

Novel Strategies and Advances in Crop Health
Management: Towards Technology-driven
Eco-friendly Solutions



12-14 DECEMBER, 2023

Bhubaneswar, Odisha







# Organized by

Indian Phytopathological Society-Eastern Zone,
Odisha University of Agriculture & Technology,
Central Horticultural Experiment Station
(ICAR-Indian Institute of Horticultural Research)
Bhubaneswar, Odisha

### Novel Strategies and Advances in Crop Health Management: Towards Technologydriven Eco-friendly Solutions

#### INVITATION

We are delighted to extend a warm invitation you to participate in **National Conference on Novel Strategies and Advances in Crop Health Management: Towards Technology-driven Eco-friendly Solutions** to be held in Odisha University of Agriculture and Technology (OUAT), Bhubaneswar, Odisha during **Dec 12**<sup>th</sup> **to 14**<sup>th</sup>, **2023.** The Conference is being jointly organised by Indian Phytopathological Society-Eastern Zone, Central Horticultural Experiment Station (ICAR-Indian Institute of Horticultural Research), Bhubaneswar, and Odisha University of Agriculture and Technology (OUAT), Bhubaneswar to deliberate upon the current plant health issues and mitigation strategies.

The Conference would provide an effective platform for discussion, deliberations and dialogues by academicians, scientists, students, industry players, policy makers in government departments, and other stake holders including the farmers and non-governmental organisations, on current plant health scenario. The Organizing Committee invites you to the National Conference to share your academic and research expertise and experience in the field of Plant Pathology and Plant Health Management..

Please find attached the registration form and other relevant details about the event <a href="https://conference.ipsdis.org/eastern/bhubaneswar">https://conference.ipsdis.org/eastern/bhubaneswar</a>. In case of any queries or any further information, please do not hesitate to contact us.

### INTRODUCTION

Eastern Region of India is witnessing a new green revolution where in the farmers and agripreneurs are scouting for new solutions and advanced technologies for increasing the quality and quantity of crop production. Plant Protection is the most important aspect of crop production and there is an increasing demand for quality plant protection solutions which are technologically driven and environmentally sustainable. In recent years, many new institutions have been established in the region and it has broadened the based of plant protection research in the eastern region. Development of new crop health challenges due to changing climate and cropping patten has thrown up many challenges across the country and the Eastern India is not an exception to it.

Indian Phytopathological Society-Eastern Zone has taken up this task to organise National Conference at Bhubaneswar, Odisha during **Dec 12**<sup>th</sup> **to 14**<sup>th</sup>, **2023**, to discuss the regional plant protection challenges in national perspective. The conference would provide an ideal platform for the scientists, policymakers, corporate sector, agripreneurs, farmers, and students to discuss current research advancements and to formulate future strategies on plant disease management to ensure higher productivity and sustainability. Your participation in this National Conference would help the region benefit from your ideas and research achievements and to mitigate plant health challenges.

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### **ABOUT THE SOCIETY**

The "Indian Phytopathological Society (IPS)" is a professional forum, promoting the cause of Plant Pathology. It is the third-largest society of plant pathologists in the world. The society was established on February 28, 1947. The Society provides an international platform to advance the modern concept of plant health management in the agricultural, urban, and silvi-pastoral systems. It provides opportunities for scientific communication, collaboration, and professional development. The society organizes national and international conferences, symposia, and seminars on major topics of Plant Pathology. IPS is one of the largest professional societies with ~2500 members across more than 50 countries. It includes research scientists, teachers, extension professionals, students, technicians, agricultural field representatives, and industry personnel. IPS Eastern Zone comprises of Andaman and Nicobar Island, Bihar, Jharkhand, Odisha and West Bengal with more than 250 active life members. This zone is home to some of the oldest agricultural institutions who have made fundamental contributions to the agricultural sciences in general and plant protection science in particular.

### ABOUT CENTRAL HORTICULTURAL EXPERIMENT STATION (ICAR-IIHR), BHUBANESWAR

Central Horticultural Experiment Station (ICAR-IIHR), Bhubaneswar is the regional research station of ICAR-Indian Institute of Horticultural Research, Bengaluru. The Station was established during year 1992. Since then, the Station has made many significant contributions to the plant health management in the horticultural crops of the regions. Some of the significant achievements include development of region specific IPDM module against disease of mango, fruit fly management in mango and cucurbit crops, development of bacterial wilt resistant brinjal variety, development of white rust resistant amaranth lines, development of mango wash technology for removal of sooty blotch stains from affected mangoes. Core research has been carried out on characterization, diagnostics and management of major diseases of economic importance in the eastern region.

### ABOUT ODISHA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY (OUAT), BHUBANESWAR

Odisha University of Agriculture and Technology (OUAT) was established in Bhubaneswar in year 1962. It is the second oldest agricultural university in the country. It is dedicated to agriculture related research, extension and education. The University has 11 constituent colleges. The University has separate wings for research, extension services and planning, monitoring & evaluation, etc. The University has strong research and extension base by with eight Zonal Research Stations, four Zonal Sub-stations, 7 Commodity Research Stations and 13 Adaptive Research Stations spread over the state/ along with 48 All India Coordinated Research Projects. Also, more than 41 National Agricultural Technology Projects are in operation.

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### **ABOUT THE HOST CITY: BHUBANESWAR**

Bhubaneswar is the capital of Odisha situated just 60 kms away from eastern coast of India. In Bhubaneswar, December is considered to be a pleasant month with mild temperatures. The average high temperature during the day is around 28°C (82°F), while the average low temperature at night is around 16°C (61°F). The weather is generally dry with average relative humidity of 60 percent. During December Odisha would be buzzing with many cultural, literary, and eco-retreats (<a href="https://www.odishaecoretreats.com/">https://www.odishaecoretreats.com/</a>). The city is well-connected by various modes of transportation. Bhubaneswar's Biju Patnaik International Airport has direct flights from several major cities like Delhi, Mumbai, Kolkata, Chennai, Bengaluru, Hyderabad, Ahmedabad, Pune, Jaipur, Varanasi, etc. The city is also well-connected by rail. Bhubaneswar Railway Station is a major railway junction in the East Coast Railway zone and is well-connected to various cities across India. Bhubaneswar is also well-connected by road. National Highway 16 (NH 16) passes through the city, connecting it to major cities like Kolkata, Chennai, and Visakhapatnam.

### **HOW TO REACH**

OUAT Campus is centrally located in Bhubaneswar and is just 5 km from Bhubaneswar Railway Station, 2.5 Km from Biju Pattanaik International Airport and 4.0 Km from Baramunda Bus Stand. Bhubaneswar has a well-developed public transportation system, including buses and auto-rickshaws, which provide convenient connectivity within the city.

### WHERE TO STAY

Bhubaneswar is a vibrant city with many options for staying as per your budget. Following are the list of a few Hotels with basic amenities and good connectivity:

1.	<b>Hotel New Marrion</b>	(Mr. Saroj Das	: 9338622002)
2.	Hotel Suryansh	(Ms. Suman Sahu	: 9040369278)
3.	<b>Hotel Presidency</b>	(Mr. A K Sahani	: 9439212133)
4.	<b>Hotel Fortune Park Sishmo</b>	(Mr. Jyoti Prakash	: 9853317881)
5.	VITS Hotel	(Mr. Sankar Swain	: 9776843586)
6.	Hotel Pal Heights	(Ms. Samita Patro	: 7008809565)
7.	Hotel Sidharth	(Mr. Dilip Mohanty	: 8917333179)
8.	Hotel Arya Palace	(Mr. Bapi	: 9348084375)
9.	Panthanivas	(Mr. Khitish Das	: 9937562181)

Please note that availability in hotels may vary, so it is recommended to check with the hotels directly for the latest information on availability of accommodation.

Some accommodation on twin sharing basis can be arranged by the organisers on prior intimation to ipsez2023@gmail.com, on first come first serve basis, especially for the students and research scholars in government guesthouses on prescribed fixed rates.

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### **DETAILS OF THE TECHNICAL SESSIONS**

### Technical Session 1: Crop Health Management: Towards Technology-driven Eco-friendly Solutions

Presentation of Presidential Lecture, Plenary Lecture and Keynote Lectures

## Technical Session 2: Disease diagnosis, microbial diversity, and characterization of phytopathogens and biocontrol agents

- i. Innovations and advances in plant disease diagnosis
- ii. Recent research interventions in microbial diversity and utilisation
- iii. Characterisation of plant pathogens and understanding pathogenesis
- iv. Bioprospecting novel biocontrol agents and their metabolites
- v. New diseases and pathogens in traditional and new crops

## Technical Session 3: Plant and soil health management in conventional, natural, and organic farming ecosystem

- i. Plant health management in conventional cultivations using regular and novel molecules
- ii. Bio-intensive approaches for crop and soil health management in organic farming practices
- iii. Advances in crop and soil health management in natural farming ecosystem
- iv. Application of modern and precision methods for disease: application of ULV drone sprayers
- v. Advances in integrated plant disease management research

## Technical Session 4: Epidemiology, Biotechnology, Bioinformatics, AI and Machine learning applications in phytopathological research

- i. Plant disease prognostic through epidemiology and forecasting
- ii. Molecular and biotechnological tools for diagnostics and host pathogen interactions
- iii. Microbial diversity and characterisation using bioinformatics and molecular approaches
- iv. Understanding molecular events incited by pathogen invasion and bioinoculants
- v. Drone based aerial disease diagnosis, AI and machine learning applications in phytopathological research

### Technical Session 5: Multidisciplinary interventions for Plant, Soil and Human health

- i. Characterisation and management of insect and other vectors for disease management
- ii. Characterisation of nematode pests and their association in plant diseases dynamics
- iii. Entomopathogenic organisms in management of important crop pests
- iv. Resistance breeding, agronomic, cultural, and other practices for plant disease management
- v. Mushrooms and single cell proteins (SCPs) for human health and entrepreneurship

### Technical Session 6: Farmers, entrepreneurs, and industry in plant health management

- i. Development and popularisation of novel molecules for plant disease management in different agroecological regions
- ii. Seeds of disease resistant varieties, seed treatment solutions for effective plant disease management
- iii. Safety concerns of application of phytochemicals in plant diseases in the current era of environmental and health concerns
- iv. Entrepreneurial opportunities in production of biopesticides, bioinoculants, mushrooms, SCPs, diagnostics, and plant health management industry etc
- v. Plant health clinics, custom hiring of drones and mechanical sprayers, and other emerging opportunities in plant health sector

### Field visits: Diagnostic Field visits: (different groups, different directions)

OUAT research farms, CHES research Farms, ICAR-NRRI research farms, Centre of Excellence, Deras, Farmer's fields in Khorda, Puri, Tangi





### CALL FOR ABSTRACTS FOR ORAL/ POSTER PRESENTATION

Submission of abstract for oral/poster presentation Abstract (250-300 words excluding, title, name, and affiliation; font size 12, Times new roman, 1.5 spacing) for the conference should be submitted through online mode only (<a href="https://conference.ipsdis.org/eastern/bhubaneswar">https://conference.ipsdis.org/eastern/bhubaneswar</a>). Please send the abstract to organizing secretary (Email: <a href="mailto:ipsez2023@gmail.com">ipsez2023@gmail.com</a>) if you have any difficulty in online abstract submission and registration, or don't receive confirmation about the receipt of your abstract within 10 days. The Technical Coordination Committee reserves the right to edit/reject any abstracts if required. Abstract(s) will be printed only after receiving the registration fee. Please underline and bold the presenter's name and mention the presenting author's email ID. The poster format will be available online on the IPS website.

### **REGISTRATION CHARGES**

Registration, abstract submission and payment of the registration fee can be made ONLINE easily at <a href="https://conference.ipsdis.org/eastern/bhubaneswar">https://conference.ipsdis.org/eastern/bhubaneswar</a> .

First register for the National Conference using "Registration" button. After successful registration you will get an acknowledgment email along with <u>your id and password</u> provided by you while doing registration. Secondly, click on "Login" button and enter your id and password. You will reach your exclusive page. On the top righthand corner you will have the button links for Submission Abstracts and Payment Link. Payment can be made using Credit card, Debit Card, Internet banking or by using some popular Wallets.

Categories of participants	Early bird Registration (₹) (up to 30 <sup>th</sup> November)	On spot registration (₹)
IPS Members	3500	5000
Non-Members	4000	5000
IPS Student/RA/SRF members*	2000	2500
Non-IPS Student/RA/SRF members*	2200	2500
Corporate/ Industry	5000	8000
Start up	3500	5000
Farmers -Farmer information kits only	1000	1200
Accompanying person (spouse / children), Exhibition staff -no conference kits	2000	2500

<sup>\*</sup>Students/Research scholars/Research Associates in Education Institutions may attach their ID Card. Early bird registration date is now been extended to 5<sup>th</sup> Dec 2023

Online registration can be done at <a href="https://conference.ipsdis.org/eastern/bhubaneswar">https://conference.ipsdis.org/eastern/bhubaneswar</a> or deposit registration fee to account given below and share transaction details to <a href="mailto:ipsez2023@gmail.com">ipsez2023@gmail.com</a>



Name of Account Holder: Indian Phytopathological Society

Account Number: 90292010005900 RTGS/NEFT/IFS Code: CNRB0019029;

Bank and Branch: CANARA Bank, Pusa Campus, IARI, New Delhi 110012

Abstract Submission and Online Registration period: up to Dec 5th, 2023



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### **Registration Form**

Surname	•••••	Middle Name	First name:			
IPS Member:	Yes/ No	IPS Stude	ent/ RA/SRF/YP Memb	er: Yes/No		
Sector: Corporate/ Ind	lustry/ Go	vernment/ Start Up/ Farmer/othe	ers			
Accompanying person:	: Yes / No;	(If yes, specify details		)		
Exhibition Staff: Yes/ N	lo	(If yes, specify details		)		
Address:		City	/: F	PIN		
State	Countr	y Mobile:				
E-mail:						
Title of the Oral/Poste	r Presenta	ation/Invited /Lead Lecture: (if ar	ny) :			
Theme area:						
Prof. M.J. Narasimhan Merit Academic Award (Zonal Contest): Yes/No						
Draft/Cheque No./onli	ne payme	ent details.:	Dated			
Registration fee amou	nt Rs		(Category:	)		
Online Payment refere	nce/ tran	saction details with date:				
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Accommodation requi	red: Yes/N	No				
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Tentative Diagnostic Field visit route: (different groups, different directions) on 14th Dec 2023

- 1. OUAT research farms, CHES research Farms, ICAR-NRRI research farms, Centre of Excellence, Deras
- 2. Farmer's fields Khordha, Tangi, Balugaon

Date:

3. Farmer's fields – Satyabadi, Sakhigopal, Bhramhagiri, Puri (tick anyone of the above)

Please complete the registration form and return it to Organizing Secretary at ipsez2023@gmail.com

**Signature** 

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### Prof. M.J. Narasimhan Merit Academic Award

### (Zonal Contest for selection to National level contest)

The East Zone Chapter would organize a contest among the zonal members during the Zonal Chapter's Meeting for preliminary selection of contestants during the National Conference on Novel Strategies and Advances in Crop Health Management: Towards Technology-driven Eco-friendly Solutions to be held in Odisha University of Agriculture and Technology (OUAT), Bhubaneswar, Odisha during Dec 12<sup>th</sup> to 14<sup>th</sup>. Only two names from each Zonal Chapter will be recommended by Zonal President for the final contest to be held during Annual Meeting of the Society during National Conference on Plant Health for Food Security: Threats and Promises February 1-3, 2024 at ICAR-Indian Institute of Sugarcane Research, Lucknow, Uttar Pradesh.

The age limit for the contestant would be 35 years. The contestant will submit an abstract up to 250 words along with brief biodata to the Zonal President, Indian Phytopathological Society-Eastern Zone (ipsez2023@gmail.com).

### The contestants must furnish the following certificate:

TO WHOM IT MAY CONCERN				
It is to be certified that the paper entitled				
"	oresented for Prof. M.J. Narasimhan			
Merit Academic Award Contest for the yea	r (2023) pertains to the major work			
done by the candidate	(Name of the			
candidate). It is further certified that the	work has not been published and			
presented for any other award till date and contestant is below the age of 35 years				
and is a member of the society.				
Signature of the student	Guide/Advisor of the student			

Selected contestant at Zonal Level will provide an abstract up to 200 words along with a brief biodata to the Secretary, Indian Phytopathological Society through Zonal President.

The awardee at National Level will receive a medal, and other contestants at national level will receive Commendation Certificate. The Society will publish the paper of awardee in Indian Phytopathology. The award recipient must submit full-length paper (as per IPS guidelines) for its publication in the journal Indian Phytopathology. There is no restriction of the age of co-author, if any.

Prof. M.J. Narasimhan Merit Academic Award National contest shall be organized during Annual Meeting of the Society during National Conference on Plant Health for Food Security: Threats and Promises February 1-3, 2024 at ICAR-Indian Institute of Sugarcane Research, Lucknow.

### Novel Strategies and Advances in Crop Health Management: Towards Technologydriven Eco-friendly Solutions

### **Organizing Committee**

#### **Chief Patron:**

Dr. Himanshu Pathak, Secretary (DARE) & Director General, ICAR, New Delhi

#### Patrons:

- Dr. Tilak Raj Sharma, DDG (Crop Science), ICAR, New Delhi
- Prof. Pravat Kumar Roul, Hon'ble Vice Chancellor, Odisha University of Agriculture & Technology, Bhubaneswar
- Dr. Sanjay Kumar Singh, Director, ICAR-Indian Institute of Horticultural Research, Bengaluru

#### **Chairperson:**

Dr. S.C. Dubey, President, Indian Phytopathological Society, New Delhi

### **Co-Chairperson:**

Dr. Kajal Kumar Biswas, Secretary, Indian Phytopathological Society, New Delhi

#### **Conveners:**

- Dr. D. K. Ghosh, Director, ICAR- Central Citrus Research Institute, Nagpur, Maharashtra
- Dr. R. Viswanathan, Director, ICAR-IISR, Lucknow, Uttar Pradesh
- Dr. R. Selvarajan, Director, ICAR-NRCB, Trichy, Tamil Nadu
- Dr. V. B. Patel, ADG (Fruits & Plantation Crops), ICAR, New Delhi
- Dr. Bikash Mandal, ADG (International Relations), ICAR, New Delhi

#### **Co-Conveners:**

- Dr. Mihir Kumar Mishra, Prof. & Head, Department of Plant Pathology, OUAT, Bhubaneswar
- Dr. G.C. Acharya, Head, Central Horticultural Experiment Station (ICAR-IIHR), Bhubaneswar
- Dr. S. Sriram, Head, Division of Crop Protection, ICAR-IIHR, Bengaluru
- Dr. S.D. Mahapatra, Head, Division of Crop Protection, ICAR-NRRI, Cuttack
- Dr. Tribikram Samal, Prof. & Head, Dept of Entomology, OUAT, Bhubaneswar
- Dr. Gayatri Biswal, Prof. & Head, Dept of Nematology, OUAT, Bhubaneswar
- Dr. Malkhan Singh Gurjar, Treasurer, Indian Phytopathological Society, New Delhi

### **Local Advisory Committee:**

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Prof. P. Mishra, Dean, Extn. Education, OUAT, Bhubaneswar Prof. D. Mishra, Director, PME Cell, OUAT, Bhubaneswar

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### **Organizing Secretary:**

Dr. Petikam Srinivas, Principal Scientist, Central Horticultural Experiment Station (ICAR-IIHR), Bhubaneswar **Co-Organizing Secretaries:** 

- Dr. Sandeep Kumar, Assistant professor, Odisha University of Agriculture and technology (OUAT), Bhubaneswar
- Dr. Deepa Khulbe, Associate Professor, Odisha University of Agriculture and technology (OUAT), Bhubaneswar
- Dr. Bipin Pradhan, Assistant professor, Odisha University of Agriculture and technology (OUAT), Bhubaneswar

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Dr. Khirod Biswal, Deogarh

Dr. Jayant Mahalik, Bhubaneswar

### Novel Strategies and Advances in Crop Health Management: Towards Technologydriven Eco-friendly Solutions

### PLACES TO VISIT AROUND BHUBANESWAR

**The Golden Triangle** refers to a popular tourist circuit that includes three major destinations: Bhubaneswar, Puri, and Konark. These three cities form a triangle on the map, hence the name "Golden Triangle." Here's what you can expect to see in each destination:

### In Bhubaneswar:

In Bhubaneswar, there are several places to visit that showcase the rich cultural and historical heritage of the city. Here are some popular attractions:

- **1. Lingaraj Temple:** One of the most famous temples in Bhubaneswar, dedicated to Lord Shiva. It is known for its architectural grandeur and intricate carvings.
- **2. Udayagiri and Khandagiri Caves**: Ancient rock-cut caves with inscriptions and carvings, offering a glimpse into the Jain monastic life.
- **3. Odisha State Museum:** A museum that houses a vast collection of artifacts, sculptures, and paintings representing the art and culture of Odisha.
- **4. Nandankanan Zoological Park:** A zoo and botanical garden known for its white tigers, lions, and other exotic animals.
- **5. Rajarani Temple:** A unique temple known for its ornate sculptures and intricate carvings, dedicated to Lord Shiva.
- **6. Dhauli Giri:** A hilltop with ancient rock edicts and a peace pagoda, offering panoramic views of the city.
- 7. Mukteshwar Temple: A 10th-century temple known for its beautiful architecture and intricate carvings.
- **8. Ekamra Kanan Botanical Gardens:** A sprawling botanical garden with a wide variety of plants, trees, and flowers.
- **9. Kalabhoomi:** Kalabhoomi showcases various aspects of Odisha's art and culture. It displays a wide range of artifacts, sculptures, paintings, and handicrafts representing the rich heritage of the state.
- **10. Pathani Samanta Planetarium:** A popular attraction for astronomy enthusiasts, offering shows and exhibitions on space and celestial bodies.

### In Puri:

- **1. Jagannath Temple:** A famous Hindu temple dedicated to Lord Jagannath, known for its annual Rath Yatra festival.
- 2. Puri Beach: A popular beach destination with golden sands and beautiful sunsets.
- **3. Chilika Lake:** Asia's largest brackish water lagoon, known for its rich biodiversity and migratory birds. It is home to Irrawaddy dolphins.
- **4.** Raghurajpur Artist Village: A village known for its traditional *Pattachitra* paintings and handicrafts.
- **5. Pipli appliqué bazar:** It is a must-visit destination for art and craft enthusiasts, offering a unique glimpse into the world of work. It is located around 20 kilometers from Bhubaneswar on the way to Puri.

### In Konark:

- **1. Konark Sun Temple:** A UNESCO World Heritage Site, famous for its architectural grandeur and intricate stone carvings.
- **2. Konark Beach:** A beautiful beach located near the Sun Temple, offering stunning views and a serene atmosphere.
- 3. Chandrabhaga Beach: Another scenic beach near Konark, known for its clean sands and clear waters.
- **4. Ramachandi Temple:** Situated on the banks of the Kushabhadra River, this temple is dedicated to Goddess Ramachandi and offers a peaceful environment.
- **5. ASI Museum:** Located near the Sun Temple, this museum houses a collection of sculptures and artifacts from the temple complex.
- **6. Konark Dance Festival:** If you visit during December, you can witness this annual festival that showcases classical dance performances against the backdrop of the Sun Temple.

These are just a few of the many attractions in Bhubaneswar, Puri and Konark. There are several other temples, museums, and natural sites worth exploring in the region.

