Volume 11, Number 3, October 2024





DEPARTMENT OF AGRONOMY AND HORTICULTURE FACULTY OF AGRICULTURE IPB UNIVERSITY

Volume 11 Number 1 October 2024

RESEARCH ARTICLES

Page

ON THE COVER	RESEARCH ARTICLES	rage
A graft of pepper (<i>Piper nigrum</i>) on melada (<i>Piper coclobrinum</i>) to avoid foot rot disease, Central Bangka Regency, Indonesia.	Genetic Diversity of Yellow and Red Berries Arabica Coffee Populations Grown in a Mix Populations in Garut, West Java, Indonesia, Based on SSR Markers	207
Photo by Ani Kurniawati	Andy Agus Cahyono, Sintho Wahyuning Ardie, Rubiyo Rubiyo, Sudarsono Sudarsono	
Chief Executive Editor Krisantini	Determination of Seed Physiological Maturity and Invigoration using Plasma-Activated Water and Ultrafine Bubble Water on Okra Seeds	218
Handling Editor	Siti Nur Syam Ismaniza A., Eny Widajati, Abdul Qadir, Y. Aris Purwanto	
Diny Dinarti	Growth and Yield Performance of Different Mustard Varieties Grown in Barind Tract Soils of Bangladesh	229
Editorial Board	·	
Asmah Awal	Mehedi Hashan Sohel, Md. Fahad Ali, Ali	
Sandra Arifin Aziz	Ahmed, Md. Raduon Ahmed, TonimaTasmim,	
Satriyas Ilyas	Hadia Akhter, Md. Mahabubur Rahman	
Ravindra C. Joshi	Agronomic Evaluation and Yield Potentials of Grafting	
Hayati Minarsih Iskandar	of Piper nigrum and Piper colobrinum	239
Joangtae Lee Fahrul Islam Monshi Bambang Sapto Purwoko Sudarsono	Sitti Nurul Aini, Ani Kurniawati, Nyayu Siti Khodijah, Rhaisyarara Fridahaqi	
Muhamad Syukur	REVIEW PAPER	
Shiraiwa Tatsuhiko		
Ha Minh Tuan	Bibliometric Analysis of a Decade Orchidaceae	
Mehmet Tütüncü	Research: A Comprehensive Study in the Agriculture	0.46
Malcolm Wegener	Field	246
Technical Editor Dhika Prita Hapsari Juang Gema Kartika	Siti Agus Tina, Ni Made Armini Wiendi, Krisantini	



Megayani Sri Rahayu

ON THE COVER

© Department of Agronomy and Horticulture, Faculty of Agriculture, Bogor Agricultural University. All rights reserved. Printed in the Republic of Indonesia. Journal of Tropical Crop Science (Printed ISSN 2356-0169; Electronic ISSN 2356-0177) is published four-monthly (one volume per year) by Department of Agronomy and Horticulture, Faculty of Agriculture, Bogor Agricultural University, IPB Darmaga Campus, Bogor, Indonesia 16680. Send all inquiries regarding printed copies and display advertising to info@j-tropical-crops.com or to Secretary, Department of Agronomy and Horticulture; telephone/fax 62-251-8629353.

Permission to Reprint: Permission to make digital or hard copies of part or all of a work published in Journal of Tropical Crop Science is granted for personal or educational/classroom use provided that copies are not made or distributed for profit or commercial advantage and that copies bear the full citation and the following notice on the first page: "Copyright Department of Agronomy and Horticulture, Faculty of Agriculture, Bogor Agricultural University". For all other kinds of copying, request permission in writing from Head of School, Department of Agronomy and Horticulture office, IPB Darmaga Campus, Bogor, Indonesia 16680.

Volume 11 Number 1 October 2024

ON THE COVER

A graft of pepper (*Piper nigrum*) on melada (*Piper coclobrinum*) to avoid foot rot disease, Central Bangka Regency, Indonesia.

Photo by Ani Kurniawati

Chief Executive Editor

Krisantini

Handling Editor

Diny Dinarti

Editorial Board

Asmah Awal
Sandra Arifin Aziz
Satriyas Ilyas
Ravindra C. Joshi
Hayati Minarsih Iskandar
Joangtae Lee
Fahrul Islam Monshi
Bambang Sapto Purwoko
Sudarsono
Muhamad Syukur
Shiraiwa Tatsuhiko
Ha Minh Tuan
Mehmet Tütüncü

Technical Editor

Malcolm Wegener

Dhika Prita Hapsari Juang Gema Kartika Megayani Sri Rahayu



© Department of Agronomy and Horticulture, Faculty of Agriculture, Bogor Agricultural University. All rights reserved. Printed in the Republic of Indonesia.

RESEARCH ARTICLES

Assessment of Nitrogen Volatilization and Greenhouse Gas Emissions from Urea with N-stabilizer in a Productive Oil Palm Plantation (*Elaeis guineensis* Jacq.)

Bismo Waraqi, Herdhata Agusta, Sudradjat, Hariyadi

260

268

278

287

299

307

Impact of Plant Spacing and Fertilization Dose on the Growth and Yield Traits of Okra (*Abelmoschus* esculentus (L.) Moench) in Sudan.

> Ashraf Izzeldin Abdalla, Einas Amar Salem Mohammed, Mahdi Mohammed Mahdi, and Nahid Tagelsir Khiery

Evaluation of Agronomic and Genetic Diversity in M2V1 Generation of Marigold (*Tagetes erecta* L.)

Noorfakhriyah Ahsanti Nabilah, Syarifah lis Aisyah, Muhamad Syukur, Dewi Sukma

Impact of Salinity Stress on Soybean Growth and Yield under Saturated Soil Culture in Tidal Lands: A Comparative Study of Tolerant Varieties

> Siti Nurminah Nasution, Munif Ghulamahdi, Maya Melati

Variability of Agronomic Traits of Wheat (*Triticum aestivum* L.) Lines in Two Agroecosystems in Indonesia

Mira Herdhani, Yudiwanti Wahyu, Trikoesoemaningtyas

Histological Analysis of Somatic Embryogenesis from Immature Zygotic Embryo of Wild Banana Musa acuminata ssp. malaccensis

Tri Handayani, Diyah Martanti, Apriliana D. Prawestri, Eka F. Tihurua, Awang Maharijaya,

Journal of Tropical Crop Science (Printed ISSN 2356-0169; Electronic ISSN 2356-0177) is published four-monthly (one volume per year) by Department of Agronomy and Horticulture, Faculty of Agriculture, Bogor Agricultural University, IPB Darmaga Campus, Bogor, Indonesia 16680. Send all inquiries regarding printed copies and display advertising to info@j-tropical-crops.com or to Secretary, Department of Agronomy and Horticulture; telephone/fax 62-251-8629353.

Permission to Reprint: Permission to make digital or hard copies of part or all of a work published in Journal of Tropical Crop Science is granted for personal or educational/classroom use provided that copies are not made or distributed for profit or commercial advantage and that copies bear the full citation and the following notice on the first page: "Copyright Department of Agronomy and Horticulture, Faculty of Agriculture, Bogor Agricultural University". For all other kinds of copying, request permission in writing from Head of School, Department of Agronomy and Horticulture office, IPB Darmaga Campus, Bogor, Indonesia 16680.

Volume 11 Number 1 October 2024 ON THE COVER Yudiwanti Wahyu, Sobir, Witjaksono A graft of pepper (Piper nigrum) on Potassium Fertilizer Application Rates for Fertigated melada (Piper coclobrinum) to avoid Edamame Grown on Low-K Soils 320 foot rot disease, Central Bangka Fitri Alfiyah, Heni Purnamawati, Purwono, Anas Regency, Indonesia. Dinurrohman Susila Photo by Ani Kurniawati Production of Sorghum Seed and Straw Biomass for Feed as Affected by Different Harvesting Ages 329 Nazla Iftikhar, Panca Dewi Manu Hara Karti, **Chief Executive Editor** Nur Rochmah Kumalasari, Luki Abdullah, Ghina Krisantini Tazkia Amalia **Handling Editor** Morphological Diversity of "Tuni" and "Afo" Cloves, Diny Dinarti Endemic to the Maluku Islands, Indonesia 335 Muhammad Fajri Aditthia Lating, Asri Subkhan **Editorial Board** Mahulette, Abdul Karim Kilkoda Asmah Awal Sandra Arifin Aziz Genetic Diversity Analysis of Ethiopian Barley Satriyas Ilyas (Hordeum vulgare L.) Genotypes Based on Agronomic Ravindra C. Joshi Traits Using Cluster and Principal Component Analysis 346 Hayati Minarsih Iskandar Sefinew Wale, Tiegist Dejene, Muluken Bayable Joangtae Lee Fahrul Islam Monshi Evaluations of Grass Pea Relay Inter-Cropping with Bambang Sapto Purwoko Wheat on Vertisol in Eastern Amhara Region, Ethiopia 364 Sudarsono Muhamad Syukur Tilahun Taye, Wudu Abiye, Muluken Lebay Shiraiwa Tatsuhiko Ha Minh Tuan Mehmet Tütüncü Malcolm Wegener **Technical Editor**



Dhika Prita Hapsari Juang Gema Kartika Megayani Sri Rahayu

© Department of Agronomy and Horticulture, Faculty of Agriculture, Bogor Agricultural University. All rights reserved. Printed in the Republic of Indonesia. Journal of Tropical Crop Science (Printed ISSN 2356-0169; Electronic ISSN 2356-0177) is published four-monthly (one volume per year) by Department of Agronomy and Horticulture, Faculty of Agriculture, Bogor Agricultural University, IPB Darmaga Campus, Bogor, Indonesia 16680. Send all inquiries regarding printed copies and display advertising to info@j-tropical-crops.com or to Secretary, Department of Agronomy and Horticulture; telephone/fax 62-251-8629353.

Permission to Reprint: Permission to make digital or hard copies of part or all of a work published in Journal of Tropical Crop Science is granted for personal or educational/classroom use provided that copies are not made or distributed for profit or commercial advantage and that copies bear the full citation and the following notice on the first page: "Copyright Department of Agronomy and Horticulture, Faculty of Agriculture, Bogor Agricultural University". For all other kinds of copying, request permission in writing from Head of School, Department of Agronomy and Horticulture office, IPB Darmaga Campus, Bogor, Indonesia 16680.