Integrated Pest Management Strategies for Sustainable Agriculture

Editors

Navendu Nair, M.Sc., Ph.D Department of Agril. Entomology, College of Agriculture, Tripura, India Anupam Guha, M. Sc, Ph. D Associate Professor in Botany Rabindranath Thakur Mahavidyalaya, Bishalgarh, Tripura, India



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Preface

Integrated Pest Management (IPM) system is the best effective sustainable approach of protecting crops from the ravages of pests towards the goal of food sufficiency for the ever-increasing human population of the globe. IPM helps minimize reliance on chemical pesticides leading to elimination of several pesticide associated problems like environmental pollution, killing of non target organisms, residue problem, health hazards, development of resistant population of pest species, resurgence of pests, secondary pest outbreak and so on. Sustainability in crop production and protection can only be achieved by developing technologies that are based on locally available, easily acceptable and cost effective inputs. Therefore, development of new knowledge systems with emphasis on eco-friendly approaches and new IPM strategies are necessary to tackle the intensified pest-disease problems in the present time of climate change.

The book contains twenty eight articles covering various aspects of crop protection. The topics cover fundamental as well as advanced and modern aspects of pest management. Here, an attempt has been taken to present some recent findings with review work in a manner considered suitable for the scientific community.

We are thankful to the contributors for writing authoritative and informative articles for this volume. The opinions and text contained herein are those of the authors and we have tried to honour their ideas in the original shape. While dealing with such a voluminous work, errors are likely to occur despite best efforts. However, the onus of the technical contents rests with the contributors.

This effort will definitely serve as an excellent reference material and also as a guide for research communities and students in the field of Agricultural science. We would very much appreciate receiving suggestions from readers so that shortcomings, if any, can be corrected in future editions.

We are thankful to all the faculty members and especially to Dr. T.K. Maity, Principal, College of Agriculture, Tripura for their constant support and courage during this effort. We also highly appreciate the all-round co-operation and support of Sri Dipanjan Mukherjee, founder member of New Delhi Publishers for presenting and publishing this work with patience, care and interest.

Editors



प्रो. गंगा प्रसाद प्रसाई कुलपति Prof. Ganga Prasad Prasain

Vice-Chancellor

त्रिपुरा विश्वविद्यालय

(केन्द्रीय विश्वविद्यालय) सूर्यमणिनगर-799022, त्रिपुरा, भारत

Tripura University (A Central University) Suryamaninagar-799022, Tripura, India

Foreword

Plant protection in present time has become a challenging matter due to changes in climate which is also responsible for changes in ecology and biology of different pest species, frequent introduction of invasive alien pest species, problems related to resistance-resurgence and secondary pest outbreak and environmental degradation aggravated by indiscriminate use of chemical pesticides, etc. The Indian agriculture has gone through all the stages of crop protection i.e. subsistence phase, exploitation phase, crisis phase and disaster phase since the inception of the concept of green revolution for producing more food for the burgeoning population. Then the concept of sustainable agriculture has got its momentum in late eighties in Indian agricultural scenario which has evoked interest on sustainable crop management. Integrated Pest Management (IPM) system has got its own importance as the only option for managing pest-diseases in a sustainable way. Integrated Pest Management programmes take advantages of all the effective pest management strategies, including the judicious use of chemical pesticides as the last resort. However, for successful implementation, the IPM strategy has to be viewed as an Integrated Crop Management approach which includes all aspects of growing a healthy crop including selection of healthy seeds and suitable varieties, nutrient management, water management, weed management, insect and non-insect pest management, disease management, etc. Any recent innovation in pest control strategy should be an important tool for advancement of IPM strategies. It should be site-specific, conserve the natural resources, flexible and easily adaptable to the farmers. Though IPM is not as easy as chemical control approach but due to its sustainability, IPM is considered as the most effective way of pest management. A broader public understanding on utility of this novel approach of pest management is necessary for reaching to the goal of crop production vis-a-vis crop protection in a sustainable way. In this context, emphasis has to be given on latest research findings on pest management options which have to be integrated judiciously for effective implementation. I am confident that the readers will find a comprehensive coverage comprising various aspects of crop protection in this well edited book "Integrated Pest Management Strategies for Sustainable Agriculture".

(Prof. Ganga Prasad Prasain)

🖀 : (0381) 237 9002, M : +91 9436122179 ♦ ईं-मेल E-mail : vc@tripurauniv.in ♦ वेवसाइट Website : www.tripurauniv.in, www.tripurauniv.ac.in



COLLEGE OF AGRICULTURE, TRIPURA LEMBUCHERRA, WEST TRIPURA-799210 (Affiliated to Tripura University& Accredited to ICAR, New Delhi)



Dr. Tapan Kumar Maity Principal Mobile:9433438193 Tele-fax:0381-2865779 E-mail: catagartala@gmail.com proftkmaity@gmail.com/ prof_tapanmaity@rediffmail.com

Message

Keeping in view the changing climate, burgeoning population and food security Integrated Pest Management (IPM) is considered as the best approach of crop protection in current Indian agriculture. It integrates judiciously all the suitable techniques and methods in a best compatible manner. IPM has got its own importance as the most effective approach for managing pest-diseases in a sustainable way. However, its implementation in best effective way in crop pest management is knowledge based and needs special emphasis on Agro-Ecosystem analysis. Any IPM programme should have inherent characteristics of cultural and environmental compatibility, sustainability and cost-effectiveness so that it can easily be adoptable to the end users i.e. the farmers. I am confident that this edited book "Integrated Pest Management Strategies for Sustainable Agriculture" will definitely serve as an excellent guide for the researchers working in the field of crop protection and also the students of Agricultural science.

Dr. T

Principal College of Agriculture, Tripura

List of Contributors

Amar Bahadur

Department of Plant Pathology, College of Agriculture, Tripura, India Email: amarpatel44@rediffmail.com/ agcollege07@gmail.com

Amit Singh Charak

Krishi Vigyan Kendra SKUAST-Jammu Doda J & K, India

Arkaprava Roy

Division of Agronomy, ICAR-Indian Agricultural Research Institute, New Delhi, India

Arti Kumari

School of Crop Protection, College of Post Graduate Studies in Agricultural Sciences, Central Agricultural University (Imphal), Umiam, Meghalaya, India

Biman De

AICRP on Pigeonpea, College of Agriculture, Tripura, India

Budha Bora

Department of Plant Pathology, Biswanath College of Agriculture, Assam Agricultural University, Biswanath Chariali, Assam, India. Email: budha.bora@aau.ac.in

Amit Choudhary

Department of Entomology, Punjab Agricultural University Ludhiana, Punjab, India Email: jaspal_bee@pau.edu

Aishwarya P

PhD Scholar, Department of agricultural entomology, TNAU, Coimbatore, India Email:aishwaryapalani118@gmail.com

A. S. Baloda Network Coordinator, AINP on Soil Arthropod Pests, Rajasthan Agrl. Res. Institute, SKNAU, Durgapura, Jaipur, Rajasthan, India Email: kolla.sreedevi@gmail.com

Bappa Paramanik

Dakshin Dinajpur Krishi Vigyan Kendra, Uttar Banga Krishi Viswavidyalaya, Majhian, Patiram, Dakshin Dinajpur, West Bengal, India

Budha Ch. Thangjam,

College of Agriculture, Tripura, Lembucherra, India Email: tridip4u2@gmail.com

Buddhisatya Dowarah

Ph.D Scholar, Department of Horticulture, SASRD, Nagaland University, Medziphema, India Email: buddhisatyado@gmail.com **B.C. Sharma** Division of Agronomy, SKUAST-Jammu, India

D. K. Nagaraju

Deputy Director (Entomology), Regional Central Integrated Pest Management Centre, Bengaluru, Karnataka, India

Dipsikha Bora

Department of Life Sciences, Dibrugarh University, Dibrugarh, Assam, India,

Gaurav Kumar Taggar

Department of Plant Breeding & Genetics Punjab Agricultural University, Ludhiana, Punjab, India Email: gauravtaggar@pau.edu

J. P. Singh

Additional Plant Protection Adviser, Central Insecticide Laboratory & Secretary, Central Insecticide Board and Registration Committee, Directorate of Plant Protection, Quarantine & Storage, Ministry of Agriculture & Farmers Welfare, Government of India. Email: j.p.singh@nic.in

Kalpana Das

Department of Zoology, Rabindranath Thakur Mahavidyalaya, Tripura, India

Debarati Datta

ICAR-Central Research Institute for Jute and Allied Fibres, Barrackpore, India

Debasish Rout

M.Tech, IGIT, Sarang and Assistant Professor, SYNERGY, Dhenkanal, Odisha, India

Durga Prasad Awasthi

Asstt. Prof. (Plant Pathology), College of Agriculture, Tripura, KVK, Unakoti, Tripura, India Email: pathodurga@gmail.com

Jaspal Singh

Department of Entomology, Punjab Agricultural University Ludhiana, India Email: jaspal_bee@pau.edu

Kolla Sreedevi

Division of Germplasm Collection and Characterization, ICAR-National Bureau of Agrl. Insect Resources, Bellary Road, Hebbal, Bengaluru, Karnataka, India Email: kolla.sreedevi@gmail.com

Logeshkumar P

PhD Scholar, Department of Agricultural Entomology, TNAU, Coimbatore, India

Lipa Deb

School of Crop Protection, College of Post Graduate Studies in Agricultural Sciences, Central Agricultural University (Imphal), Umiam, Meghalaya, India

Manisha Rout

PhD Scholar, Institute of Agriculture, Visva-Bharati University, West Bengal India Email: manisha.rout55@gmail.com

Md. Hedayetullah

Department of Agronomy, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, West Bengal, India Email: md.hedayetullah@bckv.edu.in

Mohammad Sakendar Ali

Department of Plant Pathology, Assam Agricultural University, Jorhat, Assam, India Email:sakendaraliaau@gmail.com

M.P.Thakur

College of Agriculture, Indira Gandhi Krishi Vishwavidyalaya, Raipur, Chhattisgarh, India Email: mp_thakur@yahoo.com

Narasimhamurthy H. B.

Department of Plant Pathology, College of Agriculture, University of Agricultural and Horticultural Science, Shivamogga, Karnataka, India

Mukesh Sehgal

Principal Scientist, ICAR-National Research Centre for Integrated Pest Management, Pusa Campus, New Delhi, India Email: msehgalncipm@aol.com

Manpreet Kour

Division of Agronomy, SKUAST-Jammu, India Email: manpreet_brainy@rediffmail.com

Mohammad Idris

ICAR - National Centre for Integrated Pest Management, New Delhi, India Email: idrism1958@yahoo.co.in

Moulita Chatterjee

Department of Agril. Entomology, Uttar Banga Krishi Viswavidyalaya, West Bengal, India

Navendu Nair

Department of Agril. Entomology, College of Agriculture, Tripura, India Email: navendunair@gmail.com

N. Bakthavatsalam

National Bureau of Agricultural Insect Resources,

H. A. Farm Post, Bengaluru, Karnatka, India

Email:nbakthavatsalam@yahoo.com

Kamal Tripura

College of Agriculture, Tripura, Lembucherra, Tripura, India Email: tridip4u2@gmail.com

Partha Das

College of Agriculture, Tripura, Lembucherra, Tripura, India Email: tridip4u2@gmail.com

Swarnali Bhattacharya

Assistant Professor,

Department of Agricultural Entomology Institute of Agriculture, Visva-Bharati, Sriniketan, Birbhum, West Bengal Email: drbhattacharyaswarnali@gmail. com

S. K. Mandal

Retired Professor, Dept. of Agril. Entomology, BCKV, Mohanpur, Nadia, West Bengal, India Email: skmandalento@gmail.com

Shaon Kumar Das

ICAR Research Complex for NEH Region, Sikkim Centre, Tadong, Gangtok Email: shaon.iari@gmail.com

S. Kapali SMS (Plant Protection), KVK, Unakoti, Tripura, India

Pranab Dutta

School of Crop Protection, College of Post Graduate Studies in Agricultural Sciences, Central Agricultural University (Imphal), Umiam, Meghalaya, India Email: pranabdutta74@gmail.com

Ranjana Prasad

College of Agriculture Tripura, Lembucherra, Tripura, India Email: arienranju@gmail.com

Sangita Borthakur

Department of Life Sciences, Dibrugarh University, Dibrugarh, Assam, India Email: sangitaborthakur@gmail.com

Shantanu Jha

Department of Agricultural Entomology, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, West Bengal, India Email: sjha2007@gmail.com

Subhrajyoti Chatterjee

Dept. of Horticulture, M. S. Swaminathan School of Agriculture (MSSSOA), Centurion University of Technology and Management (ICAR affiliated), Parlakhemundi, Gajapati, Odisha, India. Email: subhrajyoti.chatterjee@cutm.ac.in

Subhajit Pal

Ph.D Scholar, Department of Agricultural Entomology, Institute of Agriculture, Visva-Bharati, Sriniketan, West Bengal

Subhajit Pal

PhD Scholar, Department of Agricultural Entomology Institute of Agriculture, Visva-Bharati, Sriniketan, Birbhum, West Bengal Email: drbhattacharyaswarnali@gmail. com

Sourav Ghosh

ICAR-Directorate of Onion and Garlic Research, Pune, Maharashtra, India

T. K. Das

Division of Agronomy, ICAR-Indian Agricultural Research Institute, New Delhi, India Email: tkdas64@gmail.com

Tridip Bhattacharjee

College of Agriculture, Tripura, Lembucherra, India Email: tridip4u2@gmail.com

Suman Sen

Division of Agronomy, ICAR-Indian Agricultural Research Institute, New Delhi, India

Tapan Kumar Maity

College of Agriculture, Lembucherra, Tripura, India Email: tridip4u2@gmail.com

Tarra Supriya

Dept of Horticulture, M. S. Swaminathan School of Agriculture (MSSSOA), Centurion University of Technology and Management (CUTM), Parlakhemundi, Gajapati, Odisha, India.

Utpal Giri

Department of Agronomy, College of Agriculture, Tripura, India

About the Editors



Dr. Navendu Nair completed his M.Sc. and Ph. D degree in the field of Agricultural Entomology from Bidhan Chandra Krishi Viswavidyalaya, West Bengal. He was the Topper of the Department of Agricultural Entomology, BCKV. He qualified National Eligibility Test in 2006. After completion of his study he joined State Bank of India, Bengal Circle as an Agriculture Officer and served for nearly two years. After that he was directly recruited as Plant Protection

Officer in the Directorate of Plant Protection Quarantine and storage, Govt. of India where he served for more than four years. Presently, he is working as an Assistant Professor (Agril. Entomology) in the College of Agriculture, Tripura which is affiliated to Tripura University (A Central University) and accredited to Indian Council of Agricultural Research. He has been teaching for almost 7 years and actively associated with research, extension and developmental works. At present, he is involved in the field of Economic Entomology and Apiculture. He has attended many national and international seminars/conferences and published 36 research papers in various national and international journals. He has also published 14 nos. of booklets and contributed to two nos. of SOPs on different aspects of IPM. He has also contributed four book chapters. Dr. Nair has organised several training programmes (Farmers Field Schools) on Integrated Pest Management for the Farmers. He has participated in several Radio talks and TV shows on different aspects of plant protection and bee keeping. He has been invited as resource person in more than 40 nos. of occasions by various Govt, institutions. He has been selected as a member of Technical Committee of Govt. institution. He was also selected as External Examiner and also as a member of many Interview Boards of Govt. Institutions.

Presently he is involved in promotion of Integrated Pest Management system and Bee keeping in the state of Tripura under the umbrella of College of Agriculture, Tripura.



Dr.Anupam Guha completed his college education from Maharaja Bir Bikram College, Agartala, Tripura. After obtaining his Master's Degree from Tripura University, he also obtained his Ph. D degree in the field of Plant Cytogenetics and Tissue Culture from the same University. Presently, he is working as an Associate Professor in Botany under Department of Higher Education, Government of Tripura at Rabindranath Thakur Mahavidyalaya, Bishalgarh, Tripura. He has

been teaching for nearly 17 years and actively associated with research. At present, he is involved in the field of plant biodiversity, specially, in relation to ethnomediacinally important plants of North Eastern Regions of India. He had attended many national and international seminars/conferences and published 26 scientific papers in national and international journals. Dr. Guha has organised a UGC sponsored National Seminar: "Recent Trends in Biodiversity Conservation and Bioresource Utilization' in the year 2017 and edited a book (www.Amazon.com) published by New Delhi Publishers (www.ndpublisher.in). Other than that Dr. Guha had organized one online International Symposium namely: Biological Sciences: Impacts on Modern Civilization, Current and Future Challenges' on 26-27 September last year and published a e-book also. He had contributed seven book chapters. He is also life members of several professional societies like Botanical Society of Bengal, All india Congress of Cytogenetics and Tissue Culture, The Indian Botanical Society etc.

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