

ISSN : 2229-628X (print)
e-ISSN : 2582-2683 (online)
Society reg : 131380
RNI No. : UPENG/2006/22736
NGO Darpan : UP/2016/0109266

Vol. 21, No. 1, January, 2026

Journal of Eco-Friendly Agriculture



Doctor's Krishi Evam Bagwani Vikas Sanstha
(Doctor's Agricultural and Horticultural Development Society)
Registered under Society Registration Act 21, 1860
Lucknow - 226 016, India

JOURNAL OF ECO-FRIENDLY AGRICULTURE

(A Bi-annual Scientific Research Journal)
Doctor's Krishi Evam Bagwani Vikas Santha
(Doctor's Agricultural and Horticultural Development Society)
Registration No. ISSN : 2229-628X (print), eISSN 2582-2683 (online)

Chief Patron: Dr. C. D. Mayee, Ex-Chairman, ASRB, 602, Raviram Residency, Chitale Marg, Dhantoli Nagpur (MS)

President: Dr. Poonam Jasrotia, Assistant Director General (Plant Protection & Biosafety), ICAR Headquarters, Krishi Bhawan, New Delhi

Vice-President : Dr. T Damodran, Director, ICAR-Central Institute of Sub-tropical Horticulture, Rehmankhara, Lucknow

General Secretary: Dr. R. P. Srivastava, Ex-Director and Principal Scientist, CISH, Lucknow

Assistant Secretary: Dr. Rajesh Kumar, ADO, Cooperative, Vikas Bhawan, Sarvodaya Nagar, Lucknow

Executive Secretary: Er. Rajeev Srivastava, Executive Secretary, Doctor's Krishi Evam Bagwani Vikas Sanstha Lucknow

Member Editorial Board from Abroad

Dr. Gadi V.P. Reddy, Research Leader – USDA - ARS-Southern Insect Management Research Unit, 141 Experiment Station Rd., P.O. Box 346, Stoneville, MS 38776, USA

Dr. R. Cooposamy, Dean, Department of Nature Conservation, Mangosuthu University of Technology; Durban, South Africa

Dr. Keith Davies, School of Life and Medical Sciences, University of Hertfordshire, Hatfield, United Kingdom

Dr. Tim Mauchline, Scientist at Rothamsted Research, West Common, Harpenden, AL5 2JQ Hertfordshire, United Kingdom

Member Editorial Advisory Board from India

Dr. Tilak R. Sharma, Deputy Director General (Crop Sciences) Indian Council of Agricultural Research ICAR Krishi Bhawan, New Delhi-110 001

Dr. Sanjay Singh, Director General, U.P. Council of Agricultural Research, 8th Floor Kisan Mandi Bhawan, Vibhuti Khand, Gomti Nagar, Lucknow-226 010

Dr. T. Damodaran, Director; ICAR-Central Institute for Sub-tropical Horticulture, Rehmankhara, P.O. Kakori, Lucknow-226101 (U.P.)

Dr. Sanjay Kumar Singh, Deputy Director General (Hort) ICAR, KAB-11, Pusa Complex, New Delhi-110 012

Dr. S. N. Sushil, Director, ICAR-National Bureau of Agricultural Insect Resources, Hebbal, Bellary Road, Bangalore-560 024

Dr. A. N. Mukhopadhyay, Ex Vice Chancellor, Assam Agricultural University, Barbheta, Jorhat, Assam-785 103

Dr. Vasudeo Zambare, Dean & Professor, School of Sciences, Sandip University, Nashik, (MH)-422 213

Dr. Mahendra Kumar Verma, Director, ICAR-Central Institute of Temperate Horticulture, Srinagar, Jammu & Kashmir-190 007

Dr. P.K. Shukla, Principal Scientist, ICAR-Central Institute of Sub-tropical Horticulture, Rehmankhara, Lucknow

Dr. Sankar Prasad Das, Director; ICAR-National Research Centre for Orchids, Pakyong, Gangtok -737106

Dr. Alok Srivastava, Director NBAIM, Mau Nath Bhanjan, Uttar Pradesh-751 003

Dr. Sharad Mohan, Principal Scientist, Division of Nematology, ICAR-Indian Agriculture Research Institute, New Delhi-110 012

Dr. Sachin Suroshe, Principal Scientist & PC, Division of Entomology, ICAR-IARI, Pusa, New Delhi

Dr. E.B. Chakurkar, Director, ICAR-Central Island Agricultural Research Institute, PB No: 181, Port Blair, Andaman & Nicobar-744101

New Editor-in-Chief: Dr. Rajiv Dutta, Dean-Academics and Dean Biological Engineering and Life Sciences, Shobit University, Babu Vijendra Marg, Gangoh Dist. Saharanpur (U.P.)

Editors

Dr. Jagdish Chandra - Former Principal Scientist, Indian Institute of Sugarcane Research, Lucknow

Dr. D.K. Tandon - Ex Principal Scientist CISH Rehmankhara, P.O. Kakori, Lucknow 226101

Prof. R.A. Balikai, Ex- Univ Head, Department of Entomology and Dean U.A.S. Dharwad-580008

ANNUAL MEMBERSHIP FEE EFFECTIVE FROM JANUARY, 2023

	Indian Individual (INR)	Indian Institution (INR)	Foreign Individual (US\$)	Foreign Institution (US\$)
Subscription 1-year	1000.00	4000.00	150.00	200.00
Subscription 2-years	1800.00	8000.00	250.00	400.00
Subscription 3-years	2500.00	11000.00	350.00	500.00
Article Processing Charges	2000.00/article	Not Applicable	50.00 per article	Not Applicable
Life Membership	10000.00	18000.00	1000.00	2500.00

Disclaimer: The views/results and interpretation expressed by the authors are their own. The publisher and editors are no way responsible for any liability arising out of the text contributed by authors.

Owner: Doctor's Krishi Evam Bagwani Vikas Sanstha, Publisher: Dr. Ram Prakash Srivastava, 108, Lekhraj Khazana, Faizabad Road, Lucknow, Printed at: Army Printing Press: 33, Nehru Road, Sadar, Cantt. Lucknow.

18.	Effect of consortium of <i>Chaetomium globosum</i> , <i>Gliocladium rosuem</i> and propiconazole on the expression of defense biochemical enzymes in early blight of tomato _____	85
	<i>Ichini Sudhir and Ram Chandra</i>	
19.	Artificial intelligence in plant disease management _____	93
	<i>Vasundhra Negi, R.S Jarial, Kumud Jarial, Akshay Rana, Kajal and Akhilesh Sharma</i>	
Weed Control		
20.	Efficacy assessment of new generation post emergence herbicides in pigeonpea (<i>Cajanus cajan</i> L.) _____	99
	<i>P.K. Panda, P.M. Mohapatra, I.O.P. Mishra, S. Behera, R.K. Panigrahi and A.A. Prusty</i>	
Eco-friendly Diseases		
21.	Harnessing microbial consortia for eco-friendly disease control and growth enhancement in coconut (<i>Cocos nucifera</i>) cultivation _____	107
	<i>V. Govardhan Rao, Ch. Kiran Kumar, V. Anoosha and M. Sanghamitra</i>	
Residue Management		
22.	Enhancing cotton crop productivity and soil health through cotton stalk residue management techniques in dry farming condition _____	114
	<i>V.D. Vora, P.D. Vekariya, S.C. Kaneria, S.A. Kasetiya and D.S. Hirpara</i>	
Nutritional Management		
23.	Organic nutrient management for enhancing yield, quality and benefit cost ratio of okra (<i>Abelmoschus esculentus</i> (L.) Moench.) var. Arka Anamika in north bank plain zone of Assam _____	121
	<i>Ankita Baro, Nayanmoni Buragohain, B.P. Gautam, H. Choudhury, Ranima Mishra and Kishalayee Gogoi</i>	
24.	Energy dynamics and production efficiency of cabbage (<i>Brassica oleracea</i> var. capitata L.) under site-specific nutrient management in the North Eastern transitional zone of Karnataka _____	127
	<i>S.J. Imamsaheb, S.J. Raveendra, C.N. Hanchinamani and A.G. Patil</i>	
25.	Influence of organic nutrient management practices on beetroot growth, yield, and soil microbial population _____	132
	<i>Dipandita Chetia, Nayanmoni Buragohain, Kishalayee Gogoi, Hemendra Choudhury, Ranima Mishra, Gaurav Lahon and Budha Bora</i>	
26.	Effect of sowing dates and zinc fertilization on soil nutrients availability after harvest of different varieties of wheat (<i>Triticum aestivum</i> L.) _____	137
	<i>Naresh Kumar, Naleeni Ramawat, Ramdev Sutaliya, Sita Ram Kumhar, P.R. Raiger, Dama Ram, Ronak Kuri and Mahendra Junjariya</i>	
27.	Impact of planting geometry and nutrient management on growth and quality of yard long bean (<i>Vigna unguiculata</i> ssp. sesquipedalis) _____	140
	<i>Bedanta Sharma, Manisha Kachari, Sailen Gogoi, Samiron Dutta and Kaushik Das</i>	
28.	Ethrel assisted sett activation combined with nutrient management: Growth behaviour and quality outcomes in single-node sugarcane _____	146
	<i>Voggu Spandana, Anil Kumar Singh, Navnit Kumar and R.S. Bana</i>	
29.	Impact of phosphorus management on protein content, protein yield and economics of cowpea [<i>Vigna unguiculata</i> L. Walp] in loamy sand _____	152
	<i>Rohit Kumar, S.K. Shah, Raju Lal Dhakar and Parveen Kumar</i>	
Post-Harvest Management		
30.	Effect of different concentrations of silver nitrate and aluminium sulphate on the postharvest parameters of gladiolus cv. Priscilla _____	155
	<i>Florence David, Anil K. Singh and Anjana Sisodia</i>	
Irrigation Schedule		
31.	Comparative assessment of critical stage and soil-moisture-depletion irrigation scheduling for wheat using simulation modeling _____	159
	<i>Parmod Sharma, Raj Kumar Jhorar, Devender Singh Bundela, Sanjay Kumar, Kanishk Verma and Narender</i>	
Hybridization		
32.	Evaluation of mean performance of different brinjal hybrids along with parents and standard hybrid checks for yield and yield contributing traits in summer and <i>kharif</i> _____	164
	<i>Parul Mehra, M.N. Bhalekar, Shikha Jain, Urmila Pansare, Shriram Mhaske and Shubham Singh Patel</i>	
Author Index _____		169
Form IV _____		171

Contents

Review Article

1. Assessing the socio-economic dimensions of organic farming in the low hill region of Himachal Pradesh _____1
Jasmeet Kaur, Ankit Yadav, Rakesh Singh, Harbans Lal and K.D. Sharma

Organic Farming

2. Use of chemical fertilizers and organic sources for production of finger millet in eastern Himalayan region _____7
Rekha Yadav, Debia Yashi, Chau Naccaseng Pomoung and Gyan Prakash
3. Enhancing growth and yield of knol khol: Analyzing triacontanol's biochemical mechanisms and comparative effects against untreated controls _____10
Vishal Kumar, Riman Saha Chowdhury, Parvez Mallick, Agniswar Jha Chakraborty, Sourav Mullick and Subhadip Pal
4. Growth and yield performance of foxtail millet landraces under mid-hill Nagaland condition _____14
Lanunola Tzudir, Merentoshi, Kili Awomi, Rekha Yadav and Debika Nongmaithem
5. Effect of substrate variation on the nutritional composition of oyster mushroom (*Pleurotus ostreatus*) _____17
Mallam Udayasri, Ram Chandra, Saurabh Bharti and Tulasi Korra
6. Impact of foliar application of antioxidants and plant growth regulators on growth, yield and quality of tomato (*Solanum lycopersicum* L.) under sub-tropical conditions of Garhwal Himalaya _____20
Nirmal Kumar Kumawat, Deepak Kumar Rana, Khulakpam Naseeruddin Shah, Suryansh Singh, Abhay Singh and Vivek Singh
7. Study on response of summer forage pearl millet (*Pennisetum glaucum* L.) to spacing and seed rate _____25
Dodha Jigarkumar Ratilal, Veeresh Hatti, J.K. Patel, J.R. Patel, P.B. Marviya and Mahendra M. Chaudhary

Entomology

8. Evaluation of efficacy of botanical extracts against *Aphis craccivora* Koch infesting *Vigna radiata* (L.) Wilczek ____31
P.B. Patel and M.K. Jena
9. Population dynamics of key insect-pests of groundnut (*Arachis hypogea* L.) _____38
Buts Kumar Gourav, Devendra Kumar Yadav, Akhileshwar Vishwakarma, Pratiksha Dwivedi and Ajeet Kumar Singh
10. Bioefficacy of novel insecticide Tetraniliprole 200 g l⁻¹ SC (Vayego) against the management of fall armyworm *Spodoptera frugiperda* (J.E. Smith) (Lepidoptera: Noctuidae) on maize _____42
P. Seetha Ramu, P. Jogarao, S. Swetha and M. Suresh Kumar
11. Influence of weather parameters on pollinators in cashew (*Anacardium occidentale* Linn.) _____46
Aparna Krishnan and Nisha Lekshmi V.
12. Impact of morphological parameters on intensity of fall armyworm (*Spodoptera frugiperda* J. E. Smith) in different genotypes of maize _____49
L.S. Chaudhary, C.J. Patel, L.V. Ghetiya and D.K. Ajudia
13. Evaluation of bio-rational and reduced-risk insecticides for managing pod borer complex in pigeonpea _____56
Ipsita O.P. Mishra, A. Kar, P.K. Panda, P.M. Mohapatra and S. Behera
14. Predatory efficiency and functional response of *Apertochrysa astur* to varying densities of *Paraleroles bondari* peracchi _____61
J. Mohitha Reddy, N.B.V Chalapatthi Rao, C.P. Viji, V. Anoosha and V. Govardhan Rao

Plant Pathology

15. Effect of different preservative chemicals to improve the shelf life of harvested oyster mushrooms (*Pleurotus florida*) _____65
Drishti Karn and Ram Chandra
16. Micro-propagated *Musa paradisiaca* L. with *Pseudomonas fluorescens* revealing phytostimulatory activities to reduce the hardening duration _____68
Smitha Thomas, Dhanya B. Pillai and Lizzy Mathew
17. Evaluation of phyto-extracts and bioagents against white rot of pea incited by *Sclerotinia sclerotiorum* (Lib.) de Bary _____81
Ayushi Chamoli and Sanjeev Ravi





Journal of Eco-Friendly Agriculture

Vol. 21, No. 1, January, 2026