES AND PARTNERSHIPS
17-18, DECEMBER, 2024
VIGNAN'S


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త్రిముఖ వ్యూహం అనుసరించాలి


మాట్లాడుతున్న వరప్రసాద్

పొన్నూరు: బంగ్లాదేశ్‌లో అమలు పరుస్తున్న త్రిముఖ వ్యూహాన్ని (నాణ్యత, భద్రత, ప్రపంచ మార్కెట్‌లో సులభ వాణిజ్యం) మన దేశమూ అనుసరించాల్సిన ఆవశ్యకత ఉందని అపారి ప్రాజెక్ట్ మేనేజర్ కేఎస్ వరప్రసాద్ అన్నారు. వడ్లమూడి విజ్ఞాన్ యూనివర్సిటీలో బుధవారం ప్లాంట్ హెల్త్ ఇన్ ఆసియా రీసెర్చ్ ప్రయారిటీస్ అండ్ పార్ట్‌నర్‌షిప్స్ అనే అంశంపై నిర్వహించిన అంతర్జాతీయ సదస్సుకు ఆయన ముఖ్యఅతిథిగా వ్యా... రు. ఈ సందర్భంగా ఆయన ... డుతూ బంగ్లాదేశ్‌లో ఎస్‌పీఎస్ (... ప్లైటోశానిటరీ) అనేవి వ్యవసాయ, ... ఉత్పత్తులు, ఆరోగ్య భద్రతను కా... పర్యావరణ పరిరక్షణకు రూపొం... నిబంధనలని పేర్కొన్నారు. ఈ వి... అంతర్జాతీయ వాణిజ్యంతో సంబంధ... ఉంటాయని వెల్లడించారు. కార్యక్ర... విజ్ఞాన్స్ విద్యా సంస్థల అధ్యక్షుడు ... రత్తయ్య, ఉప కులపతి పి.నాగభూష... చార్జి రిజిస్ట్రార్ పీఎంవీ రావు పాల్గొన్నా...

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(AMARAVATI GUNTUR) PageNo : 04

విజ్ఞాన్స్ వర్సిటీలో ముగిసిన జాతీయ సదస్సు

ప్రజాశక్తి-గుంటూరు

మాట్లాడుతున్న వరప్రసాద్

బంగ్లాదేశ్‌లో అమలు చేస్తున్న త్రిముఖ వ్యూహాన్ని (నాణ్యత, భద్రత, ప్రపంచ మార్కెట్‌లో సులభ వాణిజ్యం) మనం కూడా అనుసరించాలని ఐకార్- ఐఐఓఆర్ మాజీ డైరక్టర్, అపారి ప్రాజెక్ట్ మేనేజర్ డాక్టర్ కేవీఎస్ వరప్రసాద్ అన్నారు. వడ్లమూడి విజ్ఞాన్ యూనివర్సిటీలో 'ప్లాంట్ హెల్త్ ఇన్ ఆసియా- రీసెర్చ్ ప్రయారిటీస్ అండ్ పార్ట్‌నర్‌షిప్స్' అనే అంశంపై రెండ్రోజులపాటు నిర్వహించిన ఇంటర్నేషనల్ సదస్సు బుధవారం ముగిసింది. సదస్సులో వరప్రసాద్ మాట్లాడుతూ బంగ్లాదేశ్‌లో ఎస్‌పీఎస్ (శానిటరీ, ఫైటోశానిటరీ) అనేవి వ్యవసాయ ఉత్పత్తులు, ఆహార ఉత్పత్తుల ఆరోగ్యభద్రతను కాపాడటానికి, పర్యావరణ పరిరక్షణకు రూపొందించబడిన నిబంధనలని తెలియజేశారు. ఈవిధానాలు అంతర్జాతీయ వాణిజ్యంతో సంబంధం కలిగి ఉంటాయన్నారు.అనేక దేశాలు తమ నిర్దిష్టమైన ఉత్పత్తులు, ప్రత్యేకించి వ్యవసాయ ఉత్పత్తులు, విదేశీ మార్కెట్లకు రవాణా చేసే ముందు ఆహార భద్రత, వ్యాధి నియంత్రణ, పర్యావరణ ఆవశ్యకత తదితర అంశాల్లో నియంత్రణలు అమలు చేయడం అనివార్యంగా భావిస్తాయన్నారు. బంగ్లాదేశ్‌లో నాణ్యత, భద్రత, ప్రపంచ మార్కెట్లో సులభ వాణిజ్యాన్ని ప్రోత్సహించేందుకు అమలు చేస్తున్న శానిటరీ నియమాలు ఆహార భద్రతపైన, ఫైటోశానిటరీ ... మొక్కల ఆరోగ్యానికి సంబంధించి, వాటి ఉత్పత్తి, వ... సంబంధించినవని తెలియజేశారు. ఈ విధానాలు దేశానికి ఎ... పెంచడమే కాకుండా, పంటల నాణ్యత పెంచడం, వర... కాపాడటం, రైతుల ఆదాయాలను మెరుగుప... సహాయపడతాయన్నారు. ఐబీలోని ఐబీపీసీ సెక్రటెరియట్ ఇంప్లిమెంటేషన్ అండ్ ఫెసిలిటేషన్ లీడ్ డాక్టర్ సారా మాట్లాడుతూ మొక్కల ఆరోగ్యం అనేది వ్యవసాయం సుస్థిరత, పరిరక్షణ, ఆహార భద్రతకు సంబంధించిన ఒక కీలక అం... ప్రపంచవ్యాప్తంగా మొక్కల వ్యాధులు, కీటకాలు, ఇతర ... సమస్యలు వ్యవసాయ రంగాన్ని కనింగా ప్రభావిత ... ఉంటాయన్నారు. ఆసియాలో మొక్కల వ్యాధులు, కీటక... మార్గాల్లో వేగంగా వ్యాపిస్తున్నాయని, అంతర్జాతీయ వాణిజ్యం ... తనమన్యాలు మరింత తీవ్రమవుతున్నాయని తెలియజేశారు. ... ఉన్న పర్యావరణ మార్పులు, వేడి పెరగడం, ముఖ్యంగా వర్షాలు ... పరిస్థితులు మొక్కల ఆరోగ్యాన్ని ప్రభావితం చేస్తున్నా... కార్యక్రమంలో సౌత్ ఏసియా సీఏబీఐ ఇంటర్నేషనల్ రీజనల్ డాక్టర్ వినోద్ పండిట్ ప్రసంగించారు. అనంతరం వర్సిటీ క్రిష్ణ, పశ్చిమ గోదావరి, గుంటూరు జిల్లాలకు చెందిన 1... రైతులతో రైతుసేస్తం చైర్మన్ డాక్టర్ వై.వెంకటేశ్వరరావు ప్యానెల్ నిర్వహించారు.అనంతరం వర్సిటీ ప్రొవైస్ ఛాన్సలర్ డాక్టర్ పీ.నాగభూషణ్, ఇంచార్జి రిజిస్ట్రార్ డాక్టర్ పీ... తదితరులు పాల్గొన్నారు.

Stress on modern methods in agri-food syst

EXPRESS NEWS SERVICE
@ Vijayawada

A two-day international conference on 'Plant Health in Asia: Research Priorities and Partnerships' was inaugurated on Tuesday at Vignan University, Vadlamudi, Chebrolu Mandal, in collaboration with APARI (Asia-Pacific Association of Agricultural Research Institutes) and the European Plant Health Research and Coordination.

T Vijay Kumar, Executive Vice Chairman of Rythu Sadhikara Samstha and Advisor to the Department of Agriculture and Cooperation, addressed the gathering as the chief guest, emphasising the organisation's commitment to the welfare of farmers, agricultural development, and improving livelihoods in the state.

Vijay Kumar also announced that the government would provide financial and technical support, including
to farmers, while p
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Dr Ravi Khetarp
Director of APARI
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Phytosanitary Res
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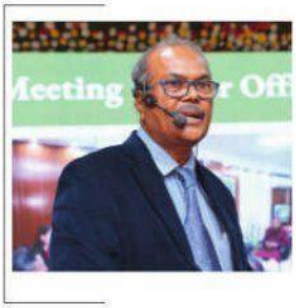
research.



ముగిసిన అంతర్జాతీయ సదస్సు

దిశ ప్రతినిధి, గుంటూరు : బంగ్లాదేశ్‌లో అమలుపరుస్తున్న త్రిముఖ వ్యూహాన్ని (నాణ్యత, భద్రత, ప్రపంచ మార్కెట్‌లో సులభ వాణిజ్యం) మనం కూడా అనుసరించాలని ఐకార్ – ఐఐఓఆర్ మాజీ డైరక్టర్, అపారి ప్రాజెక్ట్ మేనేజర్ డాక్టర్ కేవీఎస్ వరప్రసాద్ అన్నారు. చేబ్రోలు మండలం వడ్లమూడి విజ్ఞాన్స్ యూనివర్సిటీలోని స్కూల్ ఆఫ్ అగ్రికల్చర్ అండ్ ఫుడ్ టెక్నాలజీ విభాగంలోని డిపార్ట్‌మెంట్ ఆఫ్ అగ్రికల్చరల్ అండ్ హార్టికల్చరల్ సైన్సెస్, అపారి (ఆసియా–పసిఫిక్ అసోసియేషన్ ఆఫ్ అగ్రికల్చరల్ రీసెర్చ ఇనిస్టిట్యూట్స్) , యూరోపియన్ ప్లాంట్ హెల్త్ రీసెర్చ్ అండ్ కోఆర్డినేషనల్ సంయుక్త ఆధ్వర్యంలో '' ప్లాంట్ హెల్త్ ఇన్ ఆసియా : రీసెర్చ్ ప్రయారిటీస్ అండ్ పా ర్టన ర్‌షిప్స్'' అనే అంశంపై రెండు రోజుల పాటు నిర్వహించిన ఇంటర్నేషనల్ సదస్సును బుధవారం ముగించారు. ఈ కార్యక్రమానికి ముఖ్య అతిథిగా హాజరైన వరప్రసాద్ మాట్లాడుతూ బంగ్లాదేశ్‌లో ఎస్ పీఎస్ అనేవి వ్యవసాయ ఉత్పత్తులు, ఆహార ఉత్పత్తుల ఆరోగ్యభద్రతను కాపాడటానికి, పర్యావరణ పరిరక్షణకు రూపొందించిన నిబంధనల న్నారు. ఈ విధానాలు అంతర్జాతీయ వాణిజ్యంతో సంబంధం కలిగి ఉంటాయన్నారు. అనంతరం సారా బ్రూనెల్ (ఇటలీ) సౌత్ ఏసియా సీఏబీఐ ఇంటర్నేషనల్ రీజనల్ డైరక్టర్ డాక్టర్ వినోద్ పండిట్ మాట్లాడారు. అలాగే పల్నాడు, ప్రకాశం, క్రిష్ణ, పశ్చిమ గోదావరి, గుంటూరు జిల్లాలకు చెందిన 145 మంది రైతులతో రైతునేస్తం చైర్మన్ డాక్టర్ వై.వెంకటేశ్వరరావు ప్యానెల్ డిస్కషన్ నిర్వహించారు.

దిశ Thu, 19 December 2024
https://epaper.dishadaily.com/c/76450366

రైతు సంక్షేమం, వ్యవసాయ అభివృద్ధే లక్ష్యం

విజ్ఞాన్స్ సదస్సులో సాధికార సంస్థ ఎగ్జిక్యూటివ్ వైస్‌చైర్మన్ టి.విజయ్‌కుమార్

ప్రజాశక్తి-గుంటూరు

రైతుల సంక్షేమం, వ్యవసాయాభివృద్ధి, జీవనోపాధి మెరుగుదలకు కృషి చేయడమే రైతు సాధికార సంస్థ ప్రధాన లక్ష్యమని సంస్థ ఎగ్జిక్యూటివ్ వైస్‌చైర్మన్ టి.విజయ్ కుమార్ అన్నారు. వడ్లమూడి విజ్ఞాన్స్ యూనివర్సిటీలో ఆసియా-పసిఫిక్ అసోసియేషన్ ఆఫ్ అగ్రికల్చరల్ రీసెర్చ్ ఇనిస్టిట్యూట్స్, యూరోపియన్ ప్లాంట్‌హెల్త్ రీసెర్చ్ అండ్ కోఆర్డినేషన్‌ల సంయుక్త ఆధ్వర్యంలో 'ప్లాంట్ హెల్త్ ఇన్ ఆసియా- రీసెర్చ్ ప్రయారిటీస్ అండ్ పార్ట్‌నర్‌షిప్స్' అనే అంశంపై రెండ్రోజుల సదస్సును మంగళవారం ప్రారంభించారు. సదస్సులో టి.విజయ్‌కుమార్ మాట్లాడుతూ రైతులకు ఆర్థిక, సాంకేతిక సహాయం, ఉచిత సలహాలు, మార్గదర్శకాలు అందిస్తామన్నారు. దీనితోపాటు సేంద్రియ వ్యవసాయాన్ని కూడా ప్రోత్సహిస్తామన్నారు. రైతులకు వ్యవసాయ పెట్టుబడుల కోసం సబ్సిడీలు అందించడం, పంటల బీమా పథకాలను అమలు చేయడం, పంటల డైవర్సిఫికేషన్, రైతులను వివిధరకాల పంటలు సాగు చేసుకునేలా ప్రోత్సహించడం,

పాంప్లెట్స్ విడుదల చేస్తున్న విజయ్‌కుమార్, తదితరులు

మార్కెటింగ్ సదుపాయాలు కల్పిస్తామన్నారు. బ్యాంకాక్ లోని అపారి ఎగ్జిక్యూటివ్ డైరెక్టర్ డాక్టర్ రవి ఖేతర్‌పాల్ మాట్లాడుతూ ఆహార ఉత్పత్తి నుంచి వినియోగం వరకు వ్యవసాయ-ఆహార వ్యవస్థలో ఆధునిక పద్ధతులను అనుసరించడం అవసరమన్నారు. పక్షాల ఆరోగ్యాన్ని పరిరక్షిం చడంలో ఫీల్డ్ సెన్సార్లు, డ్రోన్లు, డిజిటల్ పద్ధతుల ఉపయోగం ఎక్కువగా కనిపిస్తుం దన్నారు. టెక్నాలజీలు వ్యవసాయ ప్రదేశాలలో తక్షణమే వ్యాధులను గుర్తించి, వాటిని నివారించేందుకు సహాకరి స్తాయని వెల్లడించారు. స్మార్ట్ ఫోన్లు, డేటా అనలిటిక్స్ ఆధారంగా పురుగుల దాడిని ముందుగానే అంచనా వేసి, సమయానుకూలంగా చర్యలు తీసుకోవడం సాధ్యమవుతుందన్నారు. కార్యక్రమంలో యూరో పియన్ ఫైటోశానిటరీ రీసెర్చ్ కోఆర్డినేషన్ కోఆర్డినేటర్ డాక్టర్ బల్డిస్సెర జీవాని, హైదరాబాద్ లోని ఐకార్-ఐఐఓఆర్ ప్రాజెక్ట్ మేనేజర్ డాక్టర్ కె.ఎస్.వరప్రసాద్, అపారి టెక్నికల్ కోఆర్డినేటర్ డాక్టర్ పాలీడబ్యూకే బేలర్, సౌత్ ఆసియా కాబి ఇంటర్నేషనల్ రీజనల్ డైరెక్టర్ డాక్టర్ వినోద్ పండిట్, విజ్ఞాన్స్ చైర్మన్ డాక్టర్ లావు రత్తయ్య, వీసీ ప్రొఫెసర్ పి.నాగభూషణ్ పాల్గొన్నారు.

రైతుల సంక్షేమం, వ్యవసాయ అభివృద్ధే లక్ష్యం

● రైతు సాధికార సంస్థ ఎగ్జిక్యూటివ్ వైస్ చైర్మన్ విజయ్ కుమార్

మాట్లాడుతున్న విజయ్‌కుమార్

గుంటూరు (విద్య), డిసెంబరు 17 (ఆంధ్ర జ్యోతి): రైతు సాధికార సంస్థ ప్రధానంగా రాష్ట్రంలోని రైతుల సంక్షేమం, వ్యవసాయ అభివృద్ధి, జీవనోపాధి మెరుగుదలకు కృషి చేయడమే లక్ష్యమని రైతు సాధికార సంస్థ ఎగ్జిక్యూటివ్ వైస్ చైర్మన్, ఏపీ ప్రభుత్వ డిపార్ట్‌మెంట్ ఆఫ్ అగ్రికల్చర్ అండ్ కో ఆపరేషన్ అడ్వైజర్, మాజీ ఐఏఎస్ టీ.విజయ్‌కుమార్ అన్నారు. చేబ్రోలు మండలం వడ్లమూడి విజ్ఞాన్స్ యూనివర్సిటీలోని స్కూల్ ఆఫ్ అగ్రికల్చర్ అండ్ ఫుడ్ టెక్నాలజీ విభాగంలోని డిపార్ట్‌మెంట్ ఆఫ్ అగ్రికల్చర్ అండ్ హార్టికల్చర్ సైన్సెస్, అపారి (ఆసియా పసిఫిక్ అసోసియేషన్ ఆఫ్ అగ్రికల్చరల్ రీసెర్చ్ ఇనిస్టిట్యూట్స్),

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సుస్థిర వ్యవసాయంతోనే ఉత్పత్తి సాధ్యం

-సంగం సీడ్స్ ఎగ్జిక్యూటివ్ డైరెక్టర్ డాక్టర్ ఆలపాటి సత్యనారాయణ

గుంటూరు, మేజర్ న్యూస్: ప్రపంచంలో రోజు రోజుకు పెరుగుతున్న వాతావరణ మార్పులు, పర్యావరణ సమస్యలు, పెరుగుతున్న జనాభాకు తగ్గ స్థిరమైన ఉత్పత్తిని సాధించాలంటే సుస్థిర వ్యవసాయంతోనే సాధ్యమని సంగం సీడ్స్ ఎగ్జిక్యూటివ్ డైరెక్టర్ డాక్టర్ ఆలపాటి సత్యనారాయణ పేర్కొన్నారు. చేబ్రోలు మండలం వడ్లమూడి విజ్ఞాన్స్ యూనివర్సిటీలోని స్కూల్ ఆఫ్ అగ్రికల్చర్ అండ్ ఫుడ్ టెక్నాలజీ విభాగంలోని అగ్రికల్చరల్ అండ్ హార్టికల్చరల్ సైన్సెస్ డిపార్ట్‌మెంట్ ఆధ్వర్యంలో " క్లైమేట్ స్మార్ట్ అగ్రికల్చర్" అనే అంశంపై మూడు రోజుల పాటు నిర్వహిస్తున్న అంతర్జాతీయస్థాయి కాన్ఫరెన్స్ రెండో రోజైన మంగళవారం ఘనంగా ముగిసింది. కార్యక్రమానికి ముఖ్య అతిథిగా హాజరైన సంగం సీడ్స్ ఎగ్జిక్యూటివ్ డైరెక్టర్ డాక్టర్ ఆలపాటి సత్యనారాయణ మాట్లాడుతూ సుస్థిర వ్యవసాయమును సామాజిక, పర్యావరణ, ఆర్థిక రంగాలుగా విభజించవచ్చునన్నారు. సుస్థిర వ్యవసాయ పద్ధతులను వినియోగిస్తున్నప్పుడు ఎదురయ్యే అడ్డంకులను గుర్తించడంతో పాటు వాటిని అధిగమించడానికి విద్యార్థులు కృషి చేయాలన్నారు. ధార్వాడలోని యూనివర్సిటీ ఆఫ్ అగ్రికల్చర్ సైన్స్ మాజీ వైస్ చాన్సలర్ డాక్టర్ ఆర్ఆర్ హంచినల్ మాట్లాడుతూ సీడ్ ఇండస్ట్రీలో ఉన్న అవకాశాలను విద్యార్థులు అందిపుచ్చుకోవడానికి సిద్ధంగా ఉండాలన్నారు. సీడ్ ప్రొడక్షన్‌లో ఆధునిక మెలుకవలను వినియోగించి విస్తృత పరిశోధనలు చేయాలన్నారు. హైదరాబాద్‌లోని ఐసీఏఆర్-ఐఐఓఆర్ డైరెక్టర్ డాక్టర్ ఆర్.కే. మాథూర్ పెరుగుతున్న దేశ జనాభాకు అవసరమైన వంట నూనెల్లో ఎక్కువ శాతం విదేశాల నుండి దిగుమతి చేసుకుంటున్నామన్నారు. గోధుమ, వరి, ఆహారపంటలు సాగు విస్తీర్ణంతో పోలిస్తే నూనె గింజల పంటల సాగు పెరుగుదల తక్కువేనన్నారు. నూనె గింజల ఉత్పత్తిలో దేశ ప్రజల అవసరాలు తీర్చడానికి పెద్ద ఎత్తున వివిధ వ్యవసాయ భౌగోళిక మండలాల్లో అక్కడి వాతావరణ పరిస్థితులకు అనువైన పంటల సాగు అవసరమని తెలిపారు. కార్యక్రమంలో రాజమహేంద్రవరంలోని ఐసీఏఆర్-సీటీఆర్ఐ డైరెక్టర్ డాక్టర్ ఎం. శేషు మాధవ్ విజ్ఞాన్స్ యూనివర్సిటీ వైస్ చాన్సలర్ ప్రొఫెసర్ పీ.నాగభూషణ్, రిజిస్ట్రార్ డాక్టర్ ఎంఎస్ రఘునాథన్, డీన్ ఎస్ఏఎఫ్‌టీ, ఆయా విభాగాల డీన్లు, అధిపతులు, అగ్రికల్చరల్ విద్యార్థులు పాల్గొన్నారు.

ఆంధ్రప్రభ

త్రిముఖ వ్యూహాన్ని అనుసరించాలి

అపారి ప్రాజెక్ట్‌మేనేజర్ డాక్టర్ కేఎస్ వరప్రసాద్

గుంటూరు, డిసెంబర్ 18 (ఆంధ్రప్రభ) : బంగ్లాదేశ్‌లో అమలుపరుస్తున్న త్రిముఖ వ్యూహాన్ని (నాణ్యత, భద్రత, ప్రపంచ మార్కెట్‌లో సులభ వాణిజ్యం) మనం కూడా అనుసరించాలని ఐకార్ - ఐఓఆర్ మాజీ డైరెక్టర్, అపారి ప్రాజెక్ట్ మేనేజర్ డాక్టర్ కేఎస్ వరప్రసాద్ అన్నారు. విజ్ఞాన్స్ యూనివర్సిటీలోని స్కూల్ ఆఫ్ అగ్రికల్చర్ అండ్ ఫుడ్ టెక్నాలజీ విభాగంలోని డిపార్ట్‌మెంట్ ఆఫ్ అగ్రికల్చరల్ అండ్ హార్టికల్చరల్ సైన్సెస్, అపారి (ఆసియా-పసిఫిక్ అసోసియేషన్ ఆఫ్ అగ్రికల్చరల్ రీసెర్చ్ ఇనిస్టిట్యూట్స్) ఎ యూరోపియన్ ప్లాంట్‌హెల్త్ రీసెర్చ్ అండ్ కోఆర్డినేషన్‌ల సంయుక్త ఆధ్వర్యంలో ప్లాంట్ హెల్త్ ఇన్ ఆసియా : రీసెర్చ్ ప్రయారిటీస్ అండ్ పార్ట్‌నర్‌షిప్స్ అనే అంశంపై రెండు రోజుల పాటు నిర్వహించిన ఇంటర్నేషనల్ సదస్సును బుధవారం ముగించారు.

ముఖ్య అతి థిగా హజరైన ఐకార్ - ఐఐఓఆర్ మాజీ డైరెక్టర్, అపారి ప్రాజెక్ట్ మేనేజర్ డాక్టర్ కేఎస్

వరప్రసాద్ మాట్లాడుతూ బంగ్లాదేశ్‌లో ఎస్‌పీఎస్ (శానిటరీ, ఫైటోశానిటరీ) అనేవి వ్యవసాయ ఉత్పత్తులు, ఆహార ఉత్పత్తుల ఆరోగ్యభద్ర తను కాపాడటానికి, పర్యావరణ పరిరక్షణకు రూపొం దించబడ్డ నిబంధనలని తెలియజేసారు. మరో ముఖ్య అతిథి ఇటలీలోని ఐపీపీసీ సెక్రటరియట్, ఎఫ్ఏవో ఇంప్లిమెంటేషన్ అండ్ ఫెసిలిటేషన్ లీడ్ డాక్టర్ సారా బ్రూనెల్ మాట్లాడుతూ మొక్కల ఆరోగ్యం అనేది వ్యవసాయం సుస్థిరత, పర్యావరణ పరిరక్షణ, ఆహార భద్రతకు సంబంధించిన ఒక కీలక అంశమన్నారు. ప్రపంచవ్యాప్తంగా మొక్కల వ్యాధులు, కీటకాలు, ఇతర ఆపత్కాల సమస్యలు వ్యవసాయ రంగాన్ని కఠినంగా ప్రభావితం చేస్తూ ఉంటాయన్నారు.

మరో ముఖ్య అతిథి సౌత్ ఏసియా సీఏబీఐ ఇంటర్నేషనల్ రీజనల్ డైరెక్టర్ డాక్టర్ వినోద్ పండిట్ మాట్లాడుతూ సీఏబీఐ ఆధ్వర్యంలో రైతులకు ఎస్‌పీఎస్ ప్రమాణాలపై శిక్షణా కార్యక్రమాలు, ఉత్పత్తి నాణ్యతను మెరుగుపరిచే టెక్నాలజీ పరిచయం, ప్రభుత్వం మరియు ప్రైవేట్ రంగాల భాగస్వామ్యంతో వ్యాపారాన్ని ప్రోత్సహిం చడం వంటి వాటిపై అవగాహన కల్పిస్తామన్నారు. అనంతరం ముఖ్య అతిథులను ఘనంగా సన్మానిం చారు. కార్యక్రమంలో విజ్ఞాన్స్ చైర్మన్ డాక్టర్ లావు రత్తయ్య, వర్సిటీ వైస్ చాన్సలర్ కల్నల్, ప్రొఫెసర్ పీ.నాగభూషణ్, ఇంచార్జి రిజిస్ట్రార్ డాక్టర్ పీఎంవీ రావు, ఆయా విభాగాల డీన్లు, అధిపతులు, పరిశోధన విద్యార్థులు పాల్గొన్నారు.

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