

Planta Tropika

Jurnal Agrosains (Journal of Agro Science)



0 2 1 6 4 9 9 X
E-ISSN: 2528-7079

Vol. 10 No. 1
February 2022



The Yield Gap of Maize Under Intensive Cropping System in Central Java
VINA EKA ARISTYA, SAMIJAN

The Effectiveness of Oil Palm Empty Bunch Compost and Goat Manure on Shallots Cultivated on Red Yellow Podzolic Soil
MARIANNE REYNELDA MAMONDOL, AMOSSIUS ROMPOLEMB ANDI BASO MERINGGI

The Addition of *Trichoderma* sp. in Various Types of Organic Liquid Fertilizer to Increase NPK Nutrient Uptake and Soybean Production in Ultisol
RAPIALDI, JAMILAH, MILDA ERNITA

Determination of Agronomic Characteristics as Selection Criteria in Potato Crossing Lines
ERNY ISHARTATI, SUFIANTO, AULIA ZAKIA, MADE JANE MEJAYA, RUDY MADIANTO

Weeding Frequencies Improve Soil Available Nitrogen in Organic Paddy Field
MARGI ASIH MAIMUNAH, VALENSI KAUTSAR, PUTU OKI BIMANTARA, SAMUEL MUNYAKA KIMANI, ASIH INDAH UTAMI, RIZA KURNIA SABRI, KEITARO TAWARAYA, SRI NURYANI HIDAYAH UTAMI, BENITO HERU PURWANTO, WEIGUO CHENG

Epiphytic Weeds Control by Root Infusion Method in Oil Palm
EDYSON, FITRAH MURGIANTO, ADHY ARDIYANTO

Histopathological Evaluation of Soybean (*Glycine max* (L.) Merr.) Strains Resistance to *Sclerotium rolfsii* Disease
SITI SAMIYARSIH, CHINDY AYU ERLIANA, JUNI SAFITRI MULJOWATI, NUR FITRIANTO

The Role of Indigenous Mycorrhizae of Corn Plants in Various Soil Types in Gunung Kidul, Indonesia
FANI AULIA DIANNASTITI, SRI NURYANI HIDAYAH UTAMA, JAKA WIDADA

Variability of Agro-morphological Character and Genotype Clustering of Watermelon [*Citrullus lanatus* (Thunberg) Matsum & Nakai] as Basic Selection for New Variety
PUJI LESTARI, BUDI WALUYO

Agrobiodiversity as Necessary Standard for the Design and Management of Sustainable Farming Systems
BRUNO BORSARI



Planta Tropika

Jurnal Agrosains (Journal of Agro Science)

Planta Tropika focuses related to various themes, topics and aspects including (but not limited) to the following topics Agro-Biotechnology, Plant Breeding, Agriculture Waste Management, Plant Protection, Soil Science, Post Harvest Science and Technology, Horticulture. Planta Tropika published two times a year (February and August) by Universitas Muhammadiyah Yogyakarta in collaboration with Indonesian Association of Agrotechnology / Agroecotechnology (PAGI). The subscriptions for one year : IDR 350.000.

Editor in Chief

DINA WAHYU TRISNAWATI
Universitas Muhammadiyah Yogyakarta

Main Handling Editor

YOHANES ARIS PURWANTO
Institut Pertanian Bogor

CHANDRA KURNIA SETIAWAN
Universitas Muhammadiyah Yogyakarta

Editorial Board

ANOMA DONGSANSUK
Khon Kaen University, Thailand

DANNER SAGALA
Universitas Prof. Dr. Hazairin SH. Bengkulu, Indonesia

DEDIK BUDIANTA
Sriwijaya University, Indonesia

EDHI MARTONO
Universitas Gadjah Mada, Yogyakarta, Indonesia

HIRONORI YASUDA
Yamagata University, Japan

IHSAN NURKOMAR
Universitas Muhammadiyah Yogyakarta, Indonesia

KIETSUDA LUENGWILAI
Kasetsart University, Kamphaeng Saen Campus,
Thailand

MOSQUERA-LOSADA MARIA ROSA
University of Santiago de Compostela, Spain

RADIX SUHARJO
Universitas Lampung, Lampung, Indonesia

RIZA ARIEF PUTRANTO
Indonesian Research Institute for Biotechnology and
Bioindustry, Bogor, Indonesia

RUSDI EVIZAL
Faculty of Agriculture University of Lampung, Indonesia

SATO SATORU
Yamagata University, Japan

SITI NUR AISYAH
Universitas Muhammadiyah Yogyakarta, Indonesia

TOTOK AGUNG
University of Jendral Soedirman, Indonesia

Editorial Manager

HERDA PRATIWI
Universitas Muhammadiyah Yogyakarta

Editorial Address

DEPARTMENT OF AGROTECHNOLOGY
Faculty of Agriculture, Universitas Muhammadiyah Yogyakarta
Jl. Brawijaya, Tamantirto, Kasihan, Bantul
Telp (0274) 387646 psw 224
Email: plantatropika@umy.ac.id
Website: <http://journal.umy.ac.id/index.php/pt>

List of Contents

Vol. 10 No. 1 / February 2022



- 1 - 12 The Yield Gap of Maize Under Intensive Cropping System in Central Java
Vina Eka Aristya*, **Samijan**
Assessment Institute for Agricultural Technology of Central Java
- 13 - 26 The Effectiveness of Oil Palm Empty Bunch Compost and Goat Manure on Shallots Cultivated on Red Yellow Podzolic Soil
Marianne Reynelda Mamondol^{1*}, **Amossius Rompolemba Andi Baso Meringgi²**
Study Program of Agribusiness, Faculty of Agriculture, University of Christian Tentena
- 27 - 33 The Addition of *Trichoderma* sp. in Various Types of Organic Liquid Fertilizer to Increase NPK Nutrient Uptake and Soybean Production in Ultisol
Rapialdi, Jamilah*, **Milda Ernita**
Master of Agrotechnology Study Program, Faculty of Agriculture, Universitas Tamansiswa Padang
- 34 - 44 Determination of Agronomic Characteristics as Selection Criteria in Potato Crossing Lines
Erny Ishartati^{1*}, **Sufianto¹**, **Aulia Zakia¹**, **Made Jane Mejaya²**, **Rudy Madianto³**
¹Department of Agrotechnology, Universitas Muhammadiyah Malang
²Indonesian Center and Development for Food Crops Research and Development
³Sumber Brantas, Bumiaji, Batu, 65338, East Java, Indonesia
- 45 - 54 Weeding Frequencies Improve Soil Available Nitrogen in Organic Paddy Field
Margi Asih Maimunah^{1,2}, **Valensi Kautsar^{3,4}**, **Putu Oki Bimantara²**, **Samuel Munyaka Kimani³**, **Asih Indah Utami^{1,2}**, **Riza Kurnia Sabri^{1,2}**, **Keitaro Tawaraya^{2,3}**, **Sri Nuryani Hidayah Utami¹**, **Benito Heru Purwanto^{1*}**, **Weiguo Cheng^{2,3}**
¹Faculty of Agriculture, Universitas Gadjah Mada
²Faculty of Agriculture, Yamagata University
³The United Graduate School of Agricultural Sciences, Iwate University, Japan
⁴Faculty of Agriculture, Stiper Agricultural University
- 55 - 61 Epiphytic Weeds Control by Root Infusion Method in Oil Palm
Edyson*, **Fitrah Murgianto**, **Adhy Ardiyanto**
Bumitama Gunajaya Agro Research Center
- 62 - 68 Histopathological Evaluation of Soybean (*Glycine max* (L.) Merr.) Strains Resistance to *Sclerotium rolfsii* Disease
Siti Samiyarsih^{1*}, **Chindy Ayu Erliana¹**, **Juni Safitri Muljowati²**, **Nur Fitrianto³**
¹Department of Botany, Faculty of Biology, Universitas Jenderal Soedirman
²Department of Microbiology, Faculty of Biology, Universitas Jenderal Soedirman
³Research and Technology Center for Application of Isotope and Radiation, National Research and Innovation Agency of Indonesia (BRIN)
- 69 - 83 The Role of Indigenous Mycorrhizae of Corn Plants in Various Soil Types in Gunung Kidul, Indonesia
Fani Aulia Diannastiti, **Sri Nuryani Hidayah Utama***, **Jaka Widada**
Faculty of Agriculture, Universitas Gadjah Mada
- 84 - 91 Variability of Agro-morphological Character and Genotype Clustering of Watermelon [*Citrullus lanatus* (Thunberg) Matsum & Nakai] as Basic Selection for New Variety
Puji Lestari, **Budi Waluyo***
Department of Agronomy, Faculty of Agriculture, Universitas Brawijaya Malang
- 92 - 101 Agrobiodiversity as Necessary Standard for the Design and Management of Sustainable Farming Systems
Bruno Borsari^{1,2}
¹Biology Department, Winona State University, Winona, MN 55987, USA
²Minnesota State College Southeast, Winona, MN 55987, USA

Editorial

Journal of Planta Tropika ISSN 0216-499X published by Study Program of Agrotechnology, Faculty of Agriculture, Universitas Muhammadiyah Yogyakarta, is journal presenting scientific articles of agricultural science (Journal of Agro Science). With full sense of gratitude to the Almighty Allah, Volume 10 Number 1 for the year of 2022 has been published.

In this edition, Journal of Planta Tropika presents seven research articles in the field of Agro sciences comprising post harvest physiology, crop cultivation system, weeds management, tissue culture, land management, and climate. The scientific articles discuss about:

(1) The Yield Gap of Maize Under Intensive Cropping System in Central Java, (2) The Effectiveness of Oil Palm Empty Bunch Compost and Goat Manure on Shallots Cultivated on Red Yellow Podzolic Soil, (3) The Addition of *Trichoderma* sp. in Various Types of Organic Liquid Fertilizer to Increase NPK Nutrient Uptake and Soybean Production in Ultisol, (4) Determination of Agronomic Characteristics as Selection Criteria in Potato Crossing Lines, (5) Weeding Frequencies Improve Soil Available Nitrogen in Organic Paddy Field, (6) Epiphytic Weeds Control by Root Infusion Method in Oil Palm, (7) Histopathological Evaluation of Soybean (*Glycine max* (L.) Merr.) Strains Resistance to *Sclerotium rolfsii* Disease, (8) The Role of Indigenous Mycorrhizae of Corn Plants in Various Soil Types in Gunung Kidul, Indonesia, (9) Variability of Agro-morphological Character and Genotype Clustering of Watermelon [*Citrullus lanatus* (Thunberg) Matsum & Nakai] as Basic Selection for New Variety, and (10) Agrobiodiversity as Necessary Standard for the Design and Management of Sustainable Farming Systems

The editors would like to thank the authors, reviewers, executive editors, leaders and LRI UMY for their participation and cooperation. Our hope, this journal can be useful for readers or be a reference for other researchers and useful for the advancement of the agriculture.

Editors

GUIDE FOR AUTHORS

TYPE OF PAPERS

PLANTA TROPIKA receives manuscripts in the form of research papers in Bahasa Indonesia or English. The manuscript submitted is a research paper that has never been published in a journal or other publication.

SUBMISSION

The submission of the manuscript is done through our journal website <http://journal.umy.ac.id/index.php/pt/index>. If you need information regarding the process and procedure for sending the manuscript, you can send it via email at plantatropika@umy.ac.id. Editor's address: Program Studi Agroteknologi, Fakultas Pertanian, Universitas Muhammadiyah Yogyakarta, Jl. Ring Road Selatan, Tamantirto, Kasihan, Bantul, Telp (0274) 387646 psw 224, ISSN: 2528-7079.

ARTICLE STRUCTURE

The submitted manuscripts should consist of 15-20 pages of A4 size paper with 12-point Times New Roman fonts, 1.5 spacing with left-right margin and top-bottom of the paper is 2.5 cm each. All manuscript pages including images, tables and references should be page-numbered. Each table or picture should be numbered and titled.

The systematic of the manuscript writing is as follows:

TITLE : The title should be brief and informative and written bold. Only the first letter of the words is written in uppercase. Maximum length should be 14 words.

AUTHOR NAMES : The author names should be written in lowercase letters (only the first letter of the words is written in uppercase) and should be written from the first author and followed by the others along with the marker of each author's affiliation.

AUTHOR AFFILIATIONS : The author affiliation should be written in lowercase letters (only the first letter of the words is written in uppercase) and it is written according to the order of the number marker of each author's affiliation.

EMAIL : Please list one of authors' email address used for paper's correspondence.

ABSTRAK : Abstrak is written in Bahasa Indonesia using single space in a paragraph with maximum length of 200 words. It should contain background, objective, method, results, and conclusion followed by keywords containing maximum of 5 words.

ABSTRACT : Abstract is written in English using single space in a paragraph with maximum length of 200 words. It should contain background, objective, method, results, and conclusion followed by keywords containing maximum of 5 words.

INTRODUCTION : Introduction contains background, hypothesis or problem outline, and the objective of the research.

MATERIALS AND METHOD : Explaining in detail about materials and method used in the research as well as the data collection and analysis.

RESULT AND DISCUSSION : The results of the research should be clear. State the results collected according to analyzed data. Discussion should include the significance of the results.

CONCLUSION : Authors are expected to give brief conclusion and to answer the objective of the research.

ACKNOWLEDGEMENT : If necessary.

REFERENCES : Single space, according to the authors' guide of *Planta Tropika*.

EXAMPLES ON HOW TO WRITE REFERENCES

References are written in alphabetical order according to the rules below:

REFERENCE TO A BOOK

Gardner, F.P., R.B. Pearce, and R.L. Mitchell. 1991. *Fisiologi Tanaman Budidaya* (Translated by Herawati Susilo). UI Press. Jakarta.

REFERENCE TO A JOURNAL PUBLICATION

Parwata, I.G.M.A., D. Indradewa, P.Yudono dan B.Dj. Kertonegoro. 2010. Pengelompokan genotipe jarak pagar berdasarkan ketahanannya terhadap kekeringan pada fase pembibitan di lahan pasir pantai. *J. Agron. Indonesia* 38:156-162.

REFERENCE TO A THESIS/DISSERTATION

Churiah. 2006. Protein bioaktif dari bagian tanaman dan akar transgenic Cucurbitaceae serta aktivitas antiproliferasi galur sel kanker *in vitro*. Disertasi. Sekolah Pascasarjana. Institut Pertanian Bogor. Bogor.

REFERENCE TO AN ARTICLE IN PROCEEDING

Widaryanto dan Damanhuri. 1990. Pengaruh cara pengendalian gulma dan pemberian mulsa jerami terhadap pertumbuhan dan produksi bawang putih (*Allium sativum* L.). *Prosiding Konferensi Nasional X HIGI* hal. 376-384.

FIGURE FORMATTING

Title should be given **below each figure**. Additional information (notes) should be written in lowercase letters except the first letter in each sentence. All figures need to be numbered respectively. Figures should be placed close to explanation/discussion about the figure.

Examples :

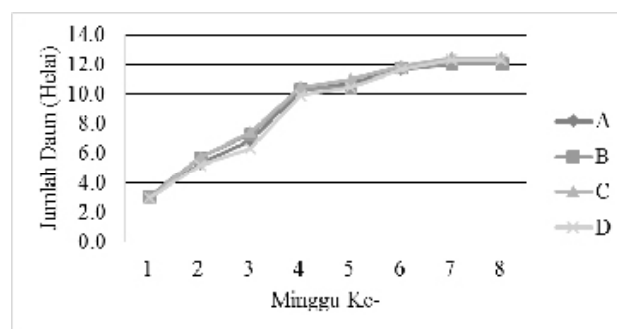


Figure 1. Number of leaves of corn plant

Notes:

A = 250 kg KCl/ha + 0 kg KJP/ha

B = 125 kg KCl/ha + 273,89 kg KJP/ha

C = 62,5 kg KCl/ha + 410,84 kg KJP/ha

D = 0 kg KCl/ha + 547,79 kg KJP/ha

Fig. 1., Fig. 2., and so on. The title of the figure is written with lowercase letters (use uppercase letter at the beginning of the title only) and without full stop (.). Additional information (notes) is placed below the figure.

TABLE FORMATTING

The **title** of the table should be written **above the table** started from the left (left alignment). Additional information related to the table (notes) is placed below the table. The information is written in uppercase letters at the beginning only as well as the titles inside the table. Table is placed close to the discussion of the table.

Examples :

Table 1. Fruit compost analysis

Variable	Jatropha before composted	Jatropha after composted	SNI (National standard) for compost	Category
Water content	22,49 %	45,79 %	≤ 50 %	Qualified
pH	7,05	8,02	4-8	Qualified
C-Organic content	10,01	5,11	9,8-32 %	Not qualified
Organic matter	17,42 %	8,81 %	27-58	Not qualified
N-Total	0,97 %	2,69 %	< 6 %	Qualified
C/N Ratio	10,44	1,90	≤ 20	Qualified
Potassium	-	9,06 %	< 6 %**	Qualified

Notes: **) Certain materials originated from natural organic matters are allowed to contain P₂O₅ dan K₂O level > 6% (proved with the results of laboratory analysis).