ICSAE-IX

9th International Conference on Sustainable Agriculture and Environment

Programme and Abstracts Book

Online conference | 24-25 August 2022
Surakarta, Indonesia

This conference held by
Research and Development Center for Biotechnology and Biodiversity, Universitas Sebelas Maret, Indonesia

in collaboration with:
Faculty of Agriculture, UNS, Indonesia
Faculty of Art and Design, UNS, Indonesia
Faculty of Economic and Business, UNS, Indonesia

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Conference Guide

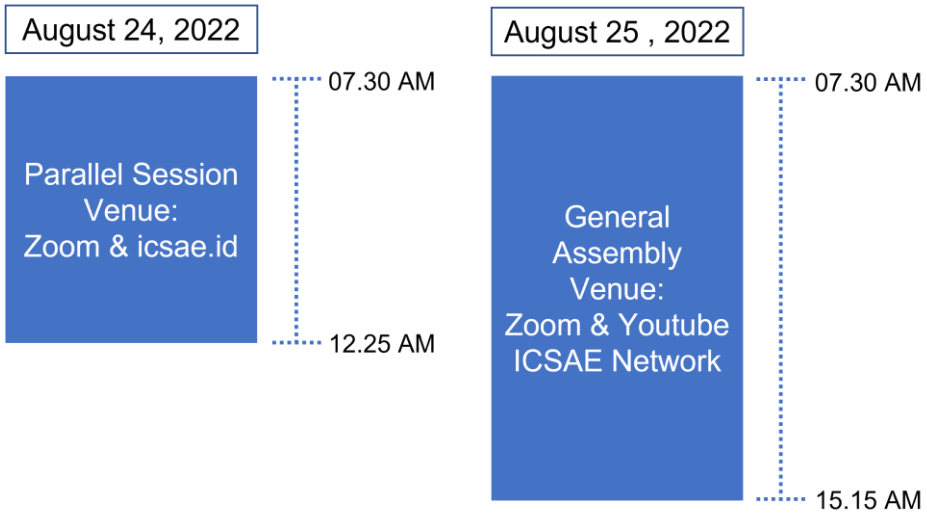
As informed, ICSAE-IX will be held online. There are two different sessions in this conference, namely parallel session and general assembly.

There are two different sessions in this conference, namely parallel session and general assembly. The parallel session can be accessed through Zoom for oral presentations and Website https://icsae.id for poster presentation.

The generall assembly, invited speakers talk, will be performed through Zoom meeting and streamed via Youtube ICSAE Network. Both stages can be enjoyed by all participants which are listed and/or invited with the following time frame:

1. Parallel session : August 24, 2022
2. General assembly : August 25, 2022

ICSAE-IX Stages



Parallel Session Guide

The parallel session will be held on August 24, 2022. Author can choose preferable presentation methods, either Oral or Poster presentation.

For oral presentation, authors should prepare and submit a pre-recorded video presentation. While, for poster presentation, authors should prepare and submit digital poster. Below are the guidelines for parallel sessions.

1. Oral Presentation

Presentation schedule and Zoom Link are available on the page next page.

On the conference day, the Committee will play video presentations in parallel for every 3 presenters. It will be continued with live discussion for 5 minutes led by Room Chair. Thus, we hope that all authors join the Zoom room during parallel session. Oral presentation schedule will be provided on the next page.

The presenters are free to choose preferred video recording platform, however we suggest using Zoom recording, because it is easy to use and has a small file size. You may adapt the methods from this link https://www.youtube.com/watch?v=kDfCq-pLZQI.

Recorded video presentation requirements:

- MP4 format
- Maximum size 30 MB
- Video duration maximum is 7 minutes
- Please introduce presenter name, for certificate purposes
- Submit video presentation through EasyChair

Please note that a presenter certificate will be given to the presenter recorded in the video. Another author who joined the parallel session will get a participant certificate. Presented manuscript and listed author will receive a manuscript certificate.

2. Poster Presentation

Digital poster shows can be accessed through the conference website (https://icsae.id). Discussion can be done by commenting on the web page.

Digital poster requirements:

- PDF format
- Maximum size 5 MB
- Paper size A3 vertical
- Kindly put on the poster: Presentation title, authorship and affiliation
- Submit digital poster through EasyChair

Please note that a presenter certificate will be given to the presenter previously selected in the EasyChair platform. Presented manuscript and listed author will receive a manuscript certificate.

General Assembly Session Guide

The ICSAE-IX general assembly will be held on August 25, 2022. Invited speakers talk, will be performed through Zoom live meeting, all authors can join and participate in the session. General assembly rundown will be on the next page.

During the general assembly, please follow the rules below.

- All authors listed in the manuscript can freely join in the general assembly
- During Zoom meeting, Participants are required to using proper ID indicating the real name
- Please use virtual background which will be share by committee a day before conference
- The attendance form will be shared by the committee during the conference, participants must fill the form to get participant certificate
- Please mute the microphone to avoid noise distraction
- The participants are welcome to ask the question via chatroom with the following format (Name_Affiliation_To Whom_Question)

General Assembly Rundown

Date 25 August 2022

SESSION	TIME (GMT+7)	ACTIVITIES	PERSON IN CHARGE
Opening	07.30-08.00	Registration and preparation	Committee
	08.00-08.05	Opening	MC
	08.05-08.10	Indonesian National Anthem	Committee
	08.10-08.16	Welcome Address	Dean Faculty of Agriculture, Universitas Sebelas Maret
	08.16-08.22	Greeting to Participant	Head of the Institute of Research and Community Services, Universitas Sebelas Maret
	08.22-08.30	Opening Remarks	Vice Rector for Academic and Student Affairs, Universitas Sebelas Maret
Invited Speaker 1	08.30-08.35	Preparation and announcements	MC
	08.35-09.15	**Talk of Dr. Serkan Ates**	Moderator
	09.15-09.30	Q n A	Moderator
	09.30-09.35	Closing for Session 1 and remarks	Moderator
Invited Speaker 2	09.35-09.40	Preparation and announcements	MC
	09.40-10.20	**Talk of Assoc. Prof. Ts. Dr Shamsiah Abdullah**	Moderator
	10.20-10.35	Q n A	Moderator
	10.35-10.40	Closing for Session 2 and remarks	Moderator
Invited Speaker 3	10.40-10.50	Preparation and announcements	MC
	10.50-11.30	**Talk of Prof. Ferry Jie**	Moderator
	11.30-11.45	Q n A	Moderator
	11.45-11.50	Closing Session 3 and remarks	Moderator
Break	11.50-13-00	Announcements and break	Committee
Invited Speakers 4 and 5	13.00-13.15	Preparation and announcements	MC
	13.15-13.55	**Talk of Dr. Alexandra Crosby**	Moderator
	13.55-14.35	**Talk of Dr. Andi Setiawan**	Moderator
	14.35-14.50	Q n A	Moderator
	14.50-15.00	Closing remarks	Moderator
Closing	15.00-15.15	Announcements and closing	MC

Oral Presentation Schedule

Room 1. Agricultural Production, Biotechnology and Economics

Date : 24 August 2022

Place : Zoom https://bit.ly/icsae9-room1

Meeting ID: 953 0497 9101 Passcode: 384629

Time (GMT+7)	Activities/ID	Title
07.30-08.00	Presenters and participants enter the room	
08.00-08.10	Opening by Room Chair	
08.10-08.17	ID 30	Genetic Variability, Correlation and Path Coefficient among Agronomic Characters of Soybeans [Glycine max (L.) Merr.] Lines *Heru Kuswantoro and Juli Santoso*
08.17-08.24	ID 37	Co-compost Biochar as a Soil Ameliorant for Improving Soil Chemical Properties and Maize Yield in Acidic Upland East Lampung *Neneng Nurida and Jubaedah Jubaedah*
08.24-08.31	ID 45	Efficacy of moringa leaf extract and cow manure to soybean growth and yield *Haryuni, Isnan Yuda Atmaja, Teguh Supriyadi, Sapto Priyadi, Agus Budiyono and Mrihrahayu Rumaningsih*
08.31-08.36	Discussion	
08.36-08.43	ID 72	Phenotype Performance of M1 Generation of Bima Shallot (Allium cepa L. var. Ascalonicum) result of Ethyl Methane Sulfonate induced *Zulfahmi, Dedi Affandi, Mahmuzar, Rosmaina and Gusrinaldi*
08.43-08.50	ID 81	Genetic diversity of strawberry (Fragaria x ananassa) var. Earlibrite mutant as revealed by ISSR molecular marker induced by gamma rays irradiation *Hidayatul Arisah, Darmawan Saptadi, Sumeru Ashari, Dita Agisimanto and Farida Yulianti*
08.50-08.57	ID 82	Screening of simple sequence repeats (SSR) primers from mutated plants from Indigofera zolligeriana *Juwartina Ida Royani, Dudi Hardianto and Tri Handayani*
08.57-09.02	Discussion	
09.02-09.09	ID 105	The effect of giving various doses of KCL fertilizer on the growth and yield of red ginger (Zingiber officinale var. Rubrum) *Supriyono, Ahmad Taufik, Sulandjari and Djoko Purnomo*
09.09-09.16	ID 124	Upland Rice Growth on Giving of Biochar and Organic Fertilizer *Muji Rahayu, Amalia Sakya, Aprilia Nurmalasari and Kartika Aprilya*
09.16-09.23	ID 130	The Effect Of Liquid Organic Fertilizer On Growth And Yield Of Porang (Amorphophallus Muelleri Blume) *Supriyono, Talitha Syahda, Puji Harsono and Sulandjari*
09.23-09.28	Discussion	
09.28-09.35	ID 155	The Use of Biochar and Biofilm Biofertilizer (BiO2) to Increase Rice Yield *Sudadi Sudadi, Tri Wida Rachmadani, Vita Ratri Ratri Cahyani and Slamet Minardi*
09.35-09.42	ID 179	Effects of Different Organic Fertilizers on Growth and Yield Potential of Solanum melongena (Eggplant) *Nur Ikram Aliff Mahamad, Siti Nurul Atikah Abu Samah and Muhammad Noor Azizan Mohd Khidzir*
09.42-09.49	ID 205	Optimisation of Yield on Peanut-Sorghum Intercropping in Dry Land, North Lombok *Akhmad Zubaidi, Dwi Ratna Anugrahwati, Herman Suheri, I Komang Damar Jaya and Suwardji*
09.49-09.54	Discussion	
09.54-10.20	Break	

Room 1 (Continue)		
Time (GMT+7)	**Activities/ID**	**Title**
10.20-10.30	Opening by Room Chair	
10.30-10.37	ID 7	The Effect Of Collaboration Between Elements For The Progress Of Rubber Cooperatives In Riau Province, Indonesia *Elfi Rahmadani and Khoiriah Khoiriah*
10.37-10.44	ID 25	Site-Specific Red Chili (Capsicum annuum) Growth and Yield on Katingan Dryland in Central Kalimantan *Ronny Yuniar Galingging and Sri Agustini*
10.44-10.51	ID 52	Factors Influencing Biological Asset Disclosures in Agricultural Companies in Indonesia *Siti Rochmah Ika, Romi Susetyo, Angelia Pribadi, Titop Dwiwinarno and Ari Kuncara Widagdo*
10.51-10.56	Discussion	
10.56-11.03	ID 61	A Review on Participation of Cocoa Smallholders in Agricultural Certification Scheme *Ahmad Lukman Rusli and Ts. Dr. Fazleen Abdul Fatah*
11.03-11.10	ID 73	Pineapple Genetic Diversity in Riau Peat Land Assessed by Random Amplified Polymorphic DNA (RAPD) Marker *Rosmaina, Nugroho Febriandi, Ervina Aryanti, Rita Elfianis, Nilahayati and Zulfahmi*
11.10-11.17	ID 89	Chelated Copper-Zinc as Potential for Foliar Fertilizers Based on Different PH and Electrical Conductivity *Mohamad Faris Saiman and Nur Maizatul Idayu Othman*
11.17-11.22	Discussion	
11.22-11.29	ID 91	Effects of Acute Gamma Irradiation on the Morphology of Stevia rebaudiana *Aida Khalida Hamdan, Shamsiah Abdullah, Nor Azma Yusuf and Azhar Mohamad*
11.29-11.36	ID 104	Institutional development of farmers through agricultural area-based corporations in Indonesia *Panji Harjanto, Imam Mujahidin Fahmid, Muhammad Saleh S Ali and Eymal Bashar Demmallino*
11.36-11.43	ID 138	Organic Materials and Fish Emulsion on Banana Shoots Multiplication of Cavendish Banana Shoots (Musa paradisiaca 'Cavendish') *Jati Widnu Charantika, Samanhudi, and Amalia Tetrani Sakya*
11.43-11.48	Discussion	
11.48-11.55	ID 140	The diversity of wild Tampoi (Baccaurea, Phyllantaceae) and their potential for improving livelihoods for local people in Aceh, Indonesia *Zidni Ilman Navia, Adi Bejo Suwardi and Tisna Harmawan*
11.55-12.02	ID 146	Profit Functions Of Catfish Farming For Increasing Household Income In Pekanbaru City Riau Province *Elinur Elinur, Asrrol Asrol, Heriyanto Heriyanto and Sisca Vaulina*
12.02-12.09	ID 166	Value Chain Mapping of Porang Commodity (Amorphophallus muelleri) in Wonogiri Regency *Sugiharti Mulya Handayani, Fanny Widadie, Endang Siti Rahayu, Heru Irianto, Setyowati Setyowati and Mei Tri Sundari*
12.09-12.14	Discussion	
12.14-12.24	Closing	

Room 2. General Agriculture and Animal Science

Date : 24 August 2022
Place : Zoom https://bit.ly/icsae9-room2
Meeting ID: 961 3455 8805 Passcode: icsae-9

Time (GMT+7)	Activities/ID	Title
07.30-08.00	Presenters and participants enter the room	
08.00-08.10	Opening by Room Chair	
08.10-08.17	ID 12	The Primipara Reproductive Performance Of Bali Cattle With Natural Mating Compared To Artificial Insemination *Yazid Fride Ramadhan, Adi Tiya Warman, Hamdani Maulana, Bayu Andri Atmoko and Endang Baliarti*
08.17-08.24	ID 17	The qualitative characteristics differences of Simmental-Bali crossed cows compare to Bali cows in West Nusa Tenggara, Indonesia *Riesta Qoyyum Chusna, Yazid Fride Ramadhan, Galih Trie Fadhilah, Adi Tiya Warman, Dyah Maharani, Bayu Andri Atmoko and Endang Baliarti*
08.24-08.31	ID 68	Effect of Methionine Hydroxy Analog (MHA) or Dextrose Supplementation on Physiological Responses and Behavior of Sheep Under Transportation Stress *Muhamad Baihaqi, Henny Nuraini, Anuraga Jayanegara and Wasmen Manalu*
08.31-08.36	Discussion	
08.36-08.43	ID 70	The ATP1A1 Gene Polymorphisms in Indonesian Beef Cattle *Peni Prihandini, Aprilianna Sari, Yenny Anggraeni, Sulistiyoningtiyas Irmawanti and Bess Tiesnamurti*
08.43-08.50	ID 71	Physiological responses of several beef cattle breeds based on environment conditions in Beef Cattle Research Station *Sulistiyoningtiyas Irmawanti, Luthfi Muchamad and Peni Prihandini*
08.50-08.57	ID 100	Cattle Corporation Village Program as Small-Scale Farmer Group Empowerment to Support National Beef Self Sufficiency *Agung Suganda, Darmawan Salman, Syahdar Baba and Imam Mujahidin Fahmid*
08.57-09.02	Discussion	
09.02-09.09	ID 151	Effect of Substrate Nutrient Content Level on Nutritional Expression of Hermetia illucens: A meta-Analysis *Mochamad Dzaky Alifian*
09.09-09.16	ID 170	The nutritional quality of silverside and chuck meat of thin-tailed lamb fed rations containing protected soy groats in various ratios *Joko Riyanto, Sudibya Sudibya and Anti Riyanti*
09.16-09.23	ID 175	Repeatability and most probable producing ability of egg weight and one-day-old chick weight in Merawang chicken *Siti Solekah, Aprilianna Putri Zahara Nafsina Luvita Sari, Yesita Vera Saraswati, Heru Sasongko and Dyah Maharani*
09.23-09.28	Discussion	
09.28-09.35	ID 180	Metagenomic analysis of non-pathogenic and pathogenic cecal bacteria profiles in quail supplemented with betaine *Luthfi A. Pradista, Sigit Prastowo, Nuzul Widyas and Adi Ratriyanto*
09.35-09.42	ID 183	Protein to protein interaction of genes responsible for economic trait of Madura Cattle: an in silico analysis *Tristianto Nugroho and Sigit Prastowo*
09.42-09.49	ID 192	Effects of different floor spaces and betaine supplementation on performance and physiology of quails *Gunna M. Rantau, Adi Ratriyanto and Nuzul Widyas*
09.49-09.54	Discussion	
09.54-10.20	Break	

Room 2 (Continue)		
Time (GMT+7)	**Activities/ID**	**Title**
10.20-10.30	Opening by Room Chair	
10.30-10.37	ID 4	Maize farmers' responses to Spodoptera frugiperda in Indonesia and management practices. A case study in West Java *Wara Asfiya, Aji Winara, Agus Ruswandi, Vani Subagyo, Fatimah and Yani Maharani*
10.37-10.44	ID 16	Geographical Region and Exterior Characteristics Analysis of Bligon Goat for Livestock Development Based on Landform Aspects (a Case Study of Bantul District, Special Region of Yogyakarta) *Bambang Haryanto, Andy Bhermana, Bambang Heryanto, Reny Rahmawati, Bayu Atmoko, Siti Andarwati and Panjono*
10.44-10.51	ID 20	Effect of Type and Concentration of Microbial Starter On the Physicochemical Characteristics of Porang Flour *Heny Herawati, Elmi Kamsiati, Annisa Rizka Pratiwi and Sunarmani*
10.51-10.56	Discussion	
10.56-11.03	ID 47	Determination of consumer preferences on goat milk products *Asmaul Khusna, Mujtahidah Anggriani Ummul Muzayyanah and Muhammad Riyan Fitriyanto*
11.03-11.10	ID 48	Diversity of agarwood-inducing fungi from Gyrinops versteegii tree *Yuda Purwana Roswanjaya, Henti Rosdayanti and Winda Nawfetrias*
11.10-11.17	ID 65	The Effect of biochar from agricultural waste on available Silicon in Ultisol and Inceptisol under flooded conditions *Hery Widijanto, Suntoro Suntoro, Mujiyo Mujiyo and Jauhari Syamsiyah*
11.17-11.22	Discussion	
11.22-11.29	ID 69	Extraction of chitin and chitosan black soldier fly (Hermetia illucens) prepupa phase on characterization and yield *Edhy Mirwandhono, Muheri Indra Aja Nasution and Yunilas Yunilas*
11.29-11.36	ID 113	The Attack of Spodoptera frugiperda (J. E. Smith) (Lepidoptera: Noctuidae) on Sorghum *Sempuna Ginting*
11.36-11.43	ID 114	Squash leaf curl China Virus associated with Yellow Mosaic Disease of Pumpkin in Bengkulu, Indonesia *Mimi Sutrawati, Nadrawati Nadrawati, Dwi Wahyuni Ganefianti and Listihani Listihani*
11.43-11.48	Discussion	
11.48-11.55	ID 122	Comparative efficacy between premium and generic herbicides of Glufosinate Ammonium to control weed species in oil palm plantation. *Noor Nayli Mohamad Jabit, Siti Nur Anisah Aani, Muhammad Saiful Ahmad Hamdani, Norazua Zakaria and Mohammad Zuhair Zainal Abidin*
11.55-12.02	ID 152	The Correlation between Farmers' Motivation and Perception with Commitment to Raising Buffalo in Pemalang Regency *Krismiwati Muatip, Hermin Purwaningsih, Alief Enstein, Oentoeng Edy Djatmiko, Sri Mastuti, Nunung Noor Hidayat, Rahayu Widiyanti, Yusmi Nur Wakhidati, Lis Safitri and Danang Nur Cahyo*
12.02-12.09	ID 186	Regional Analysis of Large Chili Commodities (Capsicum Annum L.) in Kolaka Regency *Hapry Aljaninansya, Sri Marwanti and Umi Barokah*
12.09-12.14	Discussion	
12.14-12.24	Closing	

Room 3. Sustainable Development Goal in Agriculture, Environment, and Green Economics

Date : 24 August 2022
Place : Zoom https://bit.ly/icsae9-room3
Meeting ID: 977 3346 5762 Passcode: 011818

Time (GMT+7)	Activities/ID	Title
07.30-08.00	Presenters and participants enter the room	
08.00-08.10	Opening by Room Chair	
08.10-08.17	ID 27	The effectiveness of Fipronil active substances compared with imidacloprid to control Germany's cockroaches (Blatella germanica L.) *Niken Subekti, Retno Wulandari and Roderikus Rayditya Milanio*
08.17-08.24	ID 28	The effectiveness of the fipronil and imidacloprid active substances to control weaver ants (Oecophylla smaragdina) *Niken Subekti, Retno Wulandari and Roderikus Rayditya Milanio*
08.24-08.31	ID 36	CSR and Environmental Values Internalization Since Childhood: PAUD Harmoni Case *Sri Hilmi Pujihartati, Ismi Dwi Astuti Nurhaeni, Drajat Tri Kartono and Argyo Demartoto*
08.31-08.36	Discussion	
08.36-08.43	ID 50	Corporate Social Responsibility of Tourism during the COVID-19 Pandemic: Case Study of PT TWC Borobudur *Rahesli Humsona, Mahendra Wijaya, Drajat Kartono and Agung Wibowo*
08.43-08.50	ID 51	A Study on The Benefits and Intention to Implement Urban Agriculture Among Urban Dwellers. *Muhammad Sallehudin Ali and Selvakkumar K.N Vaiapuri*
08.50-08.57	ID 75	Land Function Transfer: The Transformation of Agriculture Land to Agriculture Tourism Sites in Polobogo, Semarang *Nanang Wijayanto, Tomi Agfianto, Fatma Ulfatun Najicha and Ariyanto Adhi Nugroho*
08.57-09.02	Discussion	
09.02-09.09	ID 111	Environmental Wisdom in the Tale of the King of Pigs as an Alternative to Strengthen Policy for Sustainable Development Goals (SDGs) *Asep Yudha Wirajaya, Trisna Kumala Satya Dewi, Bani Sudardi, Istadiyantha Istadiyantha and Bagus Kurniawan*
09.09-09.16	ID 142	Waroeng Spesial Sambal Indonesia's Corporate Social Responsibility Sustainability Model *Nugroho Hasan, Dwiningtyas Padmaningrum and Eksa Rusdiyana*
09.16-09.23	ID 143	Dhukutan Rite: Efforts to Save the Environment in the Lawu Area, Karanganyar *Asep Yudha Wirajaya, Deny Tri Ardianto and Dedy Eka Timbul Prayoga*
09.23-09.28	Discussion	
09.28-09.35	ID 145	Environmental Ethics Myth of the Rice Goddess "Dewi Sri" in Javanese Society as an Alternative to Contribution to Sustainable Development Goal *Trisna Kumala Satya Dewi, Asep Yudha Wirajaya, Bani Sudardi, Istadiyantha Istadiyantha and Bagus Kurniawan*
09.35-09.42	ID 165	Factor Affecting Chilli Market Supply Towards Sustainable Domestics Production *Muhammad Sallehudin Ali, Nur Badriyah Kamarul Zaman, Zakirah Othman, Wan Noranida Wan Mohd Noor and Nur Maizatul Idayu Othman*
09.42-09.49	ID 187	ESG-Based investment products: a burden or an answer for corporate sustainability? *Vinka Sindy Agustin, Atmaji Atmaji and Arum Setyowati*
09.49-09.54	Discussion	
09.54-10.20	Break	

Room 3 (Continue)		
Time (GMT+7)	**Activities/ID**	**Title**
10.20-10.30	Opening by Room Chair	
10.30-10.37	ID 15	Farmer income analysis: Cocoa farming with side grafting technique (Case study in Mappesangka Village, South Sulawesi, Indonesia) *Baharuddin Baharuddin, Agus Tang, Aylee Christine, Andi T. Fitriyah and Ratri R. Utami*
10.37-10.44	ID 42	Coping strategy of porang farmer's household in anticipating long harvest period: Empirical study in Wonogiri Regency, Indonesia *Heru Irianto, Erlyna Wida Riptanti and Mujiyo Mujiyo*
10.44-10.51	ID 133	Cost Benefit Analysis of the Establishment of an Environment-based Regional-Owned Enterprises (BUMD) in Tourism Sector in Magetan Regency *Aulia Hapsari Juwita, Dwi Prasetyani, Vita Kartika Sari and Akhmad Daerobi*
10.51-10.56	Discussion	
10.56-11.03	ID 167	The Determinants of Cocoa Export Growth to the Main Export Destination Countries *Dwi Putri Jeng Ivo Nurun Nisa, Darsono Darsono and Ernoiz Antriyandarti*
11.03-11.10	ID 176	Non-Wood Forest Products Potency from Community Forest in Gempolan Village, Karanganyar Regency, Central Java *Amabel Nola Dwi Asmara, Elmi Makrifah, Nanda Muhamad Yusuf Mahendra, Qonia Az Zahra, Putri Waryanti, Yus Andhini Bhekti Pertiwi, Ana Agustina, Rissa Rahmadwiati, Rezky Lasekti Wicaksono, Dwi Apriyanto and Ike Nurjuita Nayasilana*
11.10-11.17	ID 185	Community paradigm towards green economy movement to support sustainable development *Wisnu Waskitho Aji, Lilik Wahyudi and Tastaftiyan Risfandy*
11.17-11.22	Discussion	
11.22-11.29	ID 189	The Role of Budgeting in Realizing a Green Economy and Economic Growth *Surti Nur Hidayati, Joko Suyono and Deny Dwi Hartomo*
11.29-11.36	ID 191	Training on Financial Management of Sinar Karungan BUMDes and Pineapple Fiber Processing of Appropriate Technology for ATBM Weaving in Karungan Plupuh Sragen Village *Rahmawati Rahmawati, Bambang Pujiasmanto, Sarah Rum Handayani, Francisca Sestri Goestjahjanti, Soenarto Soenarto and Diana Airawaty*
11.36-11.43	ID 193	Sensitive social factors and the sustainability of organic dragon fruit agribinsis in banyuwangi *Muksin Muksin, Pongky Hari Asmara and Nbe Sulistiyono*
11.43-11.48	Discussion	
11.48-11.55	ID 202	Application of green budgeting in finance and development policy *Lathifah Azzahra, Putra Pamungkas and Wahyu Trinarningsih*
11.55-12.02	ID 207	The environmental impacts of hair craft industry activities on socio-economic community conditions *Agus Arifin and Rakhmat Priyono*
12.02-12.09	ID 208	The Analysis of Indonesia Crude Coconut Oil's Competition in International Market *Rizki Puspita Dewanti and Dyah Ayu Suryaningrum*
12.09-12.14	Discussion	
12.14-12.24	Closing	

Room 4. Policy, Politic and Climate Change Related to Agriculture and Environment

Date : 24 August 2022

Place : Zoom https://bit.ly/icsae9-room4

Meeting ID: 942 9276 8067 Passcode: 887712

Time (GMT+7)	Activities/ID	Title
07.30-08.00	Presenters and participants enter the room	
08.00-08.10	Opening by Room Chair	
08.10-08.17	ID 18	Feasibility analysis of hybrid corn farming in Karanganyar Regency *Suswadi Suswadi, Agung Prasetyo, Mahananto Mahananto, Kusriani Prasetyowati and Yuli Purnomo*
08.17-08.24	ID 126	Corporate Social Responsibility (CSR) in Coal Mining Companies Towards MSME Empowerment: a study in Paser Regency *Selfia Bintariningtyas, Tri Mulyaningsih and Yunastiti Purwaningsih*
08.24-08.31	ID 40	Ecological Risk Assessment And Spatial Distribution of Some Heavy Metals of Agricultural Soils in Nganjuk Regency, Indonesia *Sukarjo, Cicik Oktasari Handayani and Hidayatuz Zu'Amah*
08.31-08.36	Discussion	
08.36-08.43	ID 85	The Importance of Securitization towards Environmental Issue: Case on Freeport's Tailing Waste *Septyanto Galan Prakoso, Ferdian Ahya Al Putra, Nadia Dian Ardita, Andriansyah Perdana Murtyantoro and Iim Fathimah Timorria*
08.43-08.50	ID 96	Effectiveness Of Community Based-Collaborative On Forest Management Of The Forest Programme III In Central Sulawesi *Golar Golar, Hasriani Muis, Achmad Herman and Wahyu Simorangkir*
08.50-08.57	ID 128	Web-Geographic Information System for rice fields in Bungko Village, South Kotamobagu district *Sandra E. Pakasi, Frangky J. Paat and Milah Shofiyati*
08.57-09.02	Discussion	
09.02-09.09	ID 171	The role of SMEs in Indonesia in Encouraging the Green Economy Concept for Quality Economic Growth *Anzar Alfat Firdaus, Dwi Prasetyani and Devina Arninda*
09.09-09.16	ID 127	Rice husk biochar application as a mitigation strategy for nitrous oxide and methane emission in sandy paddy soil *Gendro Indri Wahyuningsih, Makoto Shibata and Shinya Funakawa*
09.16-09.23	ID 156	Environmental Issues, Poverty and Media: Bibliometric Analysis *Rutiana Wahyunengseh and Sri Hastjarjo*
09.23-09.28	Discussion	
09.28-09.35	ID 158	Implications of Corporate Social Responsibility Legal Policies in Indonesia on the Impact of Saving the Environment *Dyah Permata Budi Asri, Siti Rochmah Ika, Edy Sriyono and Winarno*
09.35-09.42	ID 198	The impact of the Russia-Ukrainian war on green energy financing in Europe *Bimo Saktiawan, M Juan Suam Toro and Nugroho Saputro*
09.42-09.49	ID 201	Robusta Coffee Development Policy: Efforts to Strengthen the Brand Image of Regional Superior Products *Danang Purwanto, Widiyanto Widiyanto, Haryani Saptaningtyas, Isti Khomah and Hanifah Ihsaniyati*
09.49-09.54	Discussion	
09.54-10.20	Break	

Room 4 (Continue)		
Time (GMT+7)	**Activities/ID**	**Title**
10.20-10.30	Opening by Room Chair	
10.30-10.37	ID 23	The Correlation Study of Several Chemical Extractants in Tropical Soils Contaminated with Copper *Abdul Kadir Salam*
10.37-10.44	ID 67	Estimated Sediment Exports and Erosion In Central Citarum Watershed *Jaka Suryanta, Irmadi Nahib, Mulyanto Darmawan, Fahmi Amhar, I Putu Santika and Yudi Wahyudin*
10.44-10.51	ID 77	Foliar fertilizers improved fruit set and yield of cayenne pepper (Capsicum frutescents L.) grown off-season *I Komang Damar Jaya, Khairina Umami, M. Zaenal Arifin, Dwi Ratna Anugrahwati and Baiq Erna Listiana*
10.51-10.56	Discussion	
10.56-11.03	ID 86	Disease incidence of fusarium wilt in organic garlic cultivation with compost plus Gliocladium on endemic land *Hadiwiyono Hadiwiyono, Susilo Hambeg Poromarto, Supyani Supyani, Salim Widono and Dwiwiyati Nurul Septiriani*
11.03-11.10	ID 90	Assesment Of Seed Quality Of Constrating Rice Seed Cultivar *Aiman Hanafi Mohamad Fauzi, Siti Maslizah Abddul Rahman and Nur Suraya Abdullah*
11.10-11.17	ID 107	Analysis of bacterial community from the rhizosphere of shallots (Allium ascalonicum L.), in Brebes, Central Java using Next Generation Sequencing (NGS) approach *Retno Rosariastuti, Sutami, Sumani and Sri Hartati*
11.17-11.22	Discussion	
11.22-11.29	ID 112	Growth Analysis Of Soybean In Application Of Biochar And Organic Fertilizer Under Kayu Putih Stand *Aprilia Ike Nurmalasari and Annisa Dian Arviana*
11.29-11.36	ID 139	Morphological and Physiological Responses of Soybeans to Organic Fertilizers in Mahogany-Based Agroforestry Systems *Desy Setyaningrum, Maria Theresia Sri Budiastuti, Djoko Purnomo and Sudadi Sudadi*
11.36-11.43	ID 160	Institutions To Improve Farmers' Resilience In Facing Climate Change *Barokatuminalloh Barokatuminalloh, Neni Widayaningsih and Oke Setiarso*
11.43-11.50	ID 9	Selection Of Mutants Of Short Stem Rice Mentik Wangi Generation M4 Results Of Gamma Ray Iradiation 250 Gray *Ahmad Yunus, Parjanto, Nandariyah and Prakosa*
11.50-11.55	Discussion	
11.55-12.05	Closing	

Room 5. Eco Friendly Design and Smart Farming

Date : 24 August 2022

Place : Zoom https://bit.ly/icsae9-room5

Meeting ID: 961 1853 0561 Passcode: 257055

Time (GMT+7)	Activities/ID	Title
07.30-08.00	Presenters and participants enter the room	
08.00-08.10	Opening by Room Chair	
08.10-08.17	ID 19	Different manure management systems in beef cattle feedlots as sustainability strategy in Lampung, Indonesia *Mohammad Ikhsan Shiddieqy, Muhamad Nasir Rofiq and Yeni Widiawati*
08.17-08.24	ID 97	Identification on chemical organic compounds of pericarp nutmeg Myristica fragrans north minahasa by using GC-MS *Frangky J. Paat, Marjam M. Toding, Sandra E. Pakasi and Resky J R Linggi*
08.24-08.31	ID 78	Synthesizing and characterization of CA/ZnO electrospun nanofiber as seed coating material for enhanced aerob paddy seed germination *Nur Syuhadatul Husna Husny Zaim, Siti Maslizah Abdul Rahman and Huey Ling Tan*
08.31-08.36	Discussion	
08.36-08.43	ID 103	Apron effectiveness of convection waste Materials in reducing ultraviolet light exposure (UV) On Skin Irritation in Welding Workers in Paron District, Ngawi *Deni Setiawan*
08.43-08.50	ID 108	Optimization of Material Formulation and Process Parameters in Canna Edulis Starch-Based Biofoam Synthesis *Layliya Ramadhina Putri Afandi and Azmi Alvian Gabriel*
08.50-08.57	ID 136	Effect of Organic Pellet Binder on Physic and Nutrient Quality as an Environmentally friendly Feed Product *Ruslan Abdul Gopar, Satria Maulana, Putut Suryo Negoro, Hikmah Agustina Parastiwi, Windu Negara and Muhamad Nasir Rofiq*
08.57-09.02	Discussion	
09.02-09.09	ID 137	Utilization of plastic bottle waste in eco-friendly wayang design for childrens *Jazuli Abdin Munib, Bani Sudardi, Titis Srimuda Pitana and Rahmanu Widayat*
09.09-09.16	ID 141	Jeans Waste Based Textile Design Works For Aesthetic Elements at LEVI'S Indonesia Office in Jakarta *Ratna Endah Santoso and Sigit Purnomo Adi*
09.16-09.23	ID 164	The Characteristics of Soil Organic Carbon (SOC) at Forest Stands of Mount-Merbabu National Park and Upland Farming *Jaka Suyana, Wisnu Krismonanto, Endang Setia Muliawati, Hery Widijanto and Sri Hartati*
09.23-09.28	Discussion	
09.28-09.35	ID 195	The Effect of Role Playing Activities with Finger Puppets Made from Recycled as a Media for Independent Intervention for 'Daily Living' Children with Down Syndrome *Ercilia Rini Octavia and Muhizam Bin Mustafa*
09.35-09.42	ID 199	Utilization of Household Waste As a Supporter of Sensory Coordination Interventions for Early Childhood Down Syndrome *Ercilia Rini Octavia and Muhizam Bin Mustafa*
09.42-09.49	ID 204	Analysis Of The Utilization Of Rice Seeds Of Improved Variety (INPARI 32) In Indramayu District, West Java *Adang Agustian, Rizma Aldillah, Eka Nurjati, Umikaromah Yaumidin, Chairul Muslim, Ening Ariningsih and Rikareviza Rachmawati*
09.49-09.54	Discussion	
09.54-10.20	Break	

Room 5 (Continue)		
Time (GMT+7)	**Activities/ID**	**Title**
10.20-10.30	Opening by Room Chair	
10.30-10.37	ID 44	UV absorbing substances in the Indonesian starfish Archaster typycus *Delfly Abdjul*
10.37-10.44	ID 49	E-Agribusiness: Key Success Factors of the Agri-Entrepreneurs to conquer the Market *Sehrish Tariq, Selvakkumar K N Vaiappuri, Fazleen Binti Abdul Fatah, Abdul Rahman Saili and Ghulam Mustafa*
10.44-10.51	ID 64	Readiness Of Implementation Towards Internet Of Things (IoT) System On The Bachelor Degree Final Year Students Of Agricultural Programs *Muhamad Nazarwin Zainal Abidin and Ts. Dr. Fazleen Abdul Fatah*
10.51-10.56	Discussion	
10.56-11.03	ID 74	Phenotype and Lignin Content of GH 51 Black Rice Mutant *Ristatina Id, Nandariyah Nandariyah, Parjanto Parjanto and Riyatun Riyatun*
11.03-11.10	ID 102	The Analysis Strategies of Catfish Farming Based on Chicken Fertilizer Utilized the Model CLD *Khairun Nisa*
11.10-11.17	ID 115	Land management practices and its effect on soil properties in smallholder oil palm plantations, Jambi Province, Indonesia *Fathia Rifka Aunillah, Endang Listyarini, Setiari Marwanto, Dila Aksani, Kiki Zakiah and Rahmah Dewi Yustika*
11.17-11.22	Discussion	
11.22-11.29	ID 117	Adoption of Smart Farming Technology Among Rice Farmers *Wan Nur Aisyah Abdul Raof, Nur Badriyah Kamarul Zaman, Selvakkumar K N Vaiappuri, Nur Maizatul Idayu Othman and Abdul Rahman Saili*
11.29-11.36	ID 131	Effect of Planting Media Composition and Watering Time Interval on Sambiloto Growth *Bambang Pujiasmanto, Eddy Triharyanto, Sulandjari Sulandjari, Puji Harsono, Pardono Pardono, Desy Setyaningrum and Sylvatera Puspitasari*
11.36-11.43	ID 134	Effect of Media Type and Method of Sterilization on Growth of Porang (Amorphophallus muelleri) Shoots In Vitro *Eddy Triharyanto and Afifah Wahyuning Ramadhany*
11.43-11.48	Discussion	
11.48-11.55	ID 174	Smart IoT-Based Misting System of Capsicum frutescens Seed Germination for Sustainable Agriculture *Mohamad Zaharudin Sariman, Muhamad Faiz Hisham, Abdul Muhaimin Mohd Shafie, Azmi Aminordin, Mohd Muhyiddin Mustafa and Hamdan Sulaiman*
11.55-12.02	ID 182	Effect Of Various Photoperiod Towards Lollo Bionda Growth Using IoT Based Lighting Control For Indoor Hydroponic Farming System *Abdul Muhaimin Mohd Shafie, Muhammad Aiman Azlan, Mohamad Zaharudin Sariman, Mohd Muhyiddin Mustafa, Hamdan Sulaiman and Fairuz Khalid*
12.02-12.09	ID 206	Yield and seed size stability analysis of black soybean lines derived from gamma rays irradiation *Tarmizi, Muhammad Iqbal, Anisiyah, Yuliasti, Lilik Harsanti, Arwin and Winda Puspitasari*
12.09-12.14	Discussion	
12.14-12.24	Closing	

Room 6. Other Related Topic in Sustainable Agriculture and Environment

Date : 24 August 2022

Place : Zoom https://bit.ly/icsae9-room6

Meeting ID: 943 8834 1303 Passcode: 796237

Time (GMT+7)	Activities/ID	Title
07.30-08.00	Presenters and participants enter the room	
08.00-08.10	Opening by Room Chair	
08.10-08.17	ID 8	Diversity of Medicinal Plants for Fitness Disorders Treatment in Papua and West Papua, Indonesia *Nuning Rahmawati, Rohmat Mujahid, Ika Yanti Marfuatush Sholikhah, Sari Haryanti, Dyah Subositi and Harto Widodo*
08.17-08.24	ID 76	Effect of extraction method on the flavonoid content of potential medicinal plant Phyllanthus niruri L. *Rikania Reninta, Winda Nawfetrias, Armelia Tanjung, Noorwitri Utami, Dwi Pangesti Handayani and Djatmiko Pinardi*
08.24-08.31	ID 79	Networking capabilities of milenial farmers in Central Java *Erlyna Riptanti, Mohammad Harisudin, Kusnandar Kusnandar, Isti Khomah, Nuning Setyowati and Rr Qonita*
08.31-08.36	Discussion	
08.36-08.43	ID 80	Genetic Diversity of Graptophyllum pictum (L.) Griff. (Daun Ungu) Based on Inter-Simple Sequence Repeats (ISSR) *Dyah Subositi*
08.43-08.50	ID 83	Utilization of tannin from chestnut as a protective agent in slow release urea: An in vitro rumen fermentation study *Feggie Feggie, Sandi Nayohan, Komang G. Wiryawan and Anuraga Jayanegara*
08.50-08.57	ID 125	Increasing Secondary Metabolites Production of Phyllanthus to Support Development of Herbal Medicine Industry *Noorwitri Utami, Irna S Bidara, Juwartina I Royani, Rikania Reninta, Ita Dwimahyani and Daru Mulyono*
08.57-09.02	Discussion	
09.02-09.09	ID 132	Morphological Identification of Ciplukan (Physalis angulata L.) at Several Height for Domestication *Bambang Pujiasmanto, Maria Theresia Sri Budiastuti, Supriyono Supriyono and Desy Setyaningrum*
09.09-09.16	ID 148	The Growth Response and Nutritional Status of Eggplant (Solanum Melongena L.) Planted in Soil Incorporated with Oyster Mushroom Waste *Wellzerlin Bisop, Mohammad Mu'Az Hashim and Hasmah Mohidin*
09.16-09.23	ID 149	The Effect of Empty Fruit Bunch (EFB) Compost and Trichoderma Biofertilizer on Growth and Yield Performance of Chili (Capsicum annuum L. var Kulai) *Connielia Kio Tangga, Hasmah Mohidin and Shamsiah Abdullah*
09.23-09.28	Discussion	
09.28-09.35	ID 162	Functional Food Rich In Flavonoids To Prevent Corona Virus: Opportunities And Challenges *Christina Winarti and Sintha Suhirman*
09.35-09.42	ID 168	Biofortification in an effort to meet micro Fe nutrients using Moringa leaf extract (Moringa oleifera) on rice plants *Srie J Rachmawatie, Edi Purwanto, Amalia T Sakya and Widyatmani S Dewi*
09.42-09.49	ID 173	Effects of biochar-compost (BioCom) on cadmium availability and plant growth *Joseph Garry Jemi, Norazlina Abu Sari, Nur Maizatul Idayu Othman and Mohd Aizuddin Masuri*
09.49-09.54	Discussion	
09.54-10.20	Break	

Room 6 (Continue)		
Time (GMT+7)	**Activities/ID**	**Title**
10.20-10.30	Opening by Room Chair	
10.30-10.37	ID 13	Structural Transformation And Poverty Reduction: Case Study In West Kalimantan Province *Rahmatullah Rizieq and Ekawati Ekawati*
10.37-10.44	ID 33	Empowerment of Women Tea Pickers (A Case Study on Lawu Mountainside in Karanganyar Regency) *Suwarto Suwarto, Sapja Anantanyu, Joko Winarno, Putri Permatasari and Agung Wibowo*
10.44-10.51	ID 43	Participation of Children's Forum in the development of child-friendly public spaces as smoke-free areas *Sri Yuliani, Mahendra Wijaya, Supriyadi S.N and Retno Setyowati*
10.51-10.56	Discussion	
10.56-11.03	ID 53	Effects of Precursor Feeding of Phenylalanine on Accumulation of Selected Flavonoids in Adventitious Root Suspension Cultures of Boesenbergia rotunda (L.) Mansf. *Khairunnisa Abd. Ghani, Nor Azma Yusuf and Norzulaani Khalid*
11.03-11.10	ID 54	Analysis of The Effect of Macroeconomics and Access to Health Services on Stunting Interprovince in Indonesia *Reni Eka Septiani, Tri Mulyaningsih and Mulyanto*
11.10-11.17	ID 55	Revitalization Boh gadong as ethnobotanical garden in Simeulue Island *Tasnim Lubis, Abiyulail Alatas Abus, Delima Delima, Nurul Adilla Alatas Abus and Achdial Farhan Abus*
11.17-11.22	Discussion	
11.22-11.29	ID 56	Food security campaign toward sustainable goals of agriculture in Simeulue Island *Achdial Farhan Abus, Tasnim Lubis, Abiyulail Alatas Abus, Nanda Sahputra and Nurul Adilla Alatas Abus*
11.29-11.36	ID 87	Decrease in population of Ditylenchus dipsaci in garlic cultivation with the application of mycorrhizae and organic fertilizers *Susilo Hambeg Poromarto, Hadiwiyono Hadiwiyono, Supyani Supyani, Salim Widono, Dwiwiyati Nurul Septiriani and Krisna Hermawan*
11.36-11.43	ID 116	Chemical composition of brown and red algae from Kelapa Beach, Tuban, East Java and their potential as Ruminant Feed *Nur Hidayah, Cuk Tri Noviandi, Andriyani Astuti and Kustantinah Kustantinah*
11.43-11.48	Discussion	
11.48-11.55	ID 147	Analysis of Indonesian Edible Bird's Nest Exports to China and Hong Kong in 2017 – 2021 *Hamka Halkam, Eymal Bahsar Demmallino, M. Saleh S. Ali and Sultan Suhab*
11.55-12.02	ID 194	Cytotoxic Activity Of Acalypha wilkesiana Mull.Arg., Ziziphus nummularia (Burm.f.) Wight & Arn., and Glochidion zeylanicum (Gaertn.) A.Juss. on 4T1 Breast Cancer Cell Line *Ika Yanti Marfuatush Sholikhah, Sari Haryanti, Yuli Widiyastuti and Nuning Rahmawati*
12.02-12.09	ID 197	Women's Empowerement on Food Security *Dwi Prasetyani and Amelia Choya Tia Rosalia*
12.09-12.14	Discussion	
12.14-12.24	Closing	

Digital Poster Show List

Poster Show 1. Eco Friendly for Product Design

Date : 24 August 2022
Time : 08.00-13.00 (GMT+7)
Place : https://icsae.id

ID	Title
ID 14	Establishing a co-design framework for disaster mitigation agenda in the urban context. A Case study: SIBAT Solo *Andi Setiawan, Ahmad Ramdhon and Lira A Utami*
ID 22	The Natural Color Utilization of Indigofera Substance for Batik Development *Sarwono, Darwoto and Sigit Purnomo Adi*
ID 38	Building a Food Sovereign Society Through Indigenous Forest Establishment Policy *Anti Mayastuti, Mohammad Jamin and Hari Purwadi*
ID 60	An environmentally friendly one-pot synthesis method of 1,4 dihydropyridines through Hantzsch reaction *Stiti Mohamed Zakaria, Habila Tahir and Khelili Smail*
ID 93	Finishing the King's Throne Replica on the Reliefs of the Borobudur Temple Environmentally Friendly Furniture Solutions. *Rahmanu Widayat and Anung Studyanto*
ID 94	Swallow Ornament as an Identity for the Sustainability of Gebangsari Kebumen Pottery Existence *Desy Nurcahyanti, Sayidah Mafisah Nurromadhoni and Novita Wahyuningsih*
ID 99	Cilacap Batik: Natural Dyes with Main Motifs of Marine Life and Dipterocarpus littoralis (Pelahlar) *Theresia Widiastuti, Apika N. Sulistyati, Darwoto, Felix A. Dartono and Sarah R. Handayani*
ID 118	Ecoprinting with Weed Plant: Utilization of Cacabean (Ludwigia octavalvis) and Ketul (Biden pilosa) as Ecoprint Natural Dyes *Khori Y. Pratiwi and Apika N. Sulistyati*
ID 119	Eco-Art Trend Based On Eco-Culture In The Painting Works Of Young Indonesian Artists *Setyo Budi and Narsen Afatara*
ID 153	Pari Klegung 'The River Whisper' Eco Friendly Study *Anung Studyanto, Andrik Purwasito, Warto Warto and Rahmanu Widayat*
ID 157	Sustainable Artwork with Nature Theme by The Jakarta Modernist Painters: Zaini, Rusli, Nashar, and Oesman Effendi *Anna Sungkar and Desy Nurcahyanti*
ID 177	Eco-brick Infographic Animation as a Campaign Medium for Plastic Waste Management in Yogyakarta Special Region *Deny Tri Ardianto and Rizky Ardhani*
ID 181	Creative Strategies for Utilizing Glass and Fabric Waste *Ambar Mulyono, Pandu Purwandaru, Anung B Studyanto and Nurhayatu Nufut Alimin*
ID 184	Generation Z's Preference For Choosing A Visual Animation Style As A Medium For Promoting Environmental Sustainability *Arief Iman Santoso*
ID 188	Video Art as Environmental Communication Media for The Problem of Plastic Waste in Solo City *Bedjo Riyanto, Nurhayatu Nufut Alimin, Setyawan Setyawan and Rahmanu Widayat*
ID 190	Interior Accessories Product Design using Fabric Rope from Patchwork Waste *Nurhayatu Nufut Alimin, Endri Sintiana Murni, Dwi Cahyani, Nurul Aini and Ambar Mulyono*

Poster Show 2. Sustainable Development in Agriculture and Environment

Date : 24 August 2022
Time : 08.00-13.00 (GMT+7)
Place : https://icsae.id

ID	Title and Author
ID 21	Field Application of VP3 Biofertilizer on Soybeans (Glycine Max L.) and Yield Comparison with Four Biofertilizers Sold in the Market *Novi Arfarita*
ID 26	EIA/AMDAL In Risk Society: A Study In Developing Country Indonesia *Toni Kumayza and Sundek Hariyadi*
ID 31	Motion Graphic Design As Media Zero Waste Lifestyle Campaign For Indonesian People *Bunga Chathelya Lestari and Jazuli Abdin Munib*
ID 32	Economic Impact of the Walikota Solo Cup 2022 *Rumi Doewes, Sapta Kunta Purnama and Islahuzzaman Nuryadin*
ID 34	Chromosome of Phaius tankervilleae and Phaius amboinensis Orchid *Sri Hartati, Parjanto Parjanto, Sukaya Sukaya, Endang Setia Muliawati, Nandariyah Nandariyah, Endang Yuniastuti, Ida Rumia Manurung and Cahyadi Wisnu Wardhana Purmiyoto*
ID 39	Effect of iaa and bap concentrations on the growth of matoa (Pometia pinnata) plants in vitro *Endang Yuniastuti, Annisa Dina Pratami, Sukaya Sukaya and Imanovta Ichti Santoso Putri*
ID 46	Evaluation Of Different Herbicides Application Towards Weed Population And Aerobic Rice Performance *Siti Nur Anisah Aani, Muhammad Saiful Ahmad Hamdani And Abd Shukor Juraimi*
ID 57	The Characteristics of Teapots Made of Plastic and Clay: What are their Designs, Functions and Impacts on the Environment? *Joko Lulut Amboro, Andrik Purwasito, Warto Warto and Dwi Prasetyani*
ID 59	GC-MS analysis of bioactive compounds from leaves extract of Melastoma malabatrichum, Clidemia hirta, Chromolaena odorata, and Ageratum conyzoides *Nurul Hana Ismail, Nur'Amira Hamid, Wan Zuraida Wan Mohd Zain, Fazlena Hamzah and Siti Noor Hajjar Md Latip*
ID 62	Antioxidant and GC-MS Analysis of Cyperus iria, Fimbristylis miliacea, and Fimbristylis globulosa *Nina Asqalani Abdullah, Wan Zuraida Wan Mohd Zain, Nurul Wahida Ramli, Nur'Amira Hamid and Fazlena Hamzah*
ID 98	Comparing Environmental Policy: Observational Case of Government Website of Surakarta, Indonesia and Pingtung, Taiwan *Rino Ardhian Nugroho, Septyanto Galan Prakoso, Kartika Nur Hidayati and Ismi Dwi Astuti Nurhaeni*
ID 110	Information flow among farmers in the acceleration of agriculture 4.0 *Emi Widiyanti, Prahastiwi Utari and Dwiningtyas Padmaningrum*
ID 123	Tenure of Agricultural Assets as a Determinant of Income for Farmers Affected by Policy on National Strategic Project Development in Klaten Regency *Bekti Wahyu Utami, Sunarru Samsi Hariadi and Alia Bihrajihant Raya*
ID 159	Context of function and aesthetics in disaster mitigation comics *Sayid Mataram*
ID 161	The effects of Isomalto-oligosaccharide, Inulin, and Polydextrose on the Development of Sugar-Free Pineapple Jam *Michelle Michelle and Diana Lo*
ID 163	Public Service Ads Video, An Invitation To Dispose Of Waste In Its Place *Arif Wicaksono*

ICSAE-IX

9th International Conference on Sustainable Agriculture and Environment

Abstracts Book

Online conference | 24-25 August 2022
Surakarta, Indonesia

This conference held by
Research and Development Center for Biotechnology and Biodiversity, Universitas Sebelas Maret, Indonesia

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Faculty of Agriculture, UNS, Indonesia
Faculty of Art and Design, UNS, Indonesia
Faculty of Economic and Business, UNS, Indonesia

Abstract Book Content

Abstract ICSAE-IX ID 004

Maize farmers' responses to *Spodoptera frugiperda* in Indonesia and management practices. A case study in West Java

Yani Maharani[a], Vani Nur Oktaviany Subagyo[b], Fatimah[b], Agus Ruswandi[c], Aji Winara[c], and Wara Asfiya[c]*

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Abstract. The fall armyworm *Spodoptera frugiperda* (FAW) is an alien invasive species that has attacked maize crops in Indonesia in 2019. This pest is reported to cause significant damage, so control measures are required. Understanding farmers' perceptions, knowledge, and management of the fall armyworm are important steps towards developing sustainable integrated management strategies as farmers are important actors in this context. A total of 102 farmers were selected for interviews from Bandung, Garut dan Sumedang districts. We found most respondents surveyed in the productive ages, and the majority were male. Most farmers in all districts were able to differentiate the fall armyworm based on distinguishing morphological features and level of damage on infested maize plants. Farmers considered a significant yield reduction if the pest is not controlled, however, due to limited information available, most farmers relied on chemical insecticides to control this pest. Farmers in Sumedang, nevertheless, also practiced mechanical and cultural methods for FAW management. In addition, extension agents and farmer groups can help to improve farmer's knowledge of the fall armyworm which is related to control measures applied to manage FAW. Therefore, enhancing farmer's capacity through participation in training courses and farmer groups, as well as extension agent's role as information sources about the fall armyworm should be increased.

Keywords: invasive alien species, Indonesia, farmer groups, integrated pest management

Abstract ICSAE-IX ID 007

The effect of collaboration between elements for the progress of rubber cooperatives in Riau province, indonesia

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Abstract. The rubber cooperative is an important agency to support the economy of the rubber farmer groups in Riau Province. But the number of active cooperative decline since 2014-2019. The goal of this study is to assess the aspect of collaboration between elements against cooperative progress. This research was examined both inactive and active cooperatives as a comparison. The chosen locations are the largest rubber producer in Riau Province namely, Kuantan Singingi Regency and Kampar Regency. The samples were taken by purposive sampling with amount of 300 people representing 150 from active cooperative and 150 from inactive one. The research samples were the elements of the rubber farmer cooperative consisting members, management, supervisors and employees. The data was carried out by structured and in-depth interviews. The collaboration was studied based on the interaction between cooperative elements with 8 indicators. The value resulted from the active rubber cooperative in this parameters is good-very good (76.10% -82.80%). In contrast, inactive cooperatives obtain very bad – good enough (20.00% - 60.00%). The main problems in inactive cooperatives come from the interactions between members and employees (X3), management with employees (X5) and supervisors with employees (X6) because all nine indicators have bad scores. Those problems effect the cooperatives progress in Riau Province.

Keywords: Collaboration, cooperatives, rubber farmers, Riau Province

Abstract ICSAE-IX ID 008

Diversity of Medicinal Plants for Fitness Disorders Treatment in Papua and West Papua, Indonesia

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Abstract. Papua is one of the islands that has the largest biological wealth in Indonesia, including medicinal plants. This study aimed to identify the utilization of medicinal plants by selected traditional healers who met inclusion criteria to treat fitness disorders in ethnic groups of Papua and West Papua. Data collection was conducted through interviews, observation, and sample collection. This study revealed 43 concoction information and identified the use of 24 plant species distributed in 19 families among 19 healers in 10 ethnic groups in Papua and West Papua. *Cymbopogon citratus* (DC.) Stapf (12.12%) and leaves (57.35%) were determined as the most prominent species and plant parts used. The most used plant family were Myrtaceae, Compositae, and Lamiaceae, each with a percentage of 10.53%. This showed the critical role of medicinal plants and traditional healers in community health. However, conservation efforts need to be initiated immediately since 63.64% of traditional healers only harvested the available plants and made no cultivation efforts.

Keywords: Papua, Fitness disorders, Medicinal plants, Cymbopogon citratus

Abstract ICSAE-IX ID 009

Selection Of Mutants Of Short Stem Rice Mentik Wangi Generation M4 Results Of Gamma Ray Iradiation 250 Gray

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Abstract. Rice (*Oryza sativa L.*) is the main food crop in Indonesia. The Mentik Wangi variety is a local variety of rice plants (*Oryza Sativa L.*) in Indonesia and has a distinctive and natural aroma and a fluffier texture of rice that it is in demand by most Indonesian people for consumption. However, Mentik Wangi rice has drawbacks in terms of plant height and age. Improving the quality and quantity of Mentik Wangi can be done by plant breeding such as gene mutation, withgamma rays. The aim of this research are (1) to determine the performance of Mentik Wangi M4 rice with the effect of 250 gray gamma ray irradiation and (2) to select M4 rice to obtain short stem, short-lived and high productivity rice. This research was carried out from July - September 2020 at the Tegalgondo Rice Seed Center, Gatak District, Sukoharjo Regency by planting a number of 30 plants with a distance of 25 x 25 cm. Each Mentik Wangi rice strain resulting from gamma ray irradiation of 250 Gray was planted in parallel without randomization and then observed each individual plant to compare with control plants and select plants according to their purpose. This study showed that the performance of the M4 generation of Mentik Wangi rice mutants produced by 250 gray gamma ray irradiation was better with control plants (without irradiation). The M4 line had lower plant height and higher productivity than control plants. The results of the selection of M4 Mentik Wangi rice from 250 gray gamma ray irradiation which have short stems and high productivity are: M3-250-G29-8-34 (25) (16), M3-250-G29-8-24 (4) (7) (25) (27) (28), M3-250-G62-17-59 (22) (25) (27) , M3-250-G62-6-5 (25) (28) (30) , M3-250-G23-22-4 (13) (23) (29), M3-250-G62-17-57 (3) (6) (29), M3-250-G60-3-7 (4) (10) (14), M3-250-G22-8-57 (11) (29) , M3-250-G23-22-20 (23) (28) and M3-250-G62-17-61 (8) (16) (26).

Keywords: High productivity, mentik wangi, mutan, rice, short stem

Abstract ICSAE-IX ID 012

The Primipara Reproductive Performance of Bali Cattle with Natural Mating Compared to Artificial Insemination

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Abstract. This study was conducted to observe the primipara reproductive performance of Bali cattle between natural mating compared to artificial insemination. Fifty Bali cattle owned by 44 farmers in Central Lombok Regency, West Nusa Tenggara was used as the research sample. 19 cattle with natural first mating (NM) and 31 cattle with artificial insemination (AI). Farmers profile data, maintenance system, and reproductive performance (the first estrus age, the first mating age, gestation length, post partum estrus, post partum mating, calving interval) obtained from farmers interview and AI officers record. Descriptive and an independent sample t-test analyzed the data to show the differences between NM and AI groups. The results showed that there were significant differences ($P<0,05$) in post partum estrus (48,94 ± 12,75 vs 82,74 ± 26,51 days), post partum mating (59,00 ± 14,00 vs 85,64 ± 25,45 days), and calving interval (348,57 ± 18,20 vs 393,19 ± 31,05 days). It can be concluded that the reproductive performance of Bali cattle with natural first mating system is better than artificial insemination. So recommended for the first mating, it better used natural first mating.

Keywords: Reproductive performance, natural mating, artificial insemination

Abstract ICSAE-IX ID 013

Structural Transformation and Poverty Reduction: Case Study in West Kalimantan Province

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Abstract. This study aimed to analyze the structural transformation in West Kalimantan and to test its impacts on poverty reduction. At the regional level, West Kalimantan is a province with the second highest gross regional domestic product (GRDP) after East Kalimantan, and it has a good Gini ratio. Meanwhile, West Kalimantan has the most significant number of poor people of all other provinces in Kalimantan. That is the problem that needs solutions. Time series data over 11 years (2010 - 2020) were used in this study. The structural transformation was analyzed with Esteban-Marquillas' (E-M) Shift-Share approach. The transformation impacts on poverty reduction were analyzed with the multiple linear regression method. The study's results revealed that the structural transformation had not been done. In addition to the service sector, the agricultural sector plays a significant role in poverty reduction. Nevertheless, the development of the industrial sector has not contributed to the reduction due to the few local manpower involved. The industrial sector is expected to be the potential to reduce poverty and enhance economic growth by developing industries that are closely related to both the agricultural and service sectors.

Keywords: growth, sustainable development, shift share, leading sector, resource allocation, agriculture, industry

Abstract ICSAE-IX ID 014

Establishing a co-design framework for disaster mitigation agenda in the urban context. A Case study: SIBAT Solo

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Abstract. Climate change impacts weather patterns significantly, one of which is the pattern and annual rainfall changes. One of the impacts on urban environment is the flood cycle which is increasingly difficult to predict. To deal with the threat of unpredictable flooding in urban areas, apart from the applying engineering approaches, another effort that can be established is to build community preparedness facing flood disasters. Involving citizens in a disaster mitigation system requires the right strategy and approach. This paper reports the initial research findings on applying the co-design method as a participatory approach in carrying out the work agendas of the community-based disaster preparedness community in Solo, Indonesia. This study uses a case study method of flood disaster mitigation practices by the SIBAT community. Design interventions through the co-design method are carried out to plan and implement the mitigation and flood emergency response. Preliminary results obtained from the field indicate that the local social and cultural context is essential in developing a co-design framework. These findings will later become the basis for building a co-design framework for implementing the flood disaster mitigation agenda in Solo.

Keywords: co-design, climate change, disaster mitigation, urban environment

Abstract ICSAE-IX ID 015

Farmer income analysis: Cocoa farming with side grafting technique (Case study in Mappesangka Village, South Sulawesi, Indonesia)

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Abstract. The income analysis of side grafting cocoa farming aims to determine the income from side grafting cocoa farming received by farmers and to determine the R/C-ratio of side grafting cocoa farming. The research location is in Mappesangka Village, Ponre District, Bone Regency, South Sulawesi. This research was conducted for three months, from March to May 2016. The analytical method used is income analysis to find out how much profit side grafting cocoa farming is, and R/C analysis to determine the level of efficiency in the use of cocoa farming costs. The results showed that the income obtained by respondent farmers in one growing season in side grafting cocoa farming was Rp. 26,087,532.89/ha. The R/C in side grafting cacao farming in Mappesangka Village, Ponre sub-district is 2.95, this means that the R/C-Ratio value is greater than 1 so that it can be said to meet the criteria to be cultivated in side grafting cocoa farming in Mappesangka Village, District of Ponre, District of Bone.

Keywords: income analysis, cocoa farming, side grafting technique, economic growth

Abstract ICSAE-IX ID 016

Geographical region and Exterior Characteristics Analysis of Bligon Goat for Livestock Development Based on Landform Aspect (a Case Study of Bantul District, Special Region of Yogyakarta)

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Abstract. In Indonesia, livestock have an important role in development and progress of the agricultural sector. Especially in Bantul District, Special Region of Yogyakarta, with the highest population of livestock, this region was dominated by species of Bligon goat. This study was conducted to analyse potential of geographical region with the existence of Bligons goat based on biophysical aspect. The landform and agroecological approach was used in order to know the correlation between Bligon goat characteristics and its environment. Field survey and descriptive analysis using a geographic information system (GIS) were also implemented for spatial analysis purposes, whereas qualitative data were analysed based on distribution of frequencies and values of mean and standard deviation for observed characteristics. The different landform represented by altitude with each specific agroecological zone affected different qualitative and quantitative exterior characteristics of Bligon goats involving head's hair colour, body's hair colour, crest colour, messy colour, ears shape, and body shape. This information can then be used as basic consideration for livestock spatial development especially Bligon goats including management of genetic resource for Bligon goats.

Keywords: Bligon goats, characteristic, geographical region, landform, agroecology

Abstract ICSAE-IX ID 017

The qualitative characteristics differences of Simmental-Bali crossed cows compare to Bali cows in West Nusa Tenggara, Indonesia

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Abstract. The research is conducted to explore the qualitative characteristics differences of Bali and Simmental-Bali (SimBal) crossed cows. Research is done in Lombok Tengah Regency, West Nusa Tenggara Indonesia. The material use in this research is 60 cows consisting of 30 Bali and 30 Simmental-Bali crossed cows, they are about 2,5 years old. This research is carried out by direct observation. Farmers profile data obtained from interview. The cows used belong to the breeder, kept by each owner intensively in a stall. Qualitative characteristics was analyzed descriptively and presented in percentages. The results show that Simmental-Bali crossed cows have different exterior characteristics from Bali cows, among others the body is dominant in dark brown, the legs is brown, the muzzle is pink spotted in black, the buttock is light brown, the tail hair is brown, the face vector is white, and the horn is upwards. It is concluded that Bali and Simmental-Bali (SimBal) crossed cows have different qualitative characteristics.

Keywords: Simmental-Bali (SimBal) crossed cows, Bali cows, qualitative characteristics, West Nusa Tenggara.

Abstract ICSAE-IX ID 018

Feasibility analysis of hybrid corn farming in Karanganyar Regency

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Abstract. The productivity and price of hybrid corn in Karanganyar Regency are lower than the productivity and price of the surrounding districts, especially during the la Nina storm. This study aims to determine the feasibility of mixed corn farming in the Karanganyar Regency. Determining the location and sampling was carried out by purposive sampling technique with 80 farmers as respondents. The data analysis method used was the farm Cost-income analysis, R/C Ratio, BEP (Break-Even Point), Profitability-cost Ratio, Labor Productivity and Sensitivity Analysis. The average income was IDR 3,975,741 per farm or IDR 7,795,571 per hectare. The average cost calculated was IDR 1,930,362 per farm and 4,257,302 per hectare. The analysis of BEP showed that hybrid corn is feasible. The R/C ratio was 2.0, more than 1; the profitability-cost proportion was more significant than the applicable bank interest. Labour productivity was greater than the prevailing labour wage. The sensitivity showed that hybrid corn farming was feasible under decreasing prices by up to 50%. Therefore, farmers still benefit from cultivating hybrid corn. However, the effect of La Nina will continue, so farmers must be more adaptive to excessive water and pest attacks on their land.

Keywords: Hybrid Corn, Income, Feasibility

Abstract ICSAE-IX ID 019

Different manure management systems in beef cattle feedlots as sustainability strategy in Lampung, Indonesia

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Abstract. Beef cattle production in Indonesia is mostly from smallholder farming systems (90%) in the rural areas, and the remaining 10% is from more commercial farmers and large beef cattle feedlots. Although the population of feeder cattle in feedlots is not significant compared to the total cattle population, the intensive management system in feedlots also has an impact to the environment. Currently, there is limited information regarding the handling of manure from beef cattle feedlots in Indonesia. This study aimed to portray the manure management system in feedlots. The method of this study was descriptive with field observation and survey in three feedlots in Lampung, Indonesia. Data related to manure management were collected on the farm. In this survey, questions were asked regarding animal characteristics, their diets, and manure handling management from generation to disposal. The result showed that the surveyed feedlots utilize manure as organic fertilizer. The pen cleaning is conducted every 3-4 days with manure and effluent pumped onto surrounding fields. One feedlot company with an advanced manure treatment facility has implemented sustainable manure management strategy. The study suggests further research to measure the carbon cycle for several type of feedlot's manure management system as an environmental product declare of beef cattle production in Indonesia.

Keywords: Manure, cattle, feedlot, sustainability

Abstract ICSAE-IX ID 020

Effect of Type and Concentration of Microbial Starter On the Physicochemical Characteristics of Porang Flour

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Abstract. Porang is a tuber plant that has potential and prospects to be developed in Indonesia. One component that's widely used from porang plants is glucomannan. Methods to increase the glucomannan content of porang tubers can be done physically, chemically and microbiologically by using a microbial starter. The purpose of this research activity to determine the effect of the type and concentration of starter on the physico-chemical characteristics of the resulting porang flour. This study used two types of starter, namely BIMO-CF and NKL tape yeast using three concentrations (1,2 and 3%). Based on the test results of BIMO-CF samples and NKL tape yeast, the highest yield was 20.5% with 3% NKL tape yeast treatment. The water content of all treatments showed no significant difference between treatments. The highest glucomannan content showed a significant difference between treatments with the highest value of 60.62% with the addition of 2% NKL tape yeast treatment.

Keywords: type, concentration, microbial starter, flour, porang

Abstract ICSAE-IX ID 021

Field Application of VP3 Biofertilizer on Soybeans (Glycine Max L.) and Yield Comparison with Four Biofertilizers Sold in the Market

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Abstract. The VP3 biofertilizer formulation begins with exploration of indigenous soil bacteria isolated from several soil samples in Malang-Indonesia. The VP3 Biofertilizer is a liquid formulation made from vermiwash and molasses as carriers, with 3 functional bacterial isolates. It has been proven to be able to increase the yield of mung beans, long yard beans, and green beans in the green house, however it has not been applied to soybean (Glycine max L.) in the field compared to other biofertilizers on the market. This study used soybean seeds of the Anjasmoro variety and consisted of 6 treatments (different types of biofertilizer) with a Randomized Block Design (RAK) namely VP3 biofertilizer, EM4 biofertilizer, Sumber Subur biofertilizer, Semanggi biofertilizer, and Magicgro G6 biofertilizer. This research was carried out in idle land. The application of VP3 biofertilizer when compared to other biofertilizers on the market generally gave better results on the parameters of growth and yield of soybeans in the field. This is indicated by the significant yield on leaf area per plant and yield of total seed weight per plot of soybean plant.

Keywords*:* VP3 Biofertilizer, soybean, yield, field application

Abstract ICSAE-IX ID 022

The Natural Color Utilization of Indigofera Substance for Batik Development

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Abstract. This research is focused of: (1) The Implementation of Indigofera color substance which is used for batik color substance material with fixation of alum, lime, and lotus tree, (2) Developing batik design with the natural color substance of the Indigofera color material on the cotton cloth, (3) Coloring the natural color substance of Indigofera on the silk cloth for batik. The objectives of the research are: to discuss the implementation of the color material of Indigofera which can be used as textile color material with fixations of alum, lime, and lotus, to design the batik with the natural color substance of Indigofera color material on the silk cloth and cotton cloth for batik. The problem-solving method in this research includes the problem analysis which is related to the utilization of the natural color substance of the Indigofera color material, the strategy in the product making by carrying out experiments (action research) related to the aspects that support the data collecting and observation result, technique trial, material and design motif. Based on the analysis, it can be concluded several things in the design visualizations in the form of batik designs with the natural color substance of Indigofera, its obstacles and the problem-solving in the experiments of coloring batik cloth entirely.

Keywords: Natural Color, Indigofera, Batik

Abstract ICSAE-IX ID 023

The Correlation Study of Several Chemical Extractants in Tropical Soils Contaminated with Copper

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Abstract. The correlation between Cu uptake by several plants and soil Cu extracted by several extractants was evaluated in greenhouse experiments. Heavy-metal contaminated soils from Lampung, the southern part of Sumatra, Indonesia, with different levels of Cu were used. Eight different plants evaluated were amaranth (*Amaranthus tricolor*), caisim (*Brassica chinensis* var. *Parachinensis*), corn (*Zea mays* L.), land spinach (*Ipomoea reptans Poir*), lettuce (*Lactuca sativa*), napier grass (*Penissetum purpureum*), thorny amaranthus (*Amaranthus spinosus* L.) and water spinach (*Ipomoea aquatica*). Based on their correlation coefficients (R) and sensitivity (gradient), it was demonstrated that *N* HNO_3, *N* HCl, Buffered DTPA pH 7.30, *N* NH_4OAc pH 7.00, and *M* $CaCl_2$ were good for predicting Cu uptake for land spinach and unbuffered DTPA for napier grass. The uptake of Cu by amaranth was best predicted by *N* NH_4OAc pH 7.00, caisim and water spinach by *M* $CaCl_2$, corn, land spinach and thorny amaranthus by *N* NH_4OAc pH 7.00, and lettuce and napier grass by *N* HCl.

Keywords: Heavy Metals, Soil Analysis, Soil Testing

Abstract ICSAE-IX ID 025

Site-Specific Red Chili (*Capsicum annuum*) Growth and Yield on Katingan Dryland in Central Kalimantan

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Abstract. This research was conducted from April 2021 to December 2021 in Buntut Village, Bali, Malan Island District, Katingan Regency. The ingredients used are seeds of chili varieties Kencana and locally. Liquid Organic Fertilizer, PGPR, Cow Manure, Urea, SP36, NPK Phonska, and pesticides for pest and disease control. The method used was a Randomized Group Design (RAK) and a dose of PGPR with 4 repeats. PGPR dosage is: Without PGPR (control), 150 ml / plant and 300 ml / plant for red chili plants and local chilies. Observation parameters with a PGPR dose of 300 ml / plant have a noticeable effect on plant height, number of primary branches, flowering time, harvest time, number of flowers on one plant, the number of fruits in one plant, fruit length and fruit stalk length, both in red chili and in local chili.

Keywords: red chili, dryland, central kalimantan

Abstract ICSAE-IX ID 026

EIA/AMDAL In Risk Society: A Study In Developing Country Indonesia

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Abstract. This study relates Environmental Impact Assessment EIA/Amdal to the social context of the risk society. This study was voiced by Weston (2004) and can evaluate the legitimacy of the EIA for coal mining in Indonesia. The legitimacy of the EIA for coal mining is based on the belief of experts, science, and technology (Rational model). The survey involved stakeholders in coal mining villages and the mining expert association (PERHAPI) of Kutai Kartanegara. The results show that rural stakeholders are increasingly distrustful of Amdal (rational model) in avoiding risk. Meanwhile, the mining expert group still relies on rational models in making environmental decisions.

Keywords: policy, EIA/Amdal, Risk Society

Abstract ICSAE-IX ID 027

The effectiveness of *Fipronil* active substances compared with *imidacloprid* to control Germany's cockroaches (*Blatella germanica* L.)

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Abstract. Germany's cockroach (*Blattella germanica* L.) is a residential pest that can be a vector of disease. One of the ways that used to control Germany's cockroaches is to use toxic baiting. *Fipronil* and *imidacloprid* are chemicals used to kill cockroaches. The purpose of this study was to analyze the comparison the effectiveness of the active substances *Fipronil* and *imidacloprid* used to control the Germany's cockroach (*Blattella germanica* L.). The methods were used in this study include the preparation of test insects, making of toxic bait, test the effectiveness of toxic bait, calculation of mortality and data analysis. The data were analyzed statistically using One Way ANOVA test and probit analysis. ANOVA test results obtained a significance value of 0.00 ($P < 0.05$), this indicates that there is a significant difference in the percentage of mortality between the treatment groups. The highest mean percentage of deaths occurred in the Germany's cockroach group was treated with a combination of bait and the active substance *Fipronil*. In addition, the lowest LT_{50} and LT_{90} occurred in the LT_{50}= 28.23 hours and LT_{90} = 72.10 hours. These results show that the active substance *Fipronil* was more effective in controlling the Germany's cockroach (Blattella germanica L.) compared to *imidacloprid*.

Keywords: Blattella germanica, Fipronil, Imidacloprid, Baiting

Abstract ICSAE-IX ID 028

The effectiveness of the fipronil and imidacloprid active substances to control weaver ants (*Oecophylla smaragdina)*

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Abstract. Weaver ants (*Oecophylla smaragdina)* are insects belonging to the order Hymenoptera. Fipronil and imidacloprid are chemicals used to kill ants. The purpose of this study was to analyze comparison the effectiveness of the fipronil and imidacloprid active substances to control weaver ants. The methods used in this study include the preparation of test insects, making of toxic bait, test the effectiveness of toxic baits, calculation of mortality and data analysis. The data were analyzed statistically using One Way ANOVA test and probit analysis. ANOVA test results indicates that there is a significant difference in the percentage of mortality between the treatment groups. In addition, the lowest LT_{50} and LT_{90} occurred in the use of bait with a combination of the active substance fipronil, namely LT_{50}= 6.31 hours and LT_{90} = 11.21 hours. The active substance fipronil only takes 12 hours to cause weaver ants to experience 100% mortality. In the group of weaver ants who were given bait with a combination of the active substance imidacloprid, the ants died 100% after 24 hours of treatment. The results of this study show that the active substance fipronil is more effective in controlling weaver ants compared to the active substance imidacloprid.

Keywords: Oecophylla smaragdina, Fipronil, Imidacloprid, Baiting

Abstract ICSAE-IX ID 030

Genetic Variability, Correlation and Path Coefficient among Agronomic Characters of Soybeans [*Glycine max* (L.) Merr.] Lines

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Abstract. The genetic variability and the relationship among characters are very important in breeding activities. Selecting a desired genotype can be done appropriately when the genetic variability is high and relationship among characters is significant for indirect selection. Fifty soybean lines were grown in randomized complete block design with three replications. The variability of all characters was narrow, except number of branches and seed yield that had broad genetic variability. The heritability of the observed characters varied. The high heritability was shown by days to maturity, number of branches, and 100 seed weight. The medium heritability was shown by days to maturity, plant height, number of productive nodes, and seed weight per plant. The seed yield showed low heritability. The all genotypic correlations were insignificant, except seed weight per plant with seed yield. The phenotypic correlation among characters was found between seed yield with number of filled pods, 100 seeds weight and seed weight per plant, branches with productive node and filled pods, and productive nodes with filled pods. All genotypic path coefficients were insignificant. Phenotypic path coefficient revealed that days to flowering, number of branches per plant, 100 seed weight and seed weight per plant contributed directly to seed yield. Number of branches per plant had negative indirect effect through number of nodes and seed weight per plant, while seed weight per plant showed positive indirect effect through number of branches per plant. Therefore, the selection can be done directly on seed yield or indirectly using seed weight per plant.

Keywords: genotypic, phenotypic, correlation, path coefficient, soybean

Abstract ICSAE-IX ID 031

Designing Motion Graphics as a Zero Waste Lifestyle Campaign Media for the Indonesian People

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Abstract. Since Covid-19, there have been many changes in the order of people's lives, there are various new regulations such as the obligation to wear masks when leaving the house, maintaining distance, working from home or restrictions on leaving the house. These social restrictions have resulted in an increase in the volume of plastic waste as a result of online transactions. This problem resulted in environmental damage, as happened in North Sulawesi, Indonesia in 2018 a sperm whale was found dead with a stomach full of plastic waste weighing 5.9kg. Based on this, campaign actions need to be taken. Final Project with the title "Designing Motion Graphics as a Zero Waste Lifestyle Campaign Media for the Indonesian People" aims to assist the government's role in preventing environmental damage due to waste and to provide information, education, and invitations to the target audience to participate in the success of this campaign. Motion graphic design as a media campaign applies the mixed media art style as a visual representation of graphic elements, typographic styles, storyboards, and layouts.

Keywords: Zero Waste Lifestyle Campaign, Motion Graphic, Environmental Campaign, Kampanye Gaya Hidup Tanpa Sampah

Abstract ICSAE-IX ID 032

Economic Impact of the Walikota Solo Cup 2022

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Abstract. Organizing sports events has played a role in the local community's economy. The research purpose was estimated the economic impact in the form of spending on local and non-local visitors at the Walikota Solo Cup 2022. The study was used a qualitative study with a survey design. A total of 1,470 visitor surveys were generated (426 local visitors and 1,044 non-local visitors). The results shown that a small economic impact is generated from local visitors of Rp. 142,147,- per day per visitor, while the greater impact from non-local visitors of Rp. 900,472,- per day per visitor. So it can be concluded that with the Walikota Solo Cup 2022, it have a positive economic impact on the people of Solo.

Keywords: Economic Impact, Sports Event, Walikota Solo Cup 2022

Abstract ICSAE-IX ID 033

Empowerment of Women Tea Pickers (A Case Study on Lawu Mountainside in Karanganyar Regency)

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Abstract. The shift in women's roles from domestic to public is a phenomenon in the development of the social, economic, and political reality of women. Women's awareness of non-domestic roles is increasing but their involvement does not mean they are more empowered or that more attention is given to women's rights. This research describes the shift in women's roles and their contribution to meeting household needs, and how the empowerment of women is implemented. The research method is descriptive qualitative and the data analysis uses an interactive analysis. The research results show that there is a division of work in daily life, in which men work to fulfil their social needs while women have to bear the burden of their economic needs. This work division is seen in farm management, where men's work is dominated by crops with a high economic value or livestock farming, while women's work focuses on crops with a low economic values and small livestock. Empowerment of women is carried out in three ways: capacity building, cultural changes, and structural adjustment, based on the social, political, and psychological strengths of women tea pickers.

Keywords: cultural changes, empowerment, social needs, economic needs

Abstract ICSAE-IX ID 034

Chromosome of *Phaius tankervilleae* and *Phaius amboinensis* Orchid

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Abstract. *Phaius tankervilleae* and *Phaius amboinensis* orchids are decorative orchids that have great ornamental value and are classified as endangered plants. Genetic information from the *Phaius tankervilleae* and *Phaius amboinensis* orchids will facilitate plant breeding as a basis information to obtain improvements in ornamental plant properties. The purpose of chromosome analysis is to determine the shape, number, and size of chromosomes. The research was conducted at the Cytology Laboratory of the LIPI Biology Research Center, Bogor, West Java. The results of the observations were analyzed descriptively based on the observation of the chromosome images from the photo shoot and the data on the size and shape of the chromosomes. It is known that the *Phaius tankervillae* has a chromosome number of 2n=2x=44 and *Phaius amboinensis* has a chromosome number of 2n=2x=46. The average length of the long arm of the *Phaius tankervillae* chromosome was 1.25 ± 0.45 µm with the short arm of 1.13 ± 0.43 µm. The long arm length of the *Phaius amboinensis* orchid chromosome is 1.25 ± 0.44 µm with the short arm 1.06 ± 0.37 µm. *Phaius tankervillae* and *Phaius amboinensis* both have metacentric chromosomes meta.

Keywords**:** Cytology; Chrromosome; Orchid; Genetics

Abstract ICSAE-IX ID 036

CSR and Environmental Values Internalization Since Childhood: PAUD Harmoni Case

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Abstract. Lack of awareness and knowledge about the importance of protecting the environment is one of the causes of a lot of environmental damage caused by human behaviour. Internalization of environmental values is important as a preventive effort to overcome environmental problems. This process can be supported by various parties including the CSR of the Company which has environmental responsibility in its surroundings. This research seeks to explore the process of internalizing environmental values at childhood which is a program of CSR PT. Indaco Warna Dunia. This study uses qualitative research methods to explore CSR programs in the form of PAUD Harmoni. Data collection was carried out by in-depth interviews with informants using purposive sampling and FGD models as well as secondary data processing. The results of this study indicate that the internalization of environmental values from childhood is important to introduce and grow environmental awareness at childhood.

Keywords: Childhood, CSR, Internalization, PAUD Harmoni

Abstract ICSAE-IX ID 037

Co-compost Biochar as a Soil Ameliorant for Improving Soil Chemical Properties and Maize Yield in Acidic Upland East Lampung

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Abstract. The addition of co-compost biochar could increase the effectiveness of ameliorant compared to biochar and manure. The field study at Taman Bogo Research Station was conducted for two planting seasons (December 2017–July 2018) with treatments: 1) control, 2) cacao shell (CS) biochar (BC), 3) corncob (CC) BC, 4) co-compost CS BC, 5) co-compost CC BC and 6) manure, with four replicates and a 10 tha^{-} dose of ameliorant. The research objective was to determine the effectiveness of applying co-compost biochar to improve soil chemical properties and maize yields in acidic upland. The results showed that co-compost biochar CS and CC for two planting seasons (PS) increased pH, total N, K, Ca, and decreased Al, but application of BC CS resulted in a more significant improvement of the soil chemical properties. The dry grain from the biochar and co-compost BC application increased significantly (7.41 tha^{-1} in PS1 and 6.73 tha^{-1} in PS2) compared to the control (4.46 tha^{-1} PS1 and 3.82 tha^{-1} PS2), but BC CS and co-compost CS gave more stable results. Good quality of CS BC has greater meaning when used not as a co-compost. In contrast, corn cob biochar (lower quality) should be formulated as a co-compost.

Keywords: biochar, co-compost, soil acidity, maize productivity

Abstract ICSAE-IX ID 038

Building a Food Sovereign Society Through Indigenous Forest Establishment Policy

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Abstract. The development of multicomplex food sovereignty requires a multisectoral approach that the Government, as the policy maker within the food sector, requires cross-sectoral coordination which becomes an essential requirement to build effective food security at the national level in Indonesia. In line with the regional autonomy policy, the regional governments could actively participate in the efforts to build food sovereignty within their jurisdictions. In reality, the participation of regional food agencies is still minimum. This institutional crisis within the government's food sovereignty agencies, added with a lack of political commitment and political willingness has implications for the failure of food security programs in Indonesia, therefore, the strategy of the Indonesian government needs to be changed from the centralized bureaucratic-based to decentralized local-based which emphasizes the focus on local farmers and indigenous communities. Constitutional Court Decision No. 25/PUU-X/2012 becomes the primary basis to strengthen the rights of indigenous communities over indigenous forest ownership to achieve food sovereignty in Indonesia. Food sovereignty can only be achieved through the mastery of green and local appropriate technology based on the traditional customs of indigenous people.

Keywords: food sovereign, indigenous forest, policy

Abstract ICSAE-IX ID 039

Effect of iaa and bap concentrations on the growth of matoa (*Pometia pinnata*) plants in vitro

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Abstract. The matoa plant is indigenous to Papua. The matoa plant has been used for a variety of purposes by the community. The matoa stem can be used in the wood industry, the fruit can be eaten, and the leaf can be used as medicine. Matoa plants are not commonly cultivated. This is due to seed storage and plant propagation constraints. This study aims study the effect of IAA and BAP concentrations matoa plant growth in MS media. The research utilizing 16 treatment combinations and three replications. The first factor is IAA concentration (0 ppm; 0.5 ppm; 1 ppm; 1.5 ppm). The concentration of BAP is the second factor (0 ppm; 2 ppm; 4 ppm; 6 ppm). The variables observed included root emergence time, leaf emergence time, root number, and leaf number. The result showed that 1.5 ppm IAA accelerated root growth time, 2.250 DAP, and IAA 1 ppm produced the highest number of roots, 4.50 roots. The interaction of 0.5 ppm IAA and 4 ppm BAP was able to accelerate the time of emergence of matoa leaves, namely 2 DAP and 1.5 ppm IAA and 6 ppm BAP had the most leaves, namely 18.33 leaves.

Keywords: BAP, IAA, In Vitro, Matoa, Tissue Culture

Abstract ICSAE-IX ID 040

Ecological Risk Assessment And Spatial Distribution of Some Heavy Metals of Agricultural Soils in Nganjuk Regency, Indonesia

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Abstract. This research seeks to measure the lead, cadmium, copper, nickel, chromium, and arsenic in the paddy fields in Nganjuk Regency, as well as how much influence these metals provide on the environment and where they are located. Topsoil samples totaling 105 were collected in pursuit of this goal. The AAS was utilized to ascertain the elemental composition of the soil samples. The numerous soil pollution and ecological risk indices, such as Igeo, PI, IPI, PLI, and PERI, were used to analyze the situation. Spline interpolation with ArcGIS 10.2 was used to study metal distribution. The metal content in Pb, Cd, Co, Ni, Cr, and As was 10.01, 0.77, 9.60, 5.46, 3.61, and 2.79 mg/kg, respectively. There were no anthropogenic factors in the PCA or the HCA results; all elements came from natural sources. All of these pollutants had pollution index values between 0.59 and 2.56 and 0.05 and 0.56 on the lower end of the scale. With an average of 1.10-6, the pollutant load index suggests that all samples are safe. The rice fields in the research region have an average PERI score of 91.48, indicating a low ecological risk.

Keywords: Ecological risk assessment, Heavy metals, Soil contamination

Abstract ICSAE-IX ID 042

Coping strategy of porang farmer's household in anticipating long harvest period: Empirical study in Wonogiri Regency, Indonesia

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Abstract. Porang is one of the alternative foods commonly cultivated in several areas, including Wonogiri Regency, because this area is suitable for its development. The cultivation business is not devoid of challenges. The tubers of Porang experience a dormancy phase, resulting in a long growing period of 6 to 10 months. Therefore, this study aims to identify the coping strategies used by farmers to predict the length of the porang harvest period. Furthermore, this study is qualitative in nature involving 180 farmers selected through a census. The snowball sampling method was used to select respondents from 6 sub-districts in Wonogiri Regency in Indonesia. Furthermore, the analysis was conducted descriptively using an index coping strategy for measurement. These results indicated that farmers employ 11 types of coping strategies. The application is performed by combining one type up with more than 4 others. Most of the coping strategies types are applied to 2 combinations, hence, its index is in a low category. The alternative is a realistic combination that farmers can choose based on human and other resource availability.

Keywords: Porang, Wonogir regency, coping strategies

Abstract ICSAE-IX ID 043

Participation of Children's Forum in the development of child-friendly public spaces as smoke-free areas

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Abstract. Children's forum is a medium to convey the interests of children in development. The availability of healthy and environmentally friendly public space is one of the needs of children which is also the goal of Sustainable Development Goals number 11, namely Sustainable cities and communities. This research aims to examine the participation of the Children's Forum in developing smoke-free public spaces in the city of Surakarta. This study was a descriptive qualitative research with case study approach. The informants were selected purposively, consisting of officers at the Office of Women Empowerment, Child Protection and Community Empowerment, non-government organization, namely Yayasan Kakak, as well as members of the Children Forum in Surakarta. Data was collected using observation, in-depth interviews, focus group discussion and documentation study. Data analysis was conducted using an interactive model of analysis encompassing three stages : data reduction, data presentation, and conclusion drawing. Research results show that the Surakarta Children's Forum was actively involved in the development of child-friendly public spaces as smoke-free areas through advocacy to push for the ratification of a smoke-free regional regulation and monitoring its implementation, the movement to collect cigarette butts in public parks, and communication, information and education for awareness of the dangers of smoking to children's health.

Keywords: participation, children's forum, child friendly public spaces, smoke-free areas

Abstract ICSAE-IX ID 044

UV absorbing substances in the Indonesian starfish *Archaster typycus*

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Abstract. Marine organisms living in the shallow water ecosystems are potentially exposed to the highest and harmful levels of UV radiation. The starfish *Archaster typicus* lives in the shallow water habitat and, therefore, is exposed to the highest level of UV radiation, suggesting that this starfish contains UV absorbing compounds to diminish the direct and indirect damaging effects of environmental UV radiation. This study aimed to identify the UV absorbing compounds in the Indonesian starfish *A. typicus*. Two UV absorbing compounds, palythine (**1**) and asterina-330 (**2**), were isolated from *A. typicus* collected at Tongkaina, North Sulawesi, Indonesia. The structures of these compounds were assigned on the basis of their spectroscopic data and confirmed by comparing these data with those for the reported values. This is the first report of isolation UV absorbing compounds from *A. typicus*.

Keywords: Archaster typicus, asterina-330, palythine, starfish, UV compounds

Abstract ICSAE-IX ID 045

Efficacy of moringa leaf extract and cow manure to soybean growth and yield

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Abstract. Glycine max. L. Merril. is one of Indonesia's strategic commodities after rice and corn. Efforts to increase soybean productivity are carried out by using Moringa leaf extract and cow manure. This study aims to determine the effect of the dose of Moringa leaf extract and cow manure on the growth and yield of soybeans. The research was carried out from October to December 2020. In Jagalan Village, Karangnongko District, Klaten Regency, Central Java, the soil type was regosol. The research design used the factorial method with a completely randomized design (CRD) which consisted of 2 factors, the first factor was Moringa leaf extract dose variations (M) were 0, 10, 20, 30, 40, and 50 ml. /L (M0, M1, M2, M3, M4, and M5), the second factor is cow manure (C) which is 30 and 60 g/polybag (P1 and P2). The results showed that the combination treatment of C5P2 at a dose of 50 ml/L of Moringa leaf extract and 60g/polybag of cow manure had the highest growth and yield compared to other treatments. The benefit of this research is to provide information on the use of appropriate doses of Moringa leaf extract and cow manure on soybean growth and yield.

Keywords: moringa, cow manure, soybean

Abstract ICSAE-IX ID 046

Evaluation Of Different Herbicides Application Towards Weed Population And Aerobic Rice Performance

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Abstract. Aerobic rice production is a revolutionary way of rice cultivation in well-drained, non-puddled, and non-saturated soils condition with very minimal water requirement. However, weed management is a challenging issue in aerobic rice field, owing to no standing water to suppress weed germination upon early stage of rice development. High weed infestation has threatened the aerobic rice sustainability, which demands an efficient and cost-effective weed management technique. The control efficacy of 13 common herbicide treatments, consisting of either a single application of herbicides or sequential application of herbicides were evaluated under field condition in two planting seasons at Universiti Putra Malaysia. Regardless of the planting season, the experimental plots were highly dominated by *Echinocloa colona*, *Cyperus iria* and *Eleusine indica*, with summed dominance ratio above 11%, as compared to other weed species. The control efficacy of each herbicide treatment was estimated from the weed dry weight. It was observed that herbicide treatments, the sequential application of pretilachlor fb propanil/thiobencarb (T3), propanil/thiobencarb fb bentazon/MCPA (T5), and bispyribac-sodium fb bentazon+MCPA (T11) significantly produced higher weed control efficacy over the other herbicide treatments.

Keywords: Aerobic rice, herbicide application, weed infestation

Abstract ICSAE-IX ID 047

Determination of consumer preferences on goat milk products

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Abstract. Goat's milk is an animal protein claimed as a functional food; apart from being a source of protein, goat's milk also has low allergenicity and better digestibility than cow's milk. However, goat's milk has limitations, namely in the aroma of pregus, so that in its presentation, it is necessary to process it so consumers can well receive that goat's milk. This study aims to determine consumer behavior and preference for goat's milk products. The number of samples is 108 respondents and data collection was carried out by the questionnaire method. Data analysis was carried out descriptively and quantitatively using multiple linear regression analysis. Factors that influence the behavior and preferences of goat's milk products are the respondent's age, the number of family members, and the price of goat's milk products. The results obtained showed R^2 = 0.136. The variable price of goat's milk products had a significant effect ($P<0.01$) on consumer behavior and preferences in buying goat's milk products. The most consumed goat's milk product by consumers is powdered milk, as much as 42.67%. Consumers reasons for consuming goat's milk products are health reasons 81.5%. This study concludes that the behavior and preferences of goat's milk products are influenced by the price of goat's milk products.

Keywords: Consumer behavior, consumer preferences, goat's milk products, multiple linear regression

Abstract ICSAE-IX ID 048

Diversity of agarwood-inducing fungi from *Gyrinops versteegii* tree

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Abstract. *Gyrinops versteegii* is a tropical tree belonging to the *Thymelaeaceae* family. It is listed as one of the important tree species in Appendix II CITES because of its economic value as a source of agarwood. In nature, under special conditions, *Gyrinops versteegii* tree can produce agarwood (Gaharu), a high economic non-timber commodity in the world yielding aromatic resin. Agarwood has been widely used as incense, therapeutic perfume, traditional medicine, aromatic food ingredients, medicinal wine, and ornamental functions. It also contains phenolic compounds and ferulyglycerides, which exhibit anti-cancer activity. It is apparently an induced resinous product due to subsequent infection by facultative fungal pathogens. Therefore, it is necessary to investigate fungi associated with agarwood. In this study, we isolated fungi from the infected trunk of *Gyrinops versteegii*, and the pure fungi isolates were identified microscopically and then reconfirmed by molecular techniques. The identification method included genomic DNA isolation, DNA amplification of Internal Transcribed Spacer (ITS) genes by a specific primer, direct ITS gene sequencing and molecular analysis of fungi species and their relationship with other fungi. The investigated fungi are *Fusarium* sp. Ghr1, *Aspergillus* sp. *G*hr2 and *Fusarium* sp. Ghr3, respectively.

Keywords: *Gyrinops versteegii*, agarwood, molecular identification, *Fusarium*, *Aspergillus*

Abstract ICSAE-IX ID 049

E-Agribusiness: Key Success Factors of the Agri-Entrepreneurs to conquer the Market

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Abstract. Progress in the agricultural sector is one of the most imperative tools to enhance the productivity of agribusiness. This study identified the critical success factors (CSFs) required for the adoption of e-agribusiness platforms in the Malaysian agriculture sector. The study identified potential critical factors from the prior studies and contextually adjusted using a pilot study. These factors are categorized in various categories such as financial Imperative, technological Imperative, knowledge imperative, risk & trust factors, governance & public policy, and challenging business environment. The study has collected data from 302 agri-entrepreneurs within Malaysia through a questionnaire for quantitative analysis. The exploratory factor analysis (EFA) will be used to see the impact of CSFs that help to increase technological adoption thereby enhancing communication, advertisement, and overall sales of agri-products on the e-business platform. The proposed study is expected to have a significant impact on CSFs (financial imperative, technological imperative, knowledge imperative, risk & trust factors, governance & public policy, and challenging business environment) on the adoption of e-agribusiness platform. The findings will provide guidelines to agri-entrepreneurs and policymakers that how to use key success factors to improve business performance by utilizing e-agribusiness platforms.

Keywords: E-Agribusiness, Critical Success Factors, Agri-Entrepreneur

Abstract ICSAE-IX ID 050

Corporate Social Responsibility of Tourism during the COVID-19 Pandemic: Case Study of PT TWC Borobudur

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Abstract. Corporate Social Responsibility (CSR) is a company's commitment to behave ethically and contribute to sustainable economic development. Therefore, to reduce the impact of the COVID-19 pandemic, the government encourages CSR to continue. This is in accordance with goal number 3 of SDGs 2030. The aim of this research is to determine the strategy of PT TWC Borobudur in implementing CSR during the COVID-19 Pandemic. The main theory uses stakeholder engagement from Greenwood to see the goals, levels and techniques used. The research uses a qualitative method with a case study approach. The results of the study indicate that PT TWC continues to carry out CSR activities because it realizes that all parties must participate in dealing with the pandemic. The Company also realizes that its survival and long-term development depend on achieving a balance between profitability and harmony with various stakeholders. The company revised the budget to respond to the financing needs of CSR programs in the health, economic, and environmental sectors. The stakeholders involved are formal and informal leaders, health workers, tourism actors, and community. The purpose of stakeholder engagement is to maximize the benefits of the activity. The level of stakeholder engagement varies from inform, consult to involve. The techniques used also vary according to the level.

Keywords: Sustainable Development Goals, Corporate Social Responsibility, COVID-19 Pandemic

Abstract ICSAE-IX ID 051

A Study on The Benefits and Intention to Implement Urban Agriculture Among Urban Dwellers. Case Study in Southern Region, of Malaysia

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Abstract. In Malaysia, urban agriculture activity is getting popular, especially during the pandemic of Covid-19. As the pandemic struck, the economic situation in Malaysia faced a downturn. Rapid urbanization, slow income growth, and unstable food prices in the market are the major problem faced by urban dwellers nowadays. This study discussed the intention to implement among urban dwellers in the southern region of Malaysia and the benefits of urban agriculture that influence their intention. The study employs quantitative analysis and was based on the primary data collected via face to face and distributed google form in 5 urban areas in 3 states which are Johor, Melaka, and Seremban. The total sample size was 214 urban dwellers. Intention level analysis, Correlation analysis, and exploratory factor analysis were used in the study to achieve the objectives. The study shows that the majority of the respondents have moderate to high intention levels. The results indicate a positive relationship between the benefits of urban agriculture and the implementation intention of urban dwellers at 0.01 significant level. The results also indicate 3 factors effecting the intention to implement which are financial, social and environmental. It implies that urban agriculture has the potential to be implemented in the southern region of Malaysia.

Keywords: Urban agriculture, intention, financial, social, environmental

Abstract ICSAE-IX ID 052

Factors Influencing Biological Asset Disclosures in Agricultural Companies in Indonesia

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Abstract. Agricultural companies are those whose activities relate to managing the biological transformation of living plants or animals (biological assets) into a product that ready for consumption or which still require further processing. According to the Indonesian Statement of Financial Accounting Standard 69 (PSAK 69) such companies should report in how they recognize and measure the fair value of their biological assets in the company annual report. This study aims to examine to what extent the biological asset reporting according to the PSAK 69 among agricultural companies listed on Indonesia Stock Exchange (IDX). In addition, this study also examine factors that may influence the level of biological asset disclosures in the company annual report. The examined factors are biological asset intensity, concentrated ownership, audit committee effectiveness, profitability, and company size. The level of biological asset disclosures was measured by a checklist derived from PSAK 69, while biological asset intensity was measured by a ratio of the assets of living plants or animals owned by a company to the company's total assets. This study uses 56 firm-year observation of agriculture industry listed on IDX during 2017 to 2020. Results of data analysis using multivariate regression suggest that biological asset intensity and firm size positively affect the level of biological asset disclosures, while audit committee effectiveness, concentrated ownership, and profitability do not impact on the biological assets reporting. The results indicate that the higher the living plants or animals owned by a company and the larger the firm, the higher the commitment of a company to disclose its biological assets in the company annual report. The study sheds light on the capital market authority agency's recent policy aimed at strengthening factors that may impact agricultural companies to disclose their biological assets.

Keywords: biological asset, biological asset disclosures, audit committee, agriculture companies

Abstract ICSAE-IX ID 053

Effects of Precursor Feeding of Phenylalanine on Accumulation of Selected Flavonoids in Adventitious Root Suspension Cultures of *Boesenbergia rotunda* (L.) Mansf.

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Abstract. Pharmacological worth flavonoid compounds, found in *Boesenbergia rotunda* (finger root) have caused massive interests among researchers which led to the applications of plant tissue culture technology. The flavonoids of *B. rotunda* are known to display anti-cancer, anti-inflammatory, anti-virus, anti-HIV and anti-dengue activities. This present study has been conducted to investigate the effects of precursor feeding of phenylalanine on the production of selected flavonoids; cardamonin, pinostrobin and panduratin A in *in vitro* adventitious root cultures of *B. rotunda.* The growth and flavonoids production of the *in vitro* adventitious roots did response positively when being cultured in liquid half strength MS medium + 0.5 mg/L NAA fed with phenylalanine in different concentrations (0, 10, 20, 40 and 60 mM/L) for five weeks. Cardamonin, pinostrobin and panduratin A were significantly enhanced in culture medium fed with 20 mM/L phenylalanine with 3.17 ± 0.00 mg/g, 1.67 ± 0.00 mg/g and 1.80 ± 0.0 mg/g respectively. From these results, the selected flavonoids were found to be 4.7 folds higher for pinostrobin, 11.1 folds higher for cardamonin and 20 folds higher for panduratin A compared to the flavonoids produced in control root samples. The success of this study is beneficial for potential future works to guarantee maximum production of desired secondary metabolites in *B. rotunda* species.

Keywords: Zingiberaceae, Boesenbergia rotunda, adventitious roots, liquid suspension culture, flavonoids, precursor, phenylalanine

Abstract ICSAE-IX ID 054

Analysis of The Effect of Macroeconomics and Access to Health Services on Stunting Interprovince in Indonesia

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Abstract. This study aims to analyze the effect of macroeconomics and access to health services on the prevalence of stunting among provinces in Indonesia. This study employs panel data of 34 provinces in Indonesia between 2017 and 2019. Data is collected from the Central Statistics Agency, Nutrition Status Monitoring book 2017, Basic Health Research 2018, Study on Nutritional Status of Indonesian Toddlers 2019, Health Profile of Jakarta in 2017-2018, Health Profile of Indonesia in 2017, 2018, and 2019. The random effect technique is utilized to estimate the role of macroeconomic variables and access to health services on stunting in 34 provinces in Indonesia in 2017-2019. The results estimation shows that economic growth has a positive effect on stunting prevalence. The growth of income is not evenly distributed and income increases are not spent on nutrition. Increasing inclusive economic development and policies that lead to stunting reduction especially in provinces with high stunting rates are very much needed. The Human Development Index and better access to health services are proven to lower stunting prevalence. Some policy recommendations are improving access to health services and making sure that the services can reach all pregnant women. Optimizing nutrition service, consultations, and education for pregnant women through health service centers are very much needed.

Keywords: Stunting, Macroeconomics, Access to Health Service

Abstract ICSAE-IX ID 055

Revitalization *Boh gadong* as ethnobotanical garden in Simeulue Island

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Abstract. *Boh gadong* (fruit *Gadong*) is a typical plant in Simeulue island. This fruit includes in the tuber group. The shape is like taro but huge. The colour is purple, and the taste is similar like taro. Fruit gadung usually grows in the bush and has many benefits as a staple food on Simeulue Island. At present, *Gadong* is rarely to find. Meanwhile, the benefit of this fruit is good for health. Based on local people's information, this fruit can cure rheumatism, stomach ache, festering wounds, and antidote. This study aimed to expose *Boh gadong* as a typical plant on Simeulue Island for its benefit, especially for Simeuluenese. The ethnography method was applied in this study. The data were collected from documentation of *Gadong* fruit, depth interview, and participant observation. This study's recording of narrative and descriptive of *Gadong* fruit as an annotation were data. The result of the study showed that the ethnobotanical garden of *Gadong* fruit could be developed into a potential garden as one of the foodstuffs on Simeulue Island. Gadong fruit's revitalisation needs to be conducted regarding the essence of this typical plant toward Simueluenese welfare based on their local wisdom.

Keywords: Revitalization, ethnobotanical, *Boh gadong*, Simeulue Island

Abstract ICSAE-IX ID 056

Food security campaign toward sustainable goals of agriculture in Simeulue Island

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Abstract. This study describes the relationship between food security and the role of the local chief/leader in motivating his community to maintain their typical plants as the sources for their main food. This qualitative study used the ethnography method to describe humans' role and surroundings because humans are responsible for making their life and environment harmony, especially on food security. From the recording and the interview result, it is known that the role of the chief as the informal leader has more opportunity and power to listen. It is known that in the past, the role of the local chief succeeded in influencing and convincing his community to consume rice as the main food and affected the community to grow rice even though their environment was not supported enough. The 'rice standardization' as a welfare area is not appropriate to be settled in all places in Indonesia. Formerly, Simeuluenese already knew and consumed other main food except for rice, namely sago and *taeb*, as their main food. However, the policy had changed their mind to consume rice as their main food instead of sago. Consequently, the local chief's role is essential to campaign again to convince his community on food security toward sustainable goals based on local wisdom.

Keywords**:** Food security, local chief, Simeuluenese

Abstract ICSAE-IX ID 057

The Characteristics of Teapots Made of Plastic and Clay: What are their Designs, Functions and Impacts on the Environment?

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Abstract. By the technological advances, people are starting to leave traditional products and switch to ready-to-use products which are dominated by objects made of plastic. Although plastic products are considered more practical, but plastic is a material that is difficult to decompose and is harmful to the ecosystem of living things. The research focused on the advantages of Bayat pottery made of clay compared to other products made of plastic. This research was necessary to be conducted to increase public awareness in order to reduce the use of products made from plastic raw materials in everyday life. This study used descriptive qualitative method. In addition, this study was conducted in Bayat, Klaten, in March – June 2022. The study shows that handicrafts made of clay are considered more eco-friendly than other handicraft products made of plastic. The development of Bayat pottery from clay has implications for design and environmental aspects. In the design aspect, Bayat craft is able to increase the aesthetic value of applied object crafts. On the environmental aspect, clay raw materials are easier to decompose, while plastic products take 50-100 years to decompose.

Keywords**:** teapot, plastic, clay, design, eco-friendly, environment

Abstract ICSAE-IX ID 059

GC-MS analysis of bioactive compounds from leaves extract of *Melastoma malabatrichum, Clidemia hirta, Chromolaena odorata*, and *Ageratum conyzoides*

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Abstract. *Melastoma malabathricum*, *Clidemia hirta*, *Chromolaena odorata*, and *Ageratum conyzoides* are classified under broad-leaved and categorized as potential weeds as they have high nutritive value, also rich in chemical compounds for various bioactivities. The present investigation was carried out to determine the possible bioactive components of these weeds using GC-MS analysis. Extraction from the leaves of these weeds was done using different solvents like ethanol, acetone, and ethyl acetate. The GC- MS analysis result showed the presence of bioactive compounds in each extract of the four weeds. The results showed that *M. malabatchricum* leaf extract contained Pentadecanoic acid, 14-methyl-, methyl ester and 9-Octadecenoic acid, methyl ester, (E)- for ethanol extract, 1,4-Benzodiazepin-2(1H,3H)-one, 7-chloro-1-ethyl-5-phenyl- and Spiro[bicyclo[2.2.1]hept-5-ene-2,1'-cyclopropane], 1,4,5,6,7,7-hexachloro- for acetone extract and 1-Triethylsilyloxydodecane and 2,3-Dihydroxypropyl elaidate for ethyl acetate extract. *C. hirta* showed presence of 3,7,11,15-Tetramethyl-2-hexadecen-1-ol and 3-Hexadecyne for ethanol extract, 2-Butyl-1,2-azaborolidine and 1,2-15,16-Diepoxyhexadecane for acetone extract and 3,7,11,15-Tetramethyl-2-hexadecen-1-ol and Estra-1,3,5(10)-trien-17á-ol for ethyl acetate extract. *C. odorata* showed the presence of 2-(7-Hydroxymethyl-3,11-dimethyl-dodeca-2,6,10-trienyl)-[1,4]benzoquinone and 5,19-Cyclo-5á-androst-6-ene-3,17-dione for ethanol extract, Pentadecanoic acid, 14-methyl-, methyl ester and 11-Octadecenoic acid, methyl ester for acetone extract and Methyl 9,12-epithiostearate and 9-Octadecenoic acid (Z)-, 2,3-dihydroxypropyl ester for ethyl acetate extract. *A. conyzoides* showed presence of Bicyclo[3.3.1]non-2-en-9-ol, anti- and à-Caryophyllene for ethanol extract, Tricyclo[2.2.1.0(2,6)]heptane, 1,7-dimethyl-7-(4-methyl-3-pentenyl)-, (-)- and à-Caryophyllene for acetone extract and Tricyclo[2.2.1.0(2,6)]heptane, 1,7-dimethyl-7-(4-methyl-3-pentenyl)-, (-)- and 6-Methyl-6-hepten-4-yn-2-ol for ethyl acetate extract. Some types of compounds found are known to have the potential as antibacterial, antiviral, antioxidant, insecticidal, and anti-inflammatory.

Keywords: GC-MS, Melastoma malabathricum, Clidemia hirta, Chromolaena odorata, Ageratum conyzoides

Abstract ICSAE-IX ID 060

An environmentally friendly one-pot synthesis method of 1,4-dihydropyridines through Hantzsch reaction

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Abstract. A simple, environmentally friendly and highly efficient method has been developed for the synthesis of 1,4 dihydropyridines (1,4-DHPs) compounds via one-pot Hantzsch reactions with good yields (70-90%). The framework of these compounds was constructed from an aromatic aldehyde, ethylaceto acetate and ammonium acetate, using kaolin in a solvent-free condition. The characterization of kaolin was carried out by X-ray diffraction (XRD), scanning electron microscopy (SEM) and X-ray photoelectron spectroscopy (XPS) technics. This ecologically friendly process has various benefits such as a green and cost-effective procedure, good yield, short reaction time and the ability to recover and reuse the heterogeneous catalyst many times.

Keywords: dihydropyridines, kaolin, heterogeneous catalyst, green catalysis

Abstract ICSAE-IX ID 061

A Review on Participation of Cocoa Smallholders in Agricultural Certification Scheme

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Abstract. The ability of the cocoa smallholders to comply with the agricultural certification scheme has led to the improvement of the commodity profits and sustainable agriculture especially cocoa crop. This study aims to determinants and extent the participation of cocoa smallholder in agricultural certification scheme. Cocoa production contributes significantly to the national economy by generating foreign exchange profits. The cocoa industry keeps growing rapidly from year to year. The results revealed that most important factors influence the smallholder's participation in agricultural certification scheme are age of smallholders, gender, training, farming experience, education, and attitude. Educational status had significant positive relationship with the certification scheme. Using a review method from several research study the multinomial logistic regression model and other methods is used to analyze the participation of smallholders in the certification. Therefore, there have a lot of benefits through certifications which give high impact to the smallholders in term of food safety standards. This can improve the safety of consumer, the livelihood of smallholder, and the quality of agricultural products. This capacity will locate the cocoa crops at the global demand that linked together from top to down of the value chains process. Thus, according to empirical research, certification programs open a new breath for more sustainably agricultural products from cocoa.

Keywords: cocoa smallholders, factors, agricultural certification scheme

Abstract ICSAE-IX ID 062

Antioxidant and GC-MS Analysis of *Cyperus iria*, *Fimbristylis miliacea*, and *Fimbristylis globulosa*

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Abstract. Weed from Cyperaceae family had been commonly found in rice field areas and it includes 3000 species. 220 of the species in the family were identified as weeds. Although this family has been identified as one of the invasive weeds in the world, but the existence of secondary metabolites shows that this weed is able to exert various biological activities. This study focuses on the antioxidant analysis and potentially chemical components of three weeds in Cyperaceae family: *Cyperus iria*, *Fimbristylis miliacea*, and *Fimbristylis globulosa*. This was conducted using GC-MS analysis. The GC-MS analysis of methanol extract of the three species showed 30, 11, and 8 compounds respectively. The methanol extracts of these three species were also screened for antioxidant activity. Antioxidant activity was determined using 1,1-diphenyl-2-picryl-hydrazyl (DPPH) test. The extracts have significant antioxidant activity with values of IC_{50} = 309.07 µg/ml (*C. iria*); 250.67 µg/ml (*F. miliacea*); and 623.82 µg/ml (*F. globulosa*).

Keywords: Antioxidant, Cyperaceae, GC-MS

Abstract ICSAE-IX ID 064

Readiness of Implementation Towards Internet of Things (IoT) System on the Bachelor Degree Final Year Students of Agricultural Programs

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Abstract. Through its ground-breaking innovations, the Internet of Things (IoT) has recently agreed to provide same value to enhance awareness and capacity by changing work life. The focus of IoT adoption is to help farmers fill the supply demand gap by ensuring high yields, environmental protection and profitability. Precision agriculture is approaching using IoT system to assure optimum deployment of resources to reduce operating costs and achieve high crop yields. The purpose of this research is to analyse and describe the factor that concerns of readiness of final year students' bachelor degree of agricultural programs towards implementation of Internet of Things (IoT) system. 204 students were chosen from four different universities (Universiti Teknologi MARA, Universiti Putra Malaysia, Universiti Pendidikan Sultan Idris and Universiti Sultan Zainal Abidin) using random sampling. The Theory Acceptance Model (TAM) is selected to describe the readiness of final year students' bachelor degree of agricultural programs towards implementation of Internet of Things (IoT) system. The study reveal that if the IoT technology helps students to make significant progress and minimise task uncertainty. They do seem confident that the usefulness of the IoT system can help make it easier when doing work. Thus, Malaysia's students and farmers need more exposure and training to improve their readiness for IoT adoption.

Keywords: Internet of Things (IoT), Theory Acceptance Model (TAM, Precision Agriculture

Abstract ICSAE-IX ID 065

The Effect of biochar from agricultural waste on available Silicon in Ultisol and Inceptisol under flooded conditions

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Abstract. Biochar can be used as a soil amendment and source of Si. The content of Si biochar differs depending on the raw material. The research aimed to know the effect of biochar kinds on available- silicon in different soils in a flooded condition. The experiment used a complete randomized design (CRD) with 2 factors. Biochar type consists of B1 = rice straw; B2= rice husk; B3 = sawdust ; B4= coconut shell ; B5 = corn stover. Soil type consists of T1: Inceptisol and T2: Ultisol. Each treatment is replicated three times. The experiment used 2 kg of soil and 5 tons.ha^{-1} biochar. Incubation is carried out for four weeks by maintaining a water height of 5 cm. Soil parameters include organic C, total N, available P, total Si, available Si, leached Si, and pH H2O. The data were analyzed using Analysis of Variance, Duncan's Multiple Range Test, and Correlation test. The results showed that biochar from rice husks has a higher total Si and Si available than other biochar. Rice husk biochar gives the highest available-Si in Inceptisol (8.66 mg/kg) and Ultisol (7.49 mg/kg) compared to the other biochar. Silicon leaching ranges from 5.23-8.66% of soil available-Si in both soils.

Keywords: biochar, silicon,inceptisol,ultisol

Abstract ICSAE-IX ID 067

Estimated Sediment Exports and Erosion In Central Citarum Watershed

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Abstract. In addition to experiencing problems with water availability and quality, the Citratum watershed is also experiencing problems with soil erosion and sedimentation. The impacts of climate change and land use cover are the main causes of reduced yields and water quality as well as tradeof soil erosion and sediment. Thus, monitoring of water conditions and soil erosion are prioritized in the Central Citarum watershed with an area of 273,634 hectares. This study aims to estimate the spatial distribution of sediment exports and soil erosion in Central Citarum. The method used to calculate sediment export and soil erosion is the INVEST Sediment Delivery Ratio Model. The results showed that the total export of sediment from the Central Citarum watershed was 4.61 x million tons/year or an annual average of 20.31 tons/ha/year. By the largest distribution: subwatershed Cihalang, subwatershed Cilawang 2, subwatershed Cipada, subwatershed Cilawang , and subwatershed Cihalayang, contributed 14.83%, 13.00 %, 12 ,71 %, 9.9 % and 5.78%, respectively. Meanwhile, the total soil erosion is 23.16 million tons/year or an annual average of 102, tons/ha/year. with the largest distribution: subwatershed Cihalang, subwatershed Cilawang 2, subwatershed Cipada, subwatershed Cilawang , and subwatershed Cihalayang,, contributing 12.73% , 12.33 %, 10.55 %, 9.34 and 5.84% respectively.

Keywords: sediment export, soil erosion, sediment delevery ratio, Invest Model, watershed, Citarum

Abstract ICSAE-IX ID 068

Effect of Methionine Hydroxy Analog (MHA) or Dextrose Supplementation on Physiological Responses and Behavior of Sheep Under Transportation Stress

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Abstract. Transportation causes sheep to experience stress and body weight loss due to physical stress during the process. This study aimed to evaluate the administration of protected methionine hydroxy analog (MHA) or dextrose before transportation on body weight loss, physiological responses, and post-transportation behavior of sheep. The study used 42 thin-tailed sheep (body weight 18.28±2.11 kg) were divided into three treatments, i.e., without MHA/dextrose supplementation (P1, control), supplementation of MHA 0.24 g/kg body weight (P2), and supplementation of dextrose 0.24 g/kg body weight (P3). Sheep were transported for a 6-hour journey in commercial vehicles. The results showed that P2 and P3 significantly reduced ($P<0.05$) the length of time for the sheep to reach their initial body weight before transportation. The P2 and P3 significantly decreased ($P<0.05$) pulse and respiratory rates as compared to P1. The resting behavior of P1 was significantly higher ($P<0.05$) than P2 and P3, while the standing behavior of P2 and P3 was significantly higher ($P<0.05$) than P1, which indicated an improvement of sheep condition in the P2 and P3 treatments. It can be concluded that the supplementation of MHA or dextrose before transportation improves the bodyweight recovery time, physiological conditions, and behavior of sheep under transportation stress.

Keywords: behavior, dextrose, methionine hidroxy analog, sheep, transportation

Abstract ICSAE-IX ID 069

Extraction of chitin and chitosan *black soldier fly* (*Hermetia illucens*) prepupa phase on characterization and yield

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Abstract. Currently, the Black Soldier Fly (BSF) insect is a prima donna among farmers, especially poultry because it has high protein and easy breeding in waste media. BSF in each phase will have a different nutritional content and exoskeleton, in the prepupa phase it has a high protein content and a slightly hard exoskeleton indicating the presence of chitin and chitosan components. To get chitin and chitosan extraction process is carried out, the process also has differences in producing chitin including demineralization and deproteination stages while producing chitosan includes demineralization, deproteination, depigmentation and deacetylation stages. This study aims to determine the amount of yield and characterization of the prepupa phase of chitin and chitosan BSF extraction. The results of this study showed that the extraction of BSF chitin in the prepupa phase produced a yield of 18.05% and the characterization was blackish brown, while the extraction of BSF chitosan in the prepupa phase resulted in a yield of 10.85% and the characterization was white (pure).

Keywords: black soldier fly fase prepupa, characterization, Chitin, Chitosan, yield

Abstract ICSAE-IX ID 070

The ATP1A1 Gene Polymorphisms in Indonesian Beef Cattle

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Abstract. In this research, the direct sequencing method was used to identify the polymorphism and genetic diversity of the ATP1A1 gene in Indonesian beef cattle. The amplification of the ATP1A1 gene was using one set of primer (F = 5'- AGG GGT AGC CAG AGT TCC TA – 3' and R = 5' – CCC AAA GGT CAC GTG CTT TT – 3'). The result showed six SNPs found in the APT1A1 gene, namely SNPs g.17293G/A, g.17356C/T, g.17359G/A, g.17541A/G, g.17585 A/G, and g. 17682C/T. Three SNPs were located in coding sequence nine, and the other SNPs were in intron 9 of the ATP1A1 gene. Based on the total population, the Chi-square test indicated that only two polymorphic loci (g.17585 A/G and g. 17682C/T) fitted Hardy-Weinberg equilibrium ($\chi 2<5.99$). In conclusion, the polymorphic loci of the ATP1A1 gene can be used for genetic diversity and further association study to anti-heat stress traits of Indonesian beef cattle.

Keywords: ATP1A1, polymorphism, Indonesia cattle

Abstract ICSAE-IX ID 071

Physiological responses of several beef cattle breeds based on environment conditions in Beef Cattle Research Station

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Abstract. Physiological conditions is one factors that can affect growth of cattle. The study aimed to determine the physiological responses of several beef cattle breeds that are reared in Beef Cattle Research Station (BCRI), Grati District, Pasuruan Regency, East Java Indonesia, was carried out by measure temperature, humidity, Temperature Humidity Index (THI), rectal temperature, respiration frequency, Head Tolerance Coefficient (HTC) and heart rate of 159 cows consisting of Ongole crossbred (PO), Madura, Bali, Jabres, Galekan, Rambon, Belgian Blue x PO crossbred, PO x Bali (POBA) crossbred which were observed during 4 months in individual cages. Data were analyzed descriptively. The temperature and humidity of the cage during the observation ranged from 25-34.12°C and 54.88-84.27%, respectively. The average of rectal temperature, respiration frequency, and heart rate were 37.76-39.30ºC; 20-54 times/minute; and 65-92 times/minute. The average of THI and HTC were 74.92-84.97 and 1.81-3.34. It was concluded that several breeds of beef cattle in BCRI has mild to severe heat stress, high heat tolerance, respiration rate, and heart rate but this condition does not cause production problem.

Keywords**:** temperature, humidity, THI, HTC, beef cattle

Abstract ICSAE-IX ID 072

Phenotype Performance of M1 Generation of Bima Shallot (Allium cepa L. var. Ascalonicum) result of Ethyl Methane Sulfonate induced

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Abstract. The diversity of crops can be produced via mutagen induction. Ethyl methane sulfonate is a chemical mutagen which often applied to increase variability in the crop including shallot. The purpose of this study was to investigate the phenotype performance of Bima varieties of Shallot (*Allium cepa* var Ascalonicum) result of an Ethyl Methane Sulfonate induced. This study used a randomized complete block design, with the treatment of five levels of EMS concentrations. Data obtained were analyzed of variance and if EMS treatment was significant difference that will proceed to Duncan Multiple ranged Test. The present study found that EMS treatment was significantly different for all parameters ($p < 0.05$). The first generation (M1) of Bima shallot exhibited a gradual decrease in growth vegetative and yield with the increasing of EMS concentration than control. The reduction of these parameters may be caused by genetic changing and physiologically damage as consequences of EMS treatments. Among EMS treatments, the concentration of 100 ppm displayed a higher value for all parameters compared to 200, 300, and 400 ppm of EMS. The result of this study can be utilized as a source of genetic material in plant breeding activities to produce a high-quality variety in the future.

Keywords: Shallot, Morphology, Mutation, Breeding

Abstract ICSAE-IX ID 073

Pineapple Genetic Diversity in Riau Peat Land Assessed by *Random Amplified Polymorphic DNA* (RAPD) Marker

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Abstract. Riau is one of the centers for pineapple production in Indonesia. Pineapple cultivated in Riau is a local variety that has been cultivated for generations for a long time. This study aims to examine the relationship and genetic diversity between local varieties cultivated in several districts on Riau peatlands based on RAPD (Random Amplified Polymorphic DNA) markers. Diversity analysis was carried out on ten local pineapple genotypes from five districts namely Kampar, Indragiri Hilir, Siak, Bengkalis and Dumai using 11 RAPD primers. The amplification of 11 RAPD primers tested on 10 pineapple genotypes resulted in 77 loci, with 73 polymorphic loci (96.42%). Based on the UPGMA dendrogram, the pineapple coefficient similarity in Riau Province ranges from 0.53 to 0.91. Based on the results of this study, it can be concluded that the relationship between pineapple genotypes in Riau Province ranges from 53 - 91%, which means that there is a diversity of 47 - 0.9%.

Keywords: local variety, pineapple, Genetic marker, genetic similarity

Abstract ICSAE-IX ID 074

Phenotype and Lignin Content of GH 51 Black Rice Mutant

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Abstract. GH 51 is an essential derivative line from local Cempo Ireng black rice as a result of Sebelas Maret University plant breeding programs. This line have better performance than Cempo Ireng but is not resistant to brown planthoppers. To improve GH 51 line performance, preliminary research was conducted by irradiating it with 200 Gy gamma rays to obtain new genetic diversity. This study aim is to observe the phenotype and lignin content of early flowering mutant plants in the M2 population. The results showed that the early flowering mutant of GH 51 black rice have a wide genetic variability on plant height and number of seed per panicles. Whereas the character of stem diameter, number of panicles per clump, number of seed per panicles and seed weight per plant have a narrow genetic variability. Lignin content of the mutant is varied and there is seven plant can be select for high lignin content, medium to high criteria of plant height, early flowering and shorter harvesting time from mutant of GH 51 black rice.

Keywords: phenotype, lignin content, black rice, mutant, GH 51

Abstract ICSAE-IX ID 075

Land Function Transfer: The Transformation of Agriculture Land to Agriculture Tourism Sites in Polobogo, Semarang

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Abstract. Polobogo is one of villages in Semarang Regency that has begun using their land asset for tourism activities. It is because the agricultural activities that have been carried out so far have not significantly impacted either the government as the owner or the community in general. The income obtained only comes from the annual harvest, which is still far from sufficient in nominal terms. Therefore, the stakeholders try to use the land they have as a tourist attraction with the concept of agro-tourism. This study aimed to evaluate the potential of Polobogo village to be used as an agro-tourism attraction by utilizing its natural resources. The approach in this study uses descriptive qualitative where direct observation, in-depth interviews, study documentations, and literature review are used to answer the existing problems. The data obtained were processed using the triangulation method. The study results indicate that Polobogo Village has good tourism potential, which can be seen from its several natural resources. The consolidation of the village government and the community needs to be done more intensely in order to create a more optimal tourism industry. Planning documents, in the form of village regulations or village head decrees, related to business management must be formed to improve agro-tourism utilization.

Keywords: Agrotourism, agriculture, polobogo village, community development

Abstract ICSAE-IX ID 076

Effect of extraction method on the flavonoid content of potential medicinal plant *Phyllanthus niruri* L.

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Abstract. The extraction process in herbal plants maintains the quality of herb extracts by reducing the water content to prevent the growth of microorganisms and minimize the alteration of metabolites in plants. In this study, we investigate the effect of drying methods and incubation temperature on the flavonoid content of *Phyllanthus niruri*. Herb samples were fresh, oven-dried, and air-dried. Air-dried sample produced the highest total flavonoid level compared to other drying methods incubating at 4 degrees Celcius and 27-30 degrees Celcius. Air-dried samples incubated at room temperature had the highest total flavonoid content compared to other methods, followed by oven-dried and fresh samples. Fresh samples produced the highest yield compared to other drying methods on incubation at room temperature and 4 degrees Celcius. Various drying methods show a similar result of total flavonoids on incubation at 4 degrees Celsius, despite air-dried samples having the highest flavonoid content. Incubation temperatures have no significant difference in yield and flavonoid content, but the drying method shows otherwise. There is no interaction between the drying method and incubation temperature. Air-dried and oven-dried samples incubated at room temperature produce higher yield and flavonoid content than those incubated at 4 degrees Celcius, having a similar pattern.

Keywords: Phyllanthus niruri, Flavonoid content, Extraction method, Herbs, Metabolites, Medicinal plant

Abstract ICSAE-IX ID 077

Foliar fertilizers improved fruit set and yield of cayenne pepper (*Capsicum frutescents* L.) grown off-season

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Abstract. The fruit set and yield of cayenne pepper grown during the rainy season (off-season) is relatively lower than during the dry season. This study aimed to assess the effectiveness of some foliar fertilizers in improving the fruit set and yield of cayenne pepper grown off-season on dryland. An experiment was conducted during the rainy season of 2021/2022 on a dryland area of Gumantar, North Lombok, Indonesia. Four foliar fertilizers and one control were tested on two varieties of cayenne pepper. The foliar fertilizers were: bio-organic (Pomi), silicate and boron (X-ZO), micronutrients (Meroke Fitoflex), and a mix of macro and micronutrients (Bayfolan). The two varieties were: hybrid (Dewata 43) and open-pollinated (Sret). The treatments were arranged in a factorial randomized block design with three replications. After five harvests, the results showed no interaction between foliar fertilizer and variety affecting fruit set and yield. The foliar fertilizers improved the fruit set and yield of cayenne pepper. The most significant improvement was the bio-organic fertilizer with 10.6% and 38.8 % for fruit set and fruit weight per plant, respectively, compared to the control treatment. The hybrid variety yielded 822.5 g/plant, higher than the open-pollinated ones with 632.3 g/plant.

Keywords: cayenne pepper, dryland, foliar fertilizer, fruit set, rainy season, yield

Abstract ICSAE-IX ID 078

Synthesizing and characterization of CA/ZnO electrospun nanofiber as seed coating material for enhanced aerob paddy seed germination

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Abstract. Agricultural cultivation is adversely affected by climate change causing food scarcity worldwide. In this work, sustainable electrospun seed coating of polysaccharide composite was developed as an advanced seed treatment to improvise agriculture cultivation system. The electrospun composite electrospun nanofiber coating (CNF) studied by varying the concentrations (12wt% to 17wt%) using biodegradable material, notably the cellulose acetate bio-polymer (CA). Next, the best concentration of CA synthesized with 100mg/l of ZnO nanoparticle (ZnO NPs) in producing nanofiber mat, characterized using UV-Vis, FTIR, SEM, water contact angle (WCA), membrane porosity, germination test and seed vigour Index-I to understand the physical and agronomic properties of the CNF as seed coating. Results indicated that CNF of 17% CA with 100mg/L of ZnO NPs produced beads-free homogenous morphological fiber with the nanometric scale of 526±139nm. Produced 17wt% of CA/ZnO electrospun nanofiber matrix results in high porosity and swelling properties of about 87% and 242%, respectively, which could significantly enhance water uptake, oxygen permeability and mass transfer rate projecting ideal seed coating materials in enhancing aerobic seeds germination, assist by the engineered nutrient delivery system. Furthermore, owing to the nanofibrous coating architecture, synthesized CNF with functional oxygen components presents hydrophilic nature that ameliorates environmental stresses such as drought and flooding and eventually accelerates crop germination and development.

Keywords: Electrospun Nanofibers, Seed Coating, Cellulose Acetate, Zinc Oxide nanoparticles, Germination Rate, Sustainable.

Abstract ICSAE-IX ID 079

Networking capabilities of milenial farmers in Central Java

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Abstract. The role of millennial farmers as the next generation is very important considering that more millennial generations are reluctant to work in agriculture sector. The Ministry of Agriculture establishes policies and programs that can attract millennials to work in agriculture. One of the dominant influencing factors is networking ability of diverse business. The purpose of the study was to determine the networking capabilities of millennial farmers. The research method uses analytical descriptive. The study was conducted in Central Java by taking a sample location of 10 selected regencies based on the proportion of millennial farmer ambassadors. The number of millennial farmer respondents was taken as many as 120 respondents by snowball sampling. The results show millennial farmers have diverse networking abilities in terms of the sub-system of providing production facilities, cultivation, harvest and post-harvest handling, marketing and supporting facilities. The networking pattern that is built leads to business to business. Professional associations play an important role in expanding the networking built by millennial farmers. Networking in the marketing field cannot be separated from the use of digital technology, while other fields are still limited. Networking in the marketing field is what determines business continuity compared to other networking fields.

Keywords: Digital Technology, Marketing, Business to Business

Abstract ICSAE-IX ID 080

Genetic Diversity of *Graptophyllum pictum* (L.) Griff. (Daun Ungu) Based on Inter-Simple Sequence Repeats (ISSR)

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Abstract. *Graptophyllum pictum* (L.) Griff. (Daun Ungu) is one of the medicinal plants used in the Scientific Jamu (Jamu Saintifik) formula for hemorrhoids. Standardization of *G.pictum* is necessary for developing and ensuring the quality of herbal raw materials. The first step in standardizing and improving the quality of these varieties is the collection and characterization of their germplasm. This study aimed to determine the genetic diversity of 45 *G. pictum* accessions from various locations in Indonesia using the ISSR molecular marker. 26 DNA fragments were detected among accessions using four selected ISSR primers, with 76,9% polymorphism. The similarity index between accessions was calculated using a dice coefficient. The UPGMA algorithm was used to create the dendrogram. *Graptophyllum pictum* accessions had a similarity index of 83.7-100 percent, indicating low genetic diversity among accessions. This is the first report of *G. pictum* genetic diversity in Indonesia based on the ISSR marker. Other molecular markers and marker systems could be used to provide comprehensive information in the standardization of *G. pictum*.

Keywords: daun ungu (Graptophyllum pictum), genetic diversity, Inter simple sequence repeats (ISSR)

Abstract ICSAE-IX ID 081

Genetic diversity of strawberry (*Fragaria x ananassa*) var. Earlibrite mutant as revealed by ISSR molecular marker induced by gamma rays irradiation

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Abstract. Strawberry plantlets (Fragaria X ananassa) cv Earlibrite were irradiated by gamma rays to induce genetic variability for resistance to abiotic stress improvement. The aim of this research was to identify DNA polymorphism among the 'Earlibrite' strawberry mutants through ISSR marker. For those purposes, the population of M1V0 strawberry plantlets was irradiated by gamma rays at 20 Gy (optimum dosages of LD50) and then sub-cultured on MS medium enriched with 2 µM 6-BAP and 0,13 µM 1-NAA. The genetic variation of the mutant was molecularly analyzed using ISSR marker. The analysis was carried out on M1V0 mutant plantlets. The results showed, ISSR markers produced 192 scorable bands, of which 93,36% were polymorphic. The PIC values for the 15 primers ranged from 0.40 to 0.50 with an average of 0.48 per primer. The marker index (MI) of the primers ranged from 2.38 to 4.85. According to the Jaccard similarity index, the genetic variation of mutant individuals was 2.74% to 87.04%. Cluster analysis using ISSR markers grouped the Earlibrite strawberry mutant genotypes into five distinct groups. The current study demonstrated that gamma irradiation generates a sufficient number of induced mutations and that ISSR analysis offered a useful molecular marker analysis for identifying mutants.

Keywords**:** Earlibrite, in vitro mutagenesis, ISSR, mutant, strawberry

Abstract ICSAE-IX ID 082

Screening of simple sequence repeats (SSR) primers from mutated *Indigofera zolligeriana* plants

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Abstract. The mutated plants from *Indigofera zolligeriana* were screened using 15 SSR primers, to know the polymorphic DNA profile of mutated plants. Primers used for screening were R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, and R15. For screening these primers we used 12 DNA genomes of mutated *I. zolligeriana* plants. DNA genomes from 12 mutated plants were isolated using Wizard® Genomic DNA Purification Kit. Amplification of 12 DNA genomes using multiplex PCR method followed by optimization of the method to obtain the best bands profile. The result showed that from 15 primers, 10 primers were polymorphic bands and 5 primers were monomorphic bands. Primers that showed polymorphic bands will be used to amplify another mutated DNA genome.

Keywords: *Indigofera zolligeriana*, SSR primers, mutated plants, Multiplex PCR

Abstract ICSAE-IX ID 083

Utilization of tannin from chestnut as a protective agent in slow release urea: An *in vitro* rumen fermentation study

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Abstract. Urea has been utilized as a non-protein nitrogen supplement for ruminants due to its affordable price, abundantly available, easy to use, and positively affect microbial protein synthesis in the rumen. However, urea have a weakness since it is rapidly converted into ammonia in the rumen and may lead to nitrogen loss and even ammonia toxicity. Development of a slow release urea (SRU) is therefore important in order to overcome such potential negative impacts. This experiment was conducted to evaluate the effects of SRU, made by complexing the urea with tannin from chestnut, on *in vitro* rumen fermentation parameters. The treatments were the addition of different forms and levels of urea into a basal diet, i.e., 1% conventional urea (T0), 1% SRU (T1), 2% SRU (T2), and 3% SRU (T3). Data were analyzed by using analysis of variance and continued with a post-hoc test namely the Tukey's test. Results revealed that the SRU treatments (T1-T3) reduced ($P<0.05$) ruminal ammonia concentration at various time point intervals than that of the conventional urea (T0). However, the SRU did not alter microbial protein synthesis and nutrient digestibility. In conclusion, SRU made from tannin is an effective supplement for enhancing nitrogen utilization in the rumen.

Keywords: controlled release, fermentation, nitrogen, rumen, ruminant

Abstract ICSAE-IX ID 085

The Importance of Securitization towards Environmental Issue: Case on Freeport's Tailing Waste

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Abstract. How a certain country enforces its environmental policy is different from each other, since there are a lot of factors that may affect it. In Indonesia, several environmental issues have not been solved properly. This may be caused by the lack of understanding and also the lack of exposure to the issue. This study will discuss a particular case about tailing waste caused by mining activity by Freeport in Papua which may not be solved if there are no securitization efforts by relevant stakeholders. Interestingly, the stakeholders for this case are the local community, unlike the stereotype which is dominated by NGOs and other private actors. This case is chosen since it can explain the importance of the securitization act towards environmental issues surmounted. Additionally, this study served as a response to the lack of discussion about securitization on environmental issues in Indonesia. This research will use qualitative descriptive methods supported by a literature study using the publications on the google scholar database related to securitization against environmental issues in Indonesia, which will later be visualized by the Vos Viewer program. The results showed that securitization by certain stakeholders is significant for a certain environmental issue so that it can gain enough exposure to be solved by responsible actors.

Keywords**:** securitization, environmental issue, tailing waste, Freeport, Indonesia

Abstract ICSAE-IX ID 086

Disease incidence of fusarium wilt in organic garlic cultivation with compost plus Gliocladium on endemic land

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Abstract. Fusarium wilt or root rot caused by *Fusarium oxysporum* f.sp. cepae is the most important soil-borne disease in garlic. This pathogen is a weak parasite so that it can be controlled through healthy plant cultivation approaches such as the use of organic compost fertilizer and soil microbes as biological control agents. *Gliocladium* sp. is an antagonist fungus that can be used as a soil borne disease control agent. This study reports the effectiveness of compost plus *Gliocladium* to control garlic root rot in endemic land. The experiment was carried out in Tawangmangu Karanganyar at an altitude of about 1000 meters above sea level. The results showed that compost plus *Gliocladium* produced higher effectiveness than compost alone or Gliocladium alone. The effectiveness of compost plus *Gliocladium* was more effective in suppressing fusarium wilt compared to farmers using fungicides and artificial chemical fertilizers.

Keywords: Allium sativum, Fusarium oxysporum, basal rot, organic cultivation

Abstract ICSAE-IX ID 087

Decrease in population of *Ditylenchus dipsaci* in garlic cultivation with the application of mycorrhizae and organic fertilizers

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Abstract. Garlic is the main commodity of farmers in Tawangmangu, Central Java. The superior variety in the area is Tawangmangu Baru. Unfortunately this variety is susceptible to garlic root rot caused by *Fusarium oxysporum* f.sp. *cepae*. The infection of this pathogen was increased by the presence of the nenamtode *Ditylenchus dipsaci*. Besides the loss due to single infection, this nematode can predispose garlic to be susceptible to garlic root rot disease. Therefore, population decrease of *D. capsici* is important as a component of integrated control of the two pests. Environmentally friendly control is a priority now and in the future, including biologically, such as the application of mycorrhizae and orgnically such as organic fertilizers. This paper reports a decrease in the population of *D. dipsaci* in garlic cultivation with the application of mycorrhizae and organic fertilizers. This research was conducted on farmer's land in Tawangmangu Karanganyar Central Java at an altitude of 1000 m asl and Andosol soil type. The results showed that mycorrhizae, compost, and husk charcoal could decrease the population of *D. capsici*. The effectiveness of nematode population decrease in the single treatment of mycorrhizae, compost, and husk charcoal were 18.45, 42.14, and 27.56%, respectively. While the combination of the three treatments gave the highest effectiveness value, namely 48.52%.

Keywords: *Allium sativum*, *Fusarium oxysproum*, basal rot of garlic, compost

Abstract ICSAE-IX ID 089

Chelated Copper-Zinc as Potential for Foliar Fertilizers Based on Different PH and Electrical Conductivity

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Abstract. A nutrition solution's pH and electrical conductivity (EC) should be kept in the ideal range since they have an impact on the nutrients' availability. Plants can absorb nutrient solutions with low pH (5.0–7.0) and EC (between 1.6 and 2.4). Copper and zinc micronutrients are required by plants to produce high-quality fruits. Applying different rates of copper-zinc chelated fertilizer in conjunction with NPK fertilizer will aid in increasing plant growth and nutrient uptake. 8.89 g nitrogen, 3.86 g phosphorus, and 2.18 g potassium will be added together with 6407, 7208, 8009, 8810 and 9611 ppm of copper EDTA and zinc EDTA. The pH solution was tested using a pH meter, and electrical conductivity (EC) analysis was conducted using an EC meter with a calibrated conductivity meter. The study's findings indicate that there was a considerable disparity between the pH and EC readings. The ideal solution of copper EDTA and zinc EDTA at 8009 ppm rate had an EC measurement of 2.403 ms/m and a pH of 6.74. From this investigation, it may be inferred that the pH and EC readings of copper-zinc chelated fertiliser combinations at various rates will influence the value of pH and EC.

Keywords: chelated fertilizer, electrical conductivity, micronutrients

Abstract ICSAE-IX ID 090

Assessment of Seed Quality of Contrasting Rice Seed Cultivar

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Abstract. Drought and high temperature are common coincide abiotic stresses occurred in Asia, give an impact in seed quality and national rice production in Malaysia. Several studies have been conducted on rice cultivation exposed on both environmental stresses, however, the effect on seed quality and production during seed development was limited. Preliminary study was conducted in UiTM Malacca, Jasin Campus to investigate the seed quality (germination capacity, field emergence, speed germination and vigor index) on contrasting rice cv. AEROB1, MR220CL and AERON at different germinating facilities (growth chamber vs. glass house). The plant growth chamber was set up of (12/h photoperiod) meanwhile the minimum and maximum temperature in glass house respectively at 23.9 and 43°C. Present results indicated that seed germinated in growth chamber for cv. AEROB1 and MR220CL obtained percentage germination 94% and 92% respectively. Meanwhile, in glass house, AEROB1, MR220CL and AERON showed slightly low in viability with 97.6%, 90.1% and 86.8%. The speed of germination for AEROB 1 and MR220CL was at range 92-94%. The current viability result is important for next experiment (on going) to impose plant to drought and elevated heat during seed development for determination of seed quality production. The finding of this study could provide beneficial information to farmer to enhance their rice productions well as rice quality for next growing season particularly during dry season.

Keywords**:** Drought stress, heat stress, Oryza sativa, seed germination, seed quality.

Abstract ICSAE-IX ID 091

Effects of Acute Gamma Irradiation on the Morphology of *Stevia rebaudiana*

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Abstract. *Stevia rebaudiana* Bertoni is cultivated in many regions across the world and famous for its sweetness. Stevia is a short-day plant therefore, with almost a constant day length less than 12 hours in Malaysia cause to generate flower early. The plants have very short vegetative period, resulting in low leaves yield and as a result low content of steviol glycosides compound. Cultivation of stevia in Malaysia is a challenge due to lack of suitable variety. Gamma irradiation can generate genetic variability to improve the plant. The response to gamma irradiation varies among plant species and varieties and affected by the total irradiation dose and dose rate. The method applied was acute gamma irradiation. Seeds of stevia were irradiated with six doses of gamma rays (50, 100, 250, 300, 400 and 500 Gy) to investigate the effect of radiation on germination ability, survival rate, plant height and other morphological variations. From the observation, irradiation treatment affects the plant growth. The radio sensitivity test indicated that LD_{50} was approximately 182 Gy. The number of days for seed to germinate was varied in all treatments and none of the seedlings survived at 400 Gy and 500 Gy of irradiation. The plant height recorded the highest in treatment 50 Gy (142.0±1.98). Meanwhile, compared to non-irradiated controls, the number of leaves and the number of branches were decreased as the doses increase. However, the width and the length of leaves recorded was highest in treatment 0 Gy (control) with 3.55±0.32 and 8.23±0.61 respectively. Overall, our findings suggest that low doses of radiation (below 100 Gy) is the optimum doses to study the improvement of stevia by acute gamma irradiation.

Keywords**:** acute gamma irradiation; morphological characteristic; mutation breeding; LD_{50}; *Stevia rebaudiana*, radio sensitivity test, seed germination

Abstract ICSAE-IX ID 093

Finishing the King's Throne Replica on the Reliefs of the Borobudur Temple Environmentally Friendly Furniture Solutions

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Abstract. Nowadays, many pieces of wood furniture include unfriendly to the environment finishes. Melamic paint, Duco paint, wood paint, thinner (wood paint thinner), polish, and other finishings are among them. As a consequence of understanding the interpretation of the wood finishing of the King's Throne on the reliefs of Borobudur Temple, this article offers an option for finishing furniture that is ecologically beneficial. This throne diverged from reconstruction efforts to create a replica-like three-dimensional form. How to complete the replica of the throne using natural and ecologically safe materials is the issue. Next, test three throne reproductions for natural finishing and unfinishedness. The outcomes are all ecologically benign and may be used as an alternative to or a replacement for the high-chemical finishing used on modern timber furniture.

Keywords: eco-friendly furniture, finishing, relief from the Borobudur Temple, replica of the throne

Abstract ICSAE-IX ID 094

Swallow Ornament as an Identity For the Sustainability of Gebangsari Kebumen Pottery Existence

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Abstract. This study examines the application of Swallow bird ornaments to pottery products in Gebangsari village, Kebumen Regency, Central Java province, Indonesia, as a strategy to preserve local traditional art. The research approach used in this study was descriptive qualitative by employing a case studies framework. Cultural, human resources, and environmental values are essential points of this research as supporting aspects for the sustainable existence of Gebangsari's traditional pottery. Data analysis was performed in a moving interactive cycle between data reduction processes, presentation, and verification of the data. The results showed that: 1) Pottery has a historical relationship with the existence of the Gebangsari village; 2) Clay elements with sea sand additive material are special characteristics only found in Gebangsari pottery, and 3) Gebangsari artisans develop Swallow ornaments as an identity for the sustainability of traditional pottery. The sustainability identity was introduced through a series of traditional pottery-making processes from the beginning to the finishing stage into the wider community, particularly people from outside of Gebangsari village, Kebumen Regency, Indonesia.

Keywords**:** identity, existence, ornament, pottery, sustainability

Abstract ICSAE-IX ID 096

Effectiveness Of Community Based-Collaborative On Forest Management Of The Forest Programme III In Central Sulawesi

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Abstract: Indonesia moving quickly to ratify the Paris Agreement as stipulated in Constitution Number 16/2016 as a full commitment and contribution to reducing global carbon emissions. For this action, Indonesia received a cooperation grant, one of which was the Forest Program (FP) III Sulawesi. FP III has a target to contribute to the implementation of forest conservation and rehabilitation strategies, as a form of adaptation and mitigation of climate change, through support for improving the livelihoods of the rural poor. This program was carried out with multi-stakeholder management in the Lore Lindu landscape. This study attempted to examine the effectiveness of the project (2017-present) on collaborative community-based forest management. The study used a qualitative method with an explanatory approach. The results indicate the collaboration of stakeholder roles in the FP III has not gone well: targets, goals, and achievements have not been integrated with community needs at the field level. Village facilitators have not played their optimal role as agents of change, so the goals and objectives are not well communicated. Interconnection between programs through the FP III requires the role and contribution of the Ministry of Forestry to integrate program goals and objectives in an integrated manner in each implementing unit.

Keywords: Forest Programme III, Effectiveness, Collaboration.

Abstract ICSAE-IX ID 097

Identification on chemical organic compounds of pericarp nutmeg *Myristica fragrans* north minahasa by using GC-MS

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Abstract. An organic chemical compound *Myristica fragrans* in North Minahasa Regency has been identified. *Myristica fragrans* North Minahasa Regency includes species that are not yet known and there has been no release of varieties. Identification of *M. fragrans* North Minahasa Regency was investigated using Gas Chromatography-Mass Spectrometry (GC-MS) method. The sample was from the pericarp of *M. fragrans*. This study was able to identify Patchouli alcohol,1(2H)-Naphthalenone, octahydro-4a,8a-dimethyl-7-(1-methylethyl)-, [4aR-(4aα,7ß,8aα)]-,and Neoisolongifolane,hydroxy-, 1H-Cyclopropa[a]naphthalene,1a,2,3,5,6,7,7a,7b-octahydro-1,1,7,7a-tetramethyl,[1aR(1aα,7a,7aα,7bα)]-; 4,7-Methanoazulene, 1,2,3,4,5,6,7,8-octahydro-1,4,9,9-tetramethyl-, [1S-(1a,4a,7a)]-; and isoledene. Further research is needed on its biological activity.

Keywords: Compounds, Nutmeg, GCMS

Abstract ICSAE-IX ID 098

Comparing Environmental Policy: Observational Case of Government Website of Surakarta, Indonesia and Pingtung, Taiwan

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Abstract. Environmental policy practices in various countries and governments certainly differ, as one country may prioritize it, while others do not. Several factors including economic welfare, human development index, and even the awareness of sustainable development may contribute to the variation. Comparing government performance in utilizing technological development and the internet is significant to assess the performance of the government in ensuring environment sustainability and ensuring the establishment of smart governance at the same time. This paper discuss about how the websites of local governments can be used to socialize and apply environmental policy in Surakarta, Indonesia and Pingtung, Taiwan. The two cities are chosen because of their contrasting condition where the prior has a limited but growing awareness of environmental policy, and the latter has already established systematic environmental policy planning and application. This research focuses on the observational analysis of the websites and will be supported by a literature study that is available on the Internet using search engines. The projected results showed the difference between both cities in actuating their environmental policies through websites and the factors that may cause it. Further findings will be elaborated in the paper.

Keywords**:** Environmental Policy, Observation Case, Government Website, Surakarta, Pingtung, Smart Governance

Abstract ICSAE-IX ID 099

Cilacap Batik: Natural Dyes with Main Motifs of Marine Life and Dipterocarpus littoralis (Pelahlar)

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Abstract. It is pretty common for Cilacap-styled Batik to utilize plenty of natural dyes and takes the main motifs of marine life and their typical plants which is Pelahlar trees. This Cilacap Batik was developed by Cilacap's traditional batik artisans by utilizing their local potential in techniques, aesthetics, as well as the symbolic values contained in the visual motifs. The distinctive value of Cilacap Batik can be seen in its use of environmentally friendly batik dyes, namely natural dyes that are made from plants that grows in its surrounding areas, mangroves and Indigofera to be precise. The utilization of natural dyes for its production is a form of creative solution from the community in response of environmental issues specifically in the issue of liquid waste produced from residual batik dyes which in hope, stops harming the environment. A qualitative method with data collection technique in the form of observation and interviews with Cilacap's batik artisans and local businesses will be used for this research.

Keywords: batik, natural dyes, motifs

Abstract ICSAE-IX ID 100

Cattle Corporation Village Program as Small-Scale Farmer Group Empowerment to Support National Beef Self Sufficiency

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Abstract. Government of Indonesia has implemented various programs to increase cattle population and beef production. In 2021, Ministry of Agriculture introduced a special program is called Cattle Corporation Village (CCV) program. The study aims to identify the capability of member of small scale farmer group empowered by CCV program on cattle breeding and fattening, availability of forage in the location of the beneficiary group, utilization of infrastructure and group cages support, and corporate institution formed by group. The study was conducted in two CCV located in Cianjur District and Boyolali District in 2022. The primary data obtain by surveys, direct observation, and interviews by purvosive sampling method. The results of the study show: (1) capability of farmer is encouraged to raising breeder and feeder cattle with integrated corporation farming; (2) the productivity of breeder and feeder cattle is supported by the sufficiency of forage: grass and agricultural waste; (3) infrastructure provided by CCV program needs to be improved; and (4) CCV program is designed as profitable cattle production models suited to small scale farmers with an economic scale and integrated upstream to downstream. With this program, farmers are empowered and assisted in accessing business credit financing to support integrated corporation farming.

Keywords: Corporation, Empowerment, Beef, Self Sufficiency

Abstract ICSAE-IX ID 102

The Analysis Strategies of Catfish Farming Based on Chicken Fertilizer Utilized the Model CLD

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Abstract. Production of catfish farming increased every year. The maintenance of catfish farming in the chicken farm area provides a business opportunity for chicken farmers as well as catfish farming. Cultivation of catfish by utilizing chicken fertilizer as feed integrates in terms of the environment livestock, as well as soy milk dregs waste as organic probiotics. This, we require the right model in catfish farming by utilizing chicken fertilizer as feed. This study aims to analyze the model of the catfish farming approach based on chicken manure, using in the Causal Loop Diagram (CLD) method as system thinking by entering causal variables into a diagram using Vensim software. This study utilized a descriptive method with a qualitative approach. Data collection techniques conduct interviews and observations in February 2022 by several actors such as chicken breeders and catfish farmers, collectors of soy milk dregs, local residents, and village officials in Margosari Village, Kendal. The results obtained form CLD model analysis showed the catfish farming strategies based on chicken manure is based on the variables of Environmental Problems, Knowledge, and Economic Potential.

Keywords: Catfish farming, chicken manure, CLD

Abstract ICSAE-IX ID 103

Apron effectiveness of convection waste Materials in reducing ultraviolet light exposure (UV) On Skin Irritation in Welding Workers in Paron District, Ngawi

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Abstract. Welding work is a job that has a high risk for health for those who carry out welding activities. In the non-formal industry, many workers do not pay attention to the health aspect in carrying out welding activities. The problem in non-formal industry is the problem of business capital, so that non-formal workers ignore their health factor because buying personal protective equipment is not possible. The manufacture of personal protective equipment for UV exposure is an apron. Utilizing jeans waste to be used as apron material is an alternative to bridge the capital problem of non-formal workers and as an effort to recycle unused waste. The initial stage is to test the effectiveness of jeans waste by testing UV exposure between the unprotected jeans fabric and after the jean fabric is present. Measurements were carried out using a Lutron brand of UV light meter, data showed that jeans were very effective in reducing UV exposure from welding activities. So that the apron of jeans material can protect skin irritation from exposure to ultraviolet rays produced by welding activities

Keywords: Ultraviolet light control

Abstract ICSAE-IX ID 104

Institutional development of farmers through agricultural area-based corporations in Indonesia

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Abstract. Regional-based agricultural development which is divided into commodity-based areas with regional management approach will be carried out through Kostratani. The main actor in agricultural institutions at the sub-district level is the Agricultural Extension Center (BPP). Currently, the number of Agricultural Extension Centers in the sub-district continues to increase, namely in 2019 to 5,646 units. Because the approach is relatively new, there are still many problems, among which farmers do not yet have a "business minded", so that corporations cannot be implemented effectively dan effieciently. For this reason, this research aims to identify and formulate policy recommendations and regulations for the development and integration of farmer institutions as partners for the growth and development of farmer corporations based on agricultural areas today. Through a descriptive qualitative method, it is equipped with several related key informants both at the central and regional levels. So this study can provide an alternative strategy in regional-based agricultural development by supporting the involvement of farmer economic institutions (KEP) in the form of a complete corporation. The recommendation given is that farmer institutions in the form of Poktan and Gapoktan which are not legal entities, must be integrated with legal entities, namely cooperatives or companies.

Keywords**:** area, Konstratani, Agricultural Extension Center (BPP), corporation, Farmer Economic Institution (KEP)

Abstract ICSAE-IX ID 105

The effect of giving various doses of KCL fertilizer on the growth and yield of red ginger (Zingiber officinale var. Rubrum)

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Abstract. The prospect of red ginger development in Indonesia is still good, especially for exports, the traditional medicine industry, food, beverages and cooking spices, where this must be followed by a balanced red ginger productivity so that proper fertilization is needed to yield increase. KCL fertilizer affects the metabolic processes, physiology and plant nutrition. This study aims to determine the effect of giving and obtaining the optimal dose of KCl fertilizer in increasing the growth and yield of red ginger. This research was conducted in March-August 2021 at Pelem, Wonorejo, Jatiyoso, Karanganyar with coordinates 7°43'24.7"S 111°05'31.2"E and the altitude is 800m.asl. The design used was a one-factor Randomized Completely Block Design (RCBD) with 4 levels and repeated 6 times to obtain 24 experimental units. The treatments in this study were as follows: P0: Without KCL fertilizer, P1: Treatment 50kg KCl.ha^{-1}, P2: Treatment 100kg KCl.ha^{-1}, P3: Treatment 150kg KCl.ha^{-1}. The results showed that KCL fertilizer application at a dose of 50kg.ha^{-1} tended to increase ginger yields, namely fresh weight per plot with an average of 351.17 grams and rhizome storage weight per plot with an average of 259.17 grams. The application of high doses of KCL fertilizer actually reduced the number of tillers, although it did not change the other growth components.

Keywords: rhizome, number of tillers, clumps, potassium

Abstract ICSAE-IX ID 107

Analysis of bacterial community from the rhizosphere of shallots (*Allium ascalonicum L.*), in Brebes, Central Java using Next Generation Sequencing (NGS) approach

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Abstract. Brebes is the largest shallot center in Indonesia. This area contributes 18.5 % of national production or 57 % of production in Central Java. In their care, farmers spray about 63-93% of pesticides regularly every 3-7 days. This requires improvement in technology and the use of bacteria in it. This research was conducted to investigate the diversity of soil bacteria in two types of land use as initial information to optimize the role in overcoming pesticide contamination and increasing the productivity of shallots in the future. The bacterial community in the shallot field (KB2) and secondary forest (KB4) in this study was observed using the Next Generation Sequencing technique. Identification using FLASH (V1.2.7) and QIIME (V1.7.0) analysis. The results showed that the soil bacterial communities in KB2 were 7 phyla while KB4 were 8 phyla. In order of largest to smallest relative abundance in KB2 including Proteobacteria (0.970%), Actinobacteria (0.015%), Firmicutes (0.014%), Fusobacteriota (0.001%), Desulfobacterota (0.0003%), Bacteroidota (0.0001%), and others (0.011%). In KB4 there are 8 phyla namely Elusimicrobiota (6.385%), Cyanobacteria (3.192%), Proteobacteria (0.9861%), Actinobacteriota (0.0041%), Firmicutes (0.0089%), Desulfobacterota (0.0001%), Bacteroidota (0.0002%), and Others (0.0003%).

Keywords: Next Generation Sequencing (NGS), Biodiversity, Pesticides, Shallot

Abstract ICSAE-IX ID 108

Optimization of Material Formulation and Process Parameters in Canna Edulis Starch-Based Biofoam Synthesis

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Abstract. Development of starch-based Biodegradable Foam rapidly progressed as a solution for minimizing pollution and environmental sustainability. Material formulation and process parameters of Biofoam synthesis were key factors related to the quality of Biofoam products. Canna edulis starch and rice straw powder were used for Biofoam synthesis. The aim of the study was to obtain the optimal formulation of materials and synthesis processes in 5 variations of the formulation with a molding temperature variation of 150 – 170°C using a Manual Thermo-pressing tool. Biofoam synthesized with P3T3 treatment showed the most optimal results with a density 0.4 gr/cm^3, tensile strength 2.68 MPa, water absorption capacity 16.41%, and biodegradability 60.08%. The temperature variation treatment has no significant effect on synthesis product due to the adjustment of the printing time to the temperature used. The higher the molding temperature, the shorter the molding duration. The results of the Scanning Electron Microscopy test showed heterogeneous porosity sizes, therefore the mechanical strength was not uniform on the surface of the material. It was known that the average diameter of the Biofoam porosity is in the range of 0.106 – 0.117 mm by using ImageJ.

Keywords: Biodegradabe Foam, Process, Formulation, Biofoam

Abstract ICSAE-IX ID 110

Information Flow among Farmers in the Acceleration of Agriculture 4.0

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Abstract. To adopt agriculture 4.0, farmers need to adapt to a new digital-based environment and the speed of its information flow. Many studies have found that the biggest obstacle to agriculture 4.0 (Smart Farming) in Indonesia is the gap in the skills of Information and Communication Technology (ICT) at the farmer level. Nevertheless, there are farmers who have adopted agriculture 4.0. These farmers come from millennial generation and non-millennial one (generation x). This study aims to analyze and describe the flow of information on agriculture 4.0 at the farmer level which enables them to adopt agriculture 4.0. Using multiple-case study approach, this study sought to reveal a holistic picture of the flow of information in two cases of horticultural farmers, namely the case of information flow among millennial farmers and the case of information flow among non-millennial farmers. From the interactive analysis results, this study found several different flow patterns in the process of searching and distributing information related to smart farming and online marketing in both cases. This study also found the role of millennial farmers and the collaboration between millennial and non-millennial farmers in adopting agriculture 4.0. The millennial farmers serve as liaisons and information providers for non-millennial farmers.

Keywords: agriculture 4.0, information, flow

Abstract ICSAE-IX ID 111

Environmental Wisdom in the *Tale of the King of Pigs* as an Alternative to Strengthen Policy for Sustainable Development Goals (SDGs)

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Abstract. This article will examine the environmental wisdom contained in the Hikayat Raja Babi (hereinafter abbreviated as HRB). HRB is an ancient manuscript written in Arabic script, in Malay, and contains the concept of environmental wisdom. The concept of environmental wisdom contained in the HRB text is more concerned with the process of harmonization with nature as a true divine process. This happens because humans must always be oriented to achieve God's pleasure by spreading safety and welfare for the universe, including humans and the surrounding environment. Thus, humans can do real things to support the implementation of the Sustainable Development Goals (SDGs) policies in the environmental field.

Keywords: environmental wisdom, Tale of the King of Pigs, and SDGs

Abstract ICSAE-IX ID 112

Growth Analysis Of Soybean In Application Of Biochar And Organic Fertilizer Under Kayu Putih Stand

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Abstract. The decline in agricultural yields was caused by the decline in productive land. Utilization of marginal land by providing organic materials such as biochar and organic fertilizers can overcome this. Biochar and organic fertilizers can improve the soil fertility. The aim of this study was to examine the analysis of soybean growth on the application of biochar and organic fertilizers. The study was conducted at RPH, Gunungkidul from March to June 2022 using factorial RAKL with two factors. The first factor is the type of biochar: without biochar, rice husks, coconut shells. The second factor is the type of organic fertilizer, namely without organic fertilizer, organic chicken, organic cow, and organic goat. Each experiment was repeated three times. The data were analyzed by Annova and continued with the DMRT test at 5% level if the difference was significant. The results showed that rice husk biochar gave the best results at ILD 3 MST, NLD, LDK 3 MST. Coconut shell biochar gave the best results on LPT and LAB. Without biochar gives the best results on BDK. Goat organic fertilizer gave the best results at ILD 3 MST, NLD, LDK, LPT. Chicken organic fertilizer gives the best results on BDK.

Keywords: soil fertility, growth analysis, soybean, biochar, agroforestry

Abstract ICSAE-IX ID 113

The Attack of *Spodoptera frugiperda* (J. E. Smith) (Lepidoptera: Noctuidae) on Sorghum

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Abstract. *Sorghum bicolor* L. Moench is one of the world's most important cereal crops. Sorghum grains are a good source of carbohydrates, the leaes and stems are processed for animals, and the grains are used as a raw material for production of beverages in food proessing industries. One of the obstacles to the increased sorghum production is the insect pests that attack the plants. Therefore, this study was aimed to evaluate the damage of sorghum plants varieties due to *S. frugiperda* attacks. This research was conducted in Kandang Mas, Kampung Melayu, Bengkulu province. This study used a randomised block experimental design and sample plants observed were five varieties of sorghum (Numbu, Ketan, Super 1, Super 2, and Suri). Sampling method with a scouting system. The results showed that among the varieties of sorghum, Suri 4 was highly susceptible, while the Ketan, Super 1 and Super 2 varieties were susceptible and then Numbu was highly resistant to the attack of *S. frugiperda.* It is expected that the results of this study could be used for further research to control *S. frugiperda*.

Keywords: Damage, identification, pests, sorghum, varities.

Abstract ICSAE-IX ID 114

Squash leaf curl China Virus associated with Yellow Mosaic Disease of Pumpkin in Bengkulu, Indonesia

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Abstract. Begomovirus is the cause of yellow mosaic disease on Solanaceae, Cucurbitaceae, Leguminoceae, and several types of weeds. Begomovirus on several horticulture crops have been reported in various regions in Indonesia. However, the data about Begomovirus infection in Bengkulu, is still very limited. The aim of this research is to detection of Begomovirus infected pumpkin (*Cucurbita moschata*) in Bengkulu based on polimerase chain reaction (PCR) using universal primers for Begomovirus. Based on observations in several cultivated areas of pumpkin in Bengkulu, it was found that systemic yellow mosaic and leaf curl on pumpkin. Leaves samples showing yellow mosaic and leafcurl symptoms were taken for virus detection using PCR (polymerase chain reaction) with universal primers SPG1 / SPG2 for Begomovirus amplified transcriptional activator protein (TrAp) and replication-associated protein (Rep) sequences in the Begomovirus genome with a size of ± 900 bp. This confirmed that leaf samples from pumpkin were positively proved to be infected by Begomovirus. The amplicon was sequenced followed by basic local alignment search tool analysis. It was revealed that the sequence had the highest homology (95.20%) to Squash leaf curl China Virus sequence from Cucumis sativus (Negeri Sembilan, Malaysia) [EF197940. This is the first report of Squash leaf curl China Virus infection on pumpkin in Bengkulu.

Keywords: begomovirus, homology, leaf curl, pumpkin, yellow mosaic.

Abstract ICSAE-IX ID 115

Land management practices and its effect on soil properties in smallholder oil palm plantations, Jambi Province, Indonesia

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Abstract. Applying best management practice (BMP) could improve oil palm production, especially in smallholder plantations. This study aims to identify the effect of BMP and farmers' practice (reference practice, REF) on soil properties of bulk density, N, P, and C-organic nutrients. The research was conducted in the smallholder oil palm plantation in Sungai Rotan Village, Tanjung Jabung Barat Regency, Jambi Province. BMP practice applied pruned fronds stacks to form the letter U or C with fertilizers application, except nitrogen fertilizer, above it. REF practice applied prune fronds stacks to create the letter I between the rows with fertilizer application in the weeded circle. The results showed that physical and chemical soil properties did not significantly differ between the two treatments because of BMP implementation in the second year of research. The chemical soil properties values (C-organic, N-total, P-available) at the sampling point closest to the tree had higher values than the others. In comparison, the bulk density of soil at the closest distance to the tree has the smallest value compared to the others. BMP study could give land management information to improve soil properties that support oil palm production.

Keywords: Best management practices (BMP), oil palm, smallholder plantations

Abstract ICSAE-IX ID 116

Chemical composition of brown and red algae from Kelapa Beach, Tuban, East Java and their potential as Ruminant Feed

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Abstract. This research was designed to evaluate the chemical composition of brown (phaeophytes) and red algae (rhodophytes) from Kelapa beach, Tuban, East Java. The brown algae consisted of *Laminaria sp* and *Padina australis,* whereas the red algae consisted of *Eucheuma cottonii* and *Gracilaria sp.* The algae were cleaned from dirt and other materials before drying under the sun. All of the algae were grinded and analysed using proximate analysis (dry matter (DM), ash, organic matter (OM), crude protein (CP), ether extract (EE), crude fiber (CF), and nitrogen free extract (NFE)) and gross energy with bomb calorimeter. Data were analyzed descriptively by calculated the average of data obtained. The result showed that brown algae of *Padina australis* had the highest of DM (30.59%) and CP (12.57%). The red algae of *Eucheuma cottonii* had the highest of OM (76.58%), EE (2.85%), CF (8.80%), NFE (56.38%) and gross energy (2,911 Cal/g) but lowest of DM (13.67%) and CP (8.55%), however opposite with *Gracilaria sp* had the highest of ash (65.63%) and the lowest of OM (34.37%), EE (0.21%), CF (2.49%), NFE (19.95%) and gross energy (1,083 Cal/g). Based on this study, brown algae (*Laminaria sp* and *Padina australis*) and red algae (*Eucheuma cottonii* and *Gracilaria sp.*) are potential as ruminant feed especially as mineral sources.

Keywords: chemical composition, algae, ruminant feed

Abstract ICSAE-IX ID 117

Adoption of Smart Farming Technology Among Rice Farmers

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Abstract. Application of smart farming technology in rice farming activity is relevant to facing the challenges in achieving food security and improving the wellbeing of farmers. In the context of Malaysia, food security is synonymous with the adequacy of rice domestic supply for the Malaysian population. Therefore, to achieve the target set in Sustainable Development Goal 2 (SDG2) which is to achieve zero hunger, the rice sector needs to be more competitive by encouraging farmers to utilize modern technology on their farms. Smart farming is an emerging concept of farm management that combines information and communication technologies into modern machinery like IoT, drones, and Artificial Intelligence (AI) to increase the value of agricultural products as well as reduce the cost of production while improving the well-being of farmers through income increment. Therefore, this study is conducted to explore the adoption of smart farming technology among paddy farmers in one of the country's granary areas which is in Barat Laut Selangor under the administration of the Integrated Agriculture Development Area (IADA). This study will employ qualitative methods and interviews will be conducted. This study is critical and urgently needed due to the twofold agenda: Malaysia is moving towards a high-income country and the importance for food security assurance has been acknowledged.

Keywords: Smart farming technology, rice farmers, food security

Abstract ICSAE-IX ID 118

Ecoprinting with Weed Plant: Utilization of Cacabean (Ludwigia octavalvis) and Ketul (Biden pilosa) as Ecoprint Natural Dyes

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Abstract. The ever increasing of awareness to save the environment among society brings people to change their lifestyle. The textile industry is one of many sectors that is affected by these changes and now has adapted by using a more environmentally friendly raw material. A textile dyeing technique that uses plants as its color medium is called ecoprint. The ecoprint technique includes the process of transferring the shape and color of the leaves, flowers, and stems of plants onto its media, the fabric. Plants that can be used for ecoprint are plants that are rich of tannin content. Weeds are plants that can grow in any place and its existence are often considered as a hinder due to the fact that it can interfere other cultivated plants as well as human activities. However, this weed plant can actually be used as a raw material for natural textile dyes. The processing of Ludwigia octavalvis and Bidens pilosa weeds as raw materials for ecoprint natural dyes is one of huge leap in development of textile colorings which also helps increase the value of weeds. The method used for this research is a qualitative method complemented with data collection technique in the form of observation, interviews, and experiments.

Keywords: ecoprint, natural dyes, weed plants

Abstract ICSAE-IX ID 119

Eco-Art Trend Based On Eco-Culture In The Painting Works Of Young Indonesian Artists

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At the beginning of the XI century, there were significant changes among young Indonesian artists where the orientation of their artworks was more towards the spirit of Eco-Art. This change was part of their expression of awareness as part of the natural and cultural environment globally. The issue of media choice, style of expression, and -ism is no longer the central discourse. The contemporary spirit of massive Eco-Culture is manifest in many young Indonesian creators. This phenomenon can be mapped through a qualitative research method based on Gadamer's Hermeneutic Theory. Especially in their paintings, young artists are no longer expressing in the form of complex and contemplative symbolic attractions but a straightforward aesthetic narrative of what is understood and desired about the natural and cultural environment. They talk about nature's beauty, the uniqueness of local culture, and the destruction of nature, to concerns about its sustainability, a unique contemporary spirit. They no longer tell about the expression of an era filled with political and social conflicts, but they tell beyond it. They tell stories about the context of space and time to place the events from era to era.

Keywords: Eco-Art, Eco-Culture, Painting, Contemporary, Indonesian Artists.

Abstract ICSAE-IX ID 122

Comparative efficacy between premium and generic herbicides of Glufosinate Ammonium to control weed species in oil palm plantation.

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Abstract. Weeds have always been a major pest in most plantation areas. The problem that arises due to weed invasion has increased significantly and gives big impact on the yield of the oil palm. Herbicides application is the most preferable method in modern technology as it will give fast and best result afterwards. This study was carried out with the aims to compare the effectiveness of premium and generic herbicides formulated with Glufosinate ammonium (GA) combating weed infestation in oil palm plantation. Seven herbicides treatments consisting of Basta 15, Genee 15, Fosinate 15, Bufos 135, Kenbast 15, Tarang with Miracle, Tarang without Miracle, and control were applied at two- and half-year oil palm tree. Each herbicides treatment covering 3 oil palm trees with 4 replications following Randomized Complete Block Design (RCBD) arrangements. The efficacy comparison of all herbicides was recorded at 7, 14, 28 and 56 days after application (daa) of herbicides. Data on weed injury and weed scorching were compared through visual assessment and analysed with SAS software. Prior to herbicides application, weed surveying was conducted to identify dominant weed population infested oil palm area. *Asystasia gangetica, Ageratum conyzoides, Paspalum scrobiculatum, Momordica charanthia, Cyperus indica, Eleusine indica, Mimosa invisa, Borreria setidens* and *Digitaria cilirialis* were found as dominant weed species with more than 60% recorded in quadrat sampling at experimental area. Basta 15 exhibited consistent weed injury upon dominant and other weed species at 7, 14, 28 and 56 daa. Results showed Basta 15, Fosinate 135 and Bufos 135 caused approximately 80% weed injury as early as 7daa. Basta 15 performed highest weed injury at 14 daa nearly 100% while other herbicides showed less than 95%. Upon 56daa, Basta 15 still consistently provided highest weed injury more than 30% compared with other herbicides less than 25%. Generally, referring to visual observation and statistical analysis, BASTA 15 showed similar results which surpass other herbicides treatments and caused approximately 90% weed injury. It was then followed by Fosinate 135, Genee 15, Bufos 135, Tarang with Miracle, Kenbast 15 and Tarang without Miracle which performed in a range 70% to 80% throughout the sampling dates. BASTA 15 also caused weeds regenerated at lowest percentage less than 35% at 56 DAA while other GA herbicides exhibited more than 42%. Result from this study indicated Basta 15 performed consistently against general weed infestation and selected dominant weed species whereas other herbicides applied was portrayed inconsistent outcome throughout the study.

Keywords: Generic herbicide, Premium herbicide, Glufosinate ammonium

Abstract ICSAE-IX ID 123

Tenure of Agricultural Assets as a Determinant of Income for Farmers Affected by Policy on National Strategic Project Development in Klaten Regency

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The physical development policy through the National Strategic Project has forced several farmers in Klaten to sell their land because the land that was formerly intended for agricultural land was converted into a toll road. Of the three regencies in Central Java, Klaten is the largest area affected by the construction of the Solo-Yogyakarta toll road, reaching 36 km of settlements affected from the total area of 42.37 km. This background has piqued the researcher's interest in describing the control of agricultural assets on affected farmers as a determinant of overall income factors. This article is part of research on the Response of Affected Farmers to the National Strategic Project policy for toll road construction. A total of 253 respondents were representatively taken from the east, west, central, north, and south areas. One sub-district with the largest agricultural land from each area was taken as a sample, and further, two villages with residents most affected by the toll road project were taken as samples. The performance perceived from several aspects: the average area of land owned by farmers; the percentage of farmers on the status of agricultural land ownership, the distribution of land ownership area, distribution of farmers' job, income from agricultural sector, and sources of income from agricultural sector.

Keywords: agricultural assets, control, performance, policy

Abstract ICSAE-IX ID 124

Upland Rice Growth on Giving of Biochar and Organic Fertilizer

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Abstract. Upland rice is a food crop commodity that can be cultivated on dry land, which usually has low soil fertility. Increasing soil fertility can be through the addition of organic materials in the form of biochar and organic fertilizers. The aim of this research was to examine the growth of upland rice on the application of several types of biochar and organic fertilizers. The research was conducted in Sukosari Jumantono Village, Karanganyar in March-June 2022. The research used completely randomized design consisting of 2 factors: the type of biochar (without biochar, coconut shell biochar, rice husk biochar, *strobilanthes* biochar) and the type of organic fertilizer (without fertilizer, chicken manure, goat manure, cow dung fertilizer) with three replications. The results showed that the application of biochar and organic fertilizers was not able to increase plant height, fresh weight of biomass, dry weight of biomass and leaf area of upland rice. The application of biochar was able to increase the number of leaves and the number of tillers of upland rice at 4-6 weeks after planting (MST). Coconut shell biochar gave the best results on the number of leaves and number of tillers than rice husk biochar and *strobilanthes* biochar.

Keywords: upland rice, growth, biochar, organic fertilizer

Abstract ICSAE-IX ID 125

Increasing Secondary Metabolites Production of Phyllanthus to Support Development of Herbal Medicine Industry

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Abstract. This study aims to improve the quality of *Phyllanthus sp* production by increasing the content of secondary metabolites as a bioactive compound. *Phyllanthus sp* contains various secondary metabolites that enhance immunity and treat diabetes, hypertension, antioxidants, anti-cancer, kidney disorders, and other illnesses. Since the Covid-19 pandemic, *Phyllanthus sp* widely used as a raw material for making herbal medicines. The trade value of Indonesian herbal medicines is estimated to increase in 2022, and the price will reach around the US $ 910 million, so it has very bright business prospects. These relatively limited phytopharmaceutical products constrain the supply of high-quality raw materials under the requirements of the herb medicine industry. Therefore, conducting a depth assessment related to efforts to improve the quality of *Phyllanthus sp* production by increasing the content of secondary metabolites is necessary. The efforts to enhance the quality of *Phyllanthus sp* as a source of herbal medicine raw materials can be made through plant breeding such as genetic mutations and in combination with the environmental arrangements of soil water content and solar radiation intensity. The efforts to increase the quality of herbal medicine raw materials are critical to support the development of the herbal medicine industry.

Keywords: Phyllanthus sp, Secondary Metabolites, Bioactive Compound, Herbal Medicine Industry

Abstract ICSAE-IX ID 126

Corporate Social Responsibility (CSR) in Coal Mining Companies Towards MSME Empowerment: a study in Paser Regency

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Abstract. The entry of coal mining companies around the community is something that the surrounding community is afraid of; this is related to the environmental damage caused by the coal mining. But on the other hand, coal mining is expected to be able to have a positive impact on the economy of the community around the mine through the role of corporate social responsibility programs. The purpose of this study will be to examine how the part of mining companies through the Corporate Social Responsibility (CSR) program in Paser Regency can contribute to the development of MSMEs in the community around the mining area. This research was conducted by conducting surveys and interviews with respondents, namely MSME actors around mining sites. The Corporate Social Responsibility (CSR) program by a coal mining company in Paser Regency has a positive impact on empowering MSMEs in the communities around the mine. CSR programs by providing training for MSME actors can improve MSME performance compared to financing assistance programs and marketing assistance.

Keywords: Corporate Social Responsibility (CSR), mining companies, MSME, Empowerment

Abstract ICSAE-IX ID 127

Rice husk biochar application as a mitigation strategy for nitrous oxide and methane emission in sandy paddy soil

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Abstract. Biochar application and mid-season drainage has become one of approaches to decline agricultural emissions. However, the results are inconsistent due to the trade-off between methane and nitrous oxide gas in paddy soils. This study aims to clarify the effect of rice husk biochar and mid-season drainage combination on GHG emission and crop yield. The research was conducted using pots with three replications to assess the effects of three levels of pyrolytic temperatures (300ºC (B_{300}), 450ºC (B_{450}), and 600ºC (B_{600})); two levels of doses of rice husk biochar (20 kg/ha (D_{20}) and (200 kg/ha (D_{200})); and different water management (mid-season drainage (Wd) and flooded condition (Wf)) in sandy paddy soil. The results showed that B_{600} recorded a higher yield (14 g/pot); D_{20} resulted in a higher yield (13 g/pot); Wd increased plant growth and resulted in a lower cumulative CH_4 and N_2O emission (4.3 g CH_4 m^{-2} and -13 mg N_2O m^{-2}, respectively). Therefore, we recommend applying a lower dose of 600ºC biochar combined with mid-season drainage to decrease GHG emissions while maintaining the crop yield in sandy paddy soil.

Keywords: Biochar, Mid-season drainage, Greenhouse gas emission, Paddy soil

Abstract ICSAE-IX ID 128

Web-Geographic Information System for rice fields in Bungko Village, South Kotamobagu district

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Abstract. A WebGIS-based Geographic Information System that displays the area and data of rice field ownership in Bungko Village, South Kotamobagu District has been investigated. So far, the display of land area and rice field ownership data from the community has not been studied through a WebGIS-based Geographic Information System. Digital visual on screen classification method through digitization through GIS software by interpreting image data with WebGIS-based spatial analysis. Secondary data comes from the Department of Agriculture and Fisheries Kotamobagu in 2021. The method of implementation uses the SDLC (Systems Development Life Cycle) method with a waterfall model approach in the form of planning, analysis, design, implementation, testing and maintenance. This research has produced a Web-based application spatial information system building with a display in the form of an understanding of each WebGIS component, village profiles, digital maps of paddy fields, rice fields plots, rice fields area, rice field ownership data, rice fields photos, and contacts containing addresses, email , and social media administrator accounts that can be downloaded for free by the public by typing the URL in the address bar http://sawahdesabungkoktgselatan.wordpress.com/.

Keywords: WebGIS, Ricefield, land

Abstract ICSAE-IX ID 130

The Effect Of Liquid Organic Fertilizer On Growth And Yield Of Porang (*Amorphophallus muelleri* Blume)

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Abstract. Porang (*Amorphophallus muelleri* Blume) is a tuber plant that has excellent potential because it is packed with nutrients and advantages. To boost porang yield and preserve soil fertility, liquid organic fertilizer must be used. The study's objectives were to determine the ideal dose for porang growth and yield and to assess the impact of liquid organic fertilizer. From March to August 2021, the study was conducted at BKPH Pojok in Kemadohbatur Village, Tawangharjo, Grobogan. The dose of liquid organic fertilizer (LOF)was 0.375 ml/plant, 0.75 ml/plant, 1.125 ml/plant, and control with a total of 6 replications in the study's one-factor RCBD design. Growth metrics (plant height, stem circumference plant fresh weight, plant dry weight) and yield parameters (number of bulbil, bulbil weight, rhizome fresh weight, rhizome diameter, rhizome storage weight, and rhizome volume) are observational parameters. Data processing using ANOVA test level 5% followed by regression test. The results showed that the LOF dose of 0.75 ml/plant tended to increase plant growth and yield.

Keywords: bulbil, rhizome, dosage, concentration, agroforestry

Abstract ICSAE-IX ID 131

Effect of Planting Media Composition and Watering Time Interval on Sambiloto Growth

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Abstract. Sambiloto contains andrographolid which can increase the body's immune system. The demand for sambiloto in Indonesia has increased, but is not matched by production efforts. The fulfillment of the need for sambiloto still depends on side cultivation and harvesting from nature, so that it will reduce the availability of germplasm and germplasm. This study aims to obtain the composition of planting media, watering time intervals, and the right interaction as a technology innovation for bitter cultivation. The experiment used a factorial completely randomized design (CRD) with two treatments. The first factor is the composition of the growing media soil, soil and cow manure, soil and vermicompost, and soil and goat manure. The second factor is the treatment of watering intervals every 3 days and every 4 days. The results showed that there was no interaction between the composition of the growing media and the watering time interval. Soil media and vermicompost gave the best results on plant height, number of leaves, number of primary branches, fresh and dry weight of plants, and andrographolid content. Watering every 3 and 4 days gave the same effect on the growth of bitter. The highest andrographolid (8.03%) was produced by soil media and vermicompost fertilizer.

Keywords: Andrographis paniculata Ness, andrographolide, organic fertilizer

Abstract ICSAE-IX ID 132

Morphological Identification of Ciplukan (*Physalis angulata* L.) at Several Height for Domestication

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Abstract. Ciplukan is a medicinal plant whose benefits are not widely known by the public. Plant morphological characterization is very important for detecting the specific traits of interest, identifying duplicate accessions, and structuring populations for conservation expansion. This research aimed to know the difference in morphology, ecology of ciplukan at several altitudes and determine the level of success for ciplukan cultivation. The sample selection used a purposive random sampling method. The research results showed that there were differences in the morphology of ciplukan in leaf size, stem characteristics, and flower color. Agroecological factors that play a role in the cultivation of ciplukan were light intensity, temperature, and humidity. The leaves, stems and flowers of ciplukan are different at each altitude. The leaf size in the lowlands is larger than in other plains, which is about 7.2 cm long and 3.66 cm wide. The leaf size in the mediumlands is about 5.88 cm and the width is 2.41 cm, while in the highlands it has the smallest size, namely the average leaf length is 3.5 cm and 2.3 cm. Ciplukan stems in the highlands have clear differences with other plains ciplukan stems, namely the round shape of a greenish purple color and the nature of the woody stems.

Keywords: Physalis angulata L., Domestication, Altitude of place

Abstract ICSAE-IX ID 133

Cost Benefit Analysis of the Establishment of an Environment-based Regional-Owned Enterprises (BUMD) in Tourism Sector in Magetan Regency

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Abstract. Magetan Regency has natural tourism destinations that can be optimized in itsmanagement. The high interest in nature tourism has a negative effect on the environment. Environmental degradation is slowly increasing. Nevertheless, the Magetan government must provide services to the community as a public service function, a function of development implementation (development function), and the function of protection to the public (protective function). The government plans to establish an environment-based tourism BUMD as an alternative to optimizing tourism management by paying attention to the environment. This study aims to analyze the cost and benefits of establishing an environment-based tourism BUMD in Magetan Regency. The results are NPV is Rp. 53.322.599.739, IRR is 36,81%, Profitability Index is 1,67 and The BC Ratio is calculated to be 1,45 % so this project is feasble.

Keywords: benefit cost analysis, Establishment of an Environment-based Regional-Owned Enterprises, tourism sector

Abstract ICSAE-IX ID 134

Effect of Media Type and Method of Sterilization on Growth of Porang (*Amorphophallus muelleri*) Shoots In Vitro

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Abstract. Porang is a tuber plant that has potential and prospects to be developed in Indonesia because it contains high levels of glucomannan. Propagation in vitro is required but has obstacles in the form of failure rates due to contamination. This study aimed to examine the effect of media type and sterilization method on the growth of porang (Amorphophallus muelleri) shoots in vitro. Parameters observed included shoot emergence day, number of shoots, shoot color, percentage of contamination, growth and development of explants. The data analysis used in this research is descriptive analysis. The results of this study indicate that the treatment of planting media affects the growth of porang shoots. The best treatment combination was found in the treatment of sterile cotton media with 1 minute sterilization which showed a contamination level of 3%, the number of shoots was 8, the average day of shoots appeared at 7 DAP, the color of the shoots was reddish green. Sterilization by soaking bulbil longer can reduce the growth of the number of shoots, increasing contamination.

Keywords: growing media, sterilization, contamination

Abstract ICSAE-IX ID 136

Effect of Organic Pellet Binder on Physic and Nutrient Quality as an Environmentally friendly Feed Product

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Abstract. Environmentally friendly products are currently a concern for the community to consume. The increase in livestock products is also in line with the increasing need for feed. Some chemicals materials used in producing feed products have been prohibited from being used. Feed binder in the form of organic pellets is one of the solutions to replace these non-organic materials. Molasses and bentonite are organic pellet binders whose dosages used to be tested on the quality of pellet feed. The parameter of physic quality pellet such as hardness, durability, friction and density would be related to nutrient composition of pellet. Main nutrient component such as pellet water concentration, ash, protein, fat and fiber concentration would be different between different pellet binder treatment. Doses 2 percent and 5 percent for different pellet binder are designed for factorial experimental design research. Organic binder for 5% molasses and 5% bentonite are optimum doses because of less crushed pellet after hardness test. The doses 5% of Molasses as pellet binder has highest pellet durability index (93.40%). Using organic pellet binder molasses and bentonite is better for produce good quality of pellet feed which is environmentally friendly.

Keywords: Organic pellet binder, Pellet Feed Quality, Environmentally friendly product

Abstract ICSAE-IX ID 137

Utilization of plastic bottle waste in eco-friendly wayang design for childrens

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Abstract. Plastic bottle waste can damages the environment in the sea and land. Plastic bottles are non-biodegradable, it takes decades to decompose. The author got a creative idea to utilizing plastic bottle waste into eco friendly wayang design. The research using qualitative methods and prototype designs as a result of research, this program directed at creative process in responding to environmental sustainability and growing childrens awareness used of plastic bottle waste. New concept to answer in the environmental problems and introduces wayang as Indonesian culture which is made from plastic bottle waste.

Keywords: plastic bottle waste, wayang, eco friendly

Abstract ICSAE-IX ID 138

Organic Materials and Fish Emulsion on Multiplication of Cavendish Banana Shoots (*Musa paradisiaca* 'Cavendish')

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Abstract. This study was aimed to know the effect of the combination of organic matter and fish emulsion on the multiplication of Cavendish banana shoot. Using one factor of complete randomized design, with 13 levels of treatment, namely: MS + Purple sweet potato extract (O1E0), MS + Purple sweet potato extract + fish emulsion 2 ppm (O1E1), MS + Purple sweet potato extract + fish emulsion 4 ppm (O1E2), MS + Purple sweet potato extract + fish emulsion 6 ppm (O1E3), MS + Banana peel extract (O2E0), MS + Banana peel extract + fish emulsion 2 ppm (O2E1), MS + Banana peel extract + fish emulsion 4 ppm (O2E2), MS + Banana peel extract + fish emulsion 6 ppm (O2E3), MS + Bean sprouts extract (O3E0), = MS + Bean sprouts extract + fish emulsion 2 ppm (O3E1), MS + Bean sprouts extract + fish emulsion 4 ppm (O3E2), MS + Bean sprouts extract + fish emulsion 6 ppm (O3E3) and MS+BAP as control. The results showed that the combination of organic matter treatment and fish emulsion still showed significantly different results compared to treatment with synthetic materials at the parameters time of shoots appeared and the number of shoot.

Keywords: organic matter, fish emulsion, multiplication

Abstract ICSAE-IX ID 139

Morphological and Physiological Responses of Soybeans to Organic Fertilizers in Mahogany-Based Agroforestry Systems

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Abstract. Land conversion causes a decrease in the area of agricultural land, so that agricultural cultivation efforts through agroforestry systems are needed, such as planting between mahogany trees. This study aims to examine the role of organic fertilizer on the morphology and physiology of soybeans in agroforestry systems with mahogany stands. The study used a complete randomized design with one factor, namely the type of organic fertilizer with 4 levels, namely chemical fertilizer (urea 50 kg/ha, SP36 100 kg/ha and KCL 100 kg/ha), chicken manure (5 tons/ha), manure fertilizer goats (5 tons/ha) and cow manure (5 tons/ha). Repeat 3 times. Light absorption by soybean under mahogany stands is 33200 lux. The results showed that the type of organic fertilizer affected soybean morphology, namely plant height 2 and 3 WAP, leaf number 4 WAP, and soybean physiology, namely total chlorophyll. The plant height (34.3 cm) and the number of leaves (17.5 strands) were highest in the goat manure fertilizer treatment. Chicken manure produced the highest total chlorophyll, which was 0.0743 mg/g. Total chlorophyll count was positively correlated with the amount of chlorophyll a. In addition, plant fresh weight was positively correlated with plant biomass and plant moisture content. Soybean has the potential to be cultivated in agroforestry systems and the addition of nutrients with organic fertilizers.

Keywords: chlorophyll, *Glycine max*, number of leaves, plant biomass

Abstract ICSAE-IX ID 140

The diversity of wild Tampoi (Baccaurea, Phyllantaceae) and their potential for improving livelihoods for local people in Aceh, Indonesia

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Abstract. Baccaurea is a tropical indigenous plant with a high potential for improving food security and public health, particularly in rural areas. The majority of these plants are found growing wild in the forest and have not been fully explored. The increasing rate of deforestation in recent years, as well as the trend of decreasing knowledge among local people about wild plant species, pose a threat to the existence of Baccaurea in nature. This study aims to determine the diversity of Baccaurea and its importance for local people in Aceh, Indonesia. This study was conducted in two districts, namely South Aceh and Southwest Aceh. The plant specimens were collected with an exploratory method, while information on the use of Baccaurea was gathered from literature studies and interviews with local people. A total of 8 species were found growing wild in the forests and farmland such as *Baccaurea brevipes* Hook.F., *B. deflexa* Müll.Arg., *B. lanceolata* Müll.Arg., *B. macrocarpa* Müll.Arg., *B. macrophylla* (Müll.Arg.) Müll.Arg., *B. parviflora* (Müll.Arg.) Müll.Arg., *B. polyneura* Hook.F., and *B. sumatrana* (Miq.) Müll.Arg. All the specimens found have the potential to be a source of food and medicinal plants.

Keywords: Baccaurea, diversity, traditional knowledge, Aceh

Abstract ICSAE-IX ID 141

Jeans Waste Based Textile Design Works For Aesthetic Elements at LEVI'S Indonesia Office in Jakarta

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This research focuses on: (1) Application of jeans waste as an aesthetic element at the Levis's Indonesia Office in Jakarta, (2) Development of various forms of textile design motifs when used as an aesthetic element, (3) Creating of materials jeans waste as an aesthetic element at Levis's Indonesia Office in Jakarta. The application of jeans waste as an aesthetic element is a creative and innovation. The application is not only aesthetic but also as an effort to save the environment. The use of materials from jeans waste which incidentally is no longer used to be used as an aesthetic element by upcycle. The materials used include: remnants of jeans, both damaged and intact, pieces of batik etc. Art creation methods include: the use of data sources, namely the use of emic and ethical data sources as well as the process of artistic creation, which include experimentation, reflection and formation. The results of this art creation research produce works of aesthetic elements based on jeans waste which are applied at the Levis's Indonesia Office in Jakarta.

Keywords: Jeans waste, textile design, Aesthetic Elements

Abstract ICSAE-IX ID 142

Waroeng Spesial Sambal Indonesia's Corporate Social Responsibility Sustainability Model

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Abstract. The CSR program of Waroeng Spesial Sambal (SS) Indonesia has become a phenomenon of CSR practice that represents the company's internal awareness and motivation even though it is not included in the type of business that is required to allocate a CSR budget. As a culinary business in the form of an individual company and not subject to CSR obligations, this company has been running CSR programs for quite a long time and consistently, both in the form of social activities and community empowerment. The budget allocation that is not based on the amount of profit but based on the amount of turnover is also an indicator of the value system adopted by the company. This study aims to analyze: (1) the basis for the implementation and (2) the sustainability model of Waroeng Spesial Sambal (SS) CSR. This research is qualitative research with a case study approach. Data were collected through observation and interviews with informants from the Waroeng SS CSR management and related stakeholders. The results of the study show: (1) the basis for implementing CSR is the company's vision and policies; (2) there is a CSR sustainability model of Waroeng SS that meets the aspects of economic, social, and environmental sustainability.

Keywords: CSR, economic, environment, social, sustainability

Abstract ICSAE-IX ID 143

Dhukutan Rite: Efforts to Save the Environment in the Lawu Area, Karanganyar

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Abstract. This article will examine the *Dhukutan* Rite related to efforts to preserve and save the Lawu Mountains environment. The *Dhukutan* Rite is a traditional ceremony of the indigenous peoples of the Lawu highlands which is passed down from generation to generation and contains teachings on the harmony of life with nature. The teachings contained in the *Dhukutan* ceremony are more concerned with the process of harmonization of life with nature. Thus, humans will be able to find true happiness. True happiness can only be realized if they have succeeded in seeking the safety of themselves and their environment. This effort is carried out through beautiful symbolization, starting from the aspect of offerings used in the *Dhukutan* ceremony to the episodes of the *Dhukutan* ceremony and sites related to the *Dhukutan* ceremony. This means that all human behavior must always be aimed solely at obtaining the pleasure of God and at the same time oriented to providing safety and welfare for the universe, including humans and the environment in it. Therefore, the teachings contained in the *Dhukutan* Rite are expected to support environmental policies, particularly the Sustainable Development Goals (SDGs) in the Lawu Highlands.

Keywords: Rites of Dhukutan, Efforts to save the environment, and SDGs

Abstract ICSAE-IX ID 145

Environmental Ethics Myth of the Rice Goddess "Dewi Sri" in Javanese Society as an Alternative to Contribution to Sustainable Development Goal

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Abstract. Javanese people have known local wisdom in the form of knowledge about the environment which is reflected in the myth of the Goddess of Rice (Dewi Sri). The traditional image of the environment is in the form of all the activities of the Javanese people towards the preservation of "food" which is reflected in the myth of Dewi Sri. Javanese people have expressed it in various forms of ritual ceremonies related to food preservation (rice and other plants). This paper aims to reveal the environmental ethics of the Javanese people in the Dewi Sri myth. Environmental ethics in the form of local wisdom of the Javanese community in the Dewi Sri myth is expected to be useful for the development and future of the nation.

Keywords: Environmental Ethics, Myth of the Rice Goddess "Dewi Sri", Sustainable Development Goal

Abstract ICSAE-IX ID 146

Profit Functions Of Catfish Farming For Increasing Household Income In Pekanbaru City Riau Province

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Abstract.,The profit of catfish farming is a describe of performance business. Profit is determined by output and input price. This study aims to analysis the level profitability of catfish farm and determinant factors profit of catfish farm. This research was conducted a survey method, located in Pekanbaru City. The research data is cross section data, obtained by using the interview method. The sampling used simple random sampling method with 98 catfish farmers. Data analysis used statistical analysis with multiple linear regression. Research results show that: firstly, catfish farm in Pekanbaru City is profitable. Secondly, price of catfish, labour wages, the price of feed PF 1000 and depreciation costs significantly affects to profits. But price of seeds and feed PF 800 does not significantly affect it. Thirdly, the price of catfish is responsive to changes profit for enlargement catfish business. It means, changes in catfish prices have a major impact on catfish profits. However, labour wages, feeds and equipment depreciation are not responsive to profits. This study recommend that output pricing policy is importance for sustainability business catfish for increasing household income.

Keywords: Catfish, Profit Function

Abstract ICSAE-IX ID 147

Analysis of Indonesian Edible Bird's Nest Exports to China and Hong Kong in 2017 – 2021

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Abstract. Indonesia provides 75% of the world's edible bird's nest needs. China and Hong Kong are the largest importer of Indonesian edible bird's nest. In 2021, about 81% of 1,500 tons of Indonesian edible bird's nest production are exported to these countries, of which 994 tons (65.8%) are exported to Hong Kong and 229 tons (15.2%) are exported to China. This study aims to analyze the dynamics of the Indonesian bird's nest export and market to China and Hong Kong. The data used are secondary data. The data is analyzed by comparing the export and import volume and value of edible bird's nest of the countries and the export volume and value of Indonesian edible bird's nest to these countries as well. The results showed that Indonesian bird's nest dominates the market in these two countries and it is also found that, in terms of export volume, Hong Kong is a largest importer of Indonesian bird's nests. However, in terms of export value, China is the largest importer. In conclusion, Indonesia must try to increase their export volume to China and diversify its bird's nest products.

Keywords: edible bird's nest, export, market.

Abstract ICSAE-IX ID 148

The Growth Response and Nutritional Status of Eggplant *(Solanum melongena* L.*)* Planted in Soil Incorporated with Oyster Mushroom Waste

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Abstract. Waste disposal have been a primary concern to the mushroom grower as it can lead to various environmental issues without proper waste management. Most of the mushroom grower are unaware of the utilization of organic waste as soil amendment which have proven to improve the soil properties, growth performances and yield of the crops if it is performed precisely. This study intended to determine the growth response and nutritional status of eggplant by utilizing the oyster mushroom waste as part of the growing medium. The experiment design used was Randomized Complete Block Design (RCBD) and the treatments involved were: T1 (100% Topsoil), T2 (90% Topsoil + 10% OMW), T3 (70% Topsoil + 30% OMW) and T4 (50% Topsoil + 50% OMW). The study showed that there was a significant difference on soil properties which is determined by the soil moisture content and soil pH value between treatment where $p<0.0.5$. The utilization of OMW in treatment showed to had a higher nutrient content (%) in both soil and plant and recorded to had better yield performances in eggplant cultivation, as it increases the eggplant yield by 30%-50%. Thus, there is a possibility to avoid waste disposal without impacting the growth and yield of the eggplant.

Keywords: Oyster mushroom waste, Waste management, Eggplant (Solanum melongena L.), Growth Performances, Nutritional Status

Abstract ICSAE-IX ID 149

The Effect of Empty Fruit Bunch (EFB) Compost and *Trichoderma* Biofertilizer on Growth and Yield Performance of Chili (*Capsicum annuum* L. Var. Kulai)

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Abstract: Chili Kulai (*Capsicum annum* L) is a typical and popular chili that utilized by Malaysians as a spice in their daily food, emphasize its economic value. The objectives of this study were to evaluate the effect of empty fruit bunch (EFB) compost and *Trichoderma* biofertilizer on the growth and yield performance of chili production, as well as to determine the NPK content of soil and chili plant. The experimental design used was Randomized Complete Block Design (RCBD) with four treatments replicated four (4) times with four plants giving a total 64 experimental units. The treatments involved were: T1 (Control), T2 (100% EFB compost), T3 (100% *Trichoderma* biofertilizer) and T4 (50% EFB compost + 50% *Trichoderma* biofertilizer). Furthermore, there was a significant different ($p<0.05$) for growth and yield performance of chili production. As for the nutrient content (%) in both soil and plant, T4 showed the highest NPK content. In conclusion, this study proved that the use of organic based EFB compost enriched with *Trichoderma* biofertilizer is viable and could provide as an alternative reduction for chemical fertilizers usage in chilies production.

Keywords: EFB compost, Trichoderma biofertilizer, Chili (Capsicum annuum L var Kulai)

Abstract ICSAE-IX ID 151

Effect of Substrate Nutrient Content Level on Nutritional Expression of *Hermetia illucens* : A meta-Analysis

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Abstract. This study aims to evaluate the effect of substrate nutrient content level on nutrient expression of *Hermetia illucens* by using a meta-analysis method. A database was constructed from studies that have reported various substrates with nutrient levels in *Hermetia illucens*. The nutritional content observed in this study were dry matter (DM), ash, crude protein (CP), true protein (TP) and ether extract (EE). A total of 12 articles were integrated into the database. The compiled database was statistically analyzed using a mixed model methodology. The different studies were considered as random effects, and the nutrient substrate dose was treated as a fixed effect. The statistical model used is the p-value. The significance of an effect is stated when the p-value < 0.05. The results showed that the increase in ash, CP, and TP on the substrate had a significant effect on the increase in nutrient *Hermetia illucens* ($P<0.05$) and increasing DM substrate tends to increased DM on *Hermetia illucens* ($P<0.1$). The conclusion of this study is that the levels of DM, ash, CP, and TP on the substrate affect the nutritional content of *Hermetia illucens* larvae.

Keywords: *Hermetia illucens*, meta-analysis, nutrient content, susbtrate

Abstract ICSAE-IX ID 152

The Correlation between Farmers' Motivation and Perception with Commitment to Raising Buffalo in Pemalang Regency

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Abstract. The purpose of this study was to determine the motivation and perception of buffalo farmers and their commitment to raising buffalo and the relationship between motivation and perception with the commitment of buffalo farmers to maintaining buffalo in the Pemalang Regency. The research method used was a survey method. The determination of the area was carried out purposively in Pemalang Regency which has the largest buffalo population in Central Java. Four sub-districts with large buffalo populations were chosen i.e. Taman, Pemalang, Bantarbolang, and Belik sub-districts. One village with the largest buffalo population was selected for each selected sub-district. Respondents were taken randomly and the number of respondents was determined using the Slovin formula with a margin of error of 10%, obtaining 212 respondents. The analytical method used is descriptive analysis and rank spearman. The results showed that the motivation of buffalo farmers was in the medium to the high category, the perception of farmers in the high category, and the commitment of buffalo farmers in the medium to high category. The relationship between the motivation and commitment of farmers and the relationship between perceptions and commitment of farmers in raising buffalo in the strong category (0,590 and 0,531).

Keywords: Buffalo farmers, Motivation, Perception, Commitment of Farmers

Abstract ICSAE-IX ID 153

Pari Klegung 'The River Whisper' Eco Friendly Study

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Abstract. On the banks of the Klegung River, often known as 'The River Whisper', in the Kulon Progo district of the Special Region of Yogyakarta, is a brand-new culinary tourism destination called Pari Klegung. The idea behind the construction of Pari Klegung was to bring people and environment closer together. This article serves as an introductory study, using Pari Klegung 'The River Whisper' as an example of an ecologically friendly design observation. The following research will use more thorough methodologies and information. In addition to conducting interviews with respondents, this research method makes use of architectural and environmental observation techniques. Pari Klegung is distinctive due to the land's organic shape, which follows the existing terrain's contours, attempts to conserve greenery, a predominance of local materials in structures, an display of river cultural relics as a celebration of local culture, and participation of locals in management. Pari Klegung 'The River Whisper', created by Eko Prawoto, can serve as an example of how to incorporate environmentally friendly building practices in a freshly constructed setting, with ecological elements playing a significant role in it.

Keywords: culinary tourism, environmentally friendly, pari klegung, rural

Abstract ICSAE-IX ID 155

The Use of Biochar and Biofilm Biofertilizer (BiO_2) to Increase Rice Yield

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Abstract. The use of biochar can improve the physical, chemical and biological properties of the soil. The application of biochar is expected to further increase the effectiveness of BiO_2-biofilm biofertilizer in supporting rice growth so that it can provide higher yields. The purpose of this study was to obtain the optimal formula for the use of biochar and BiO2 for rice yields. The study was conducted in a greenhouse using a pot with a split plot design with three replications. The first factor (main plot) is the concentration of BiO_2 (0 and 100 %), the second factor (sub plot) dose of biochar (0; 15 and 30 tons ha^{-1}) and the third factor (sub-plot) method of use (mixed homogeneously to soil and is given at soil surface). The biochar used is sized to pass the 2 mm sieve. Observation variables include plant growth and yield as well as physical, chemical and biological properties of the soil. Statistical analysis using ANOVA followed by Duncan's multiple range test. The results showed that the use of biochar up to 30 tons ha^{-1} with the application of 100% concentration BiO_2 liquid biofertilizer showed an increase of rice growth and yield as indicated by the increase of plant height, tiller number and productive tiller number.

Keywords: Biochar; Biofilm; Biofertilizer; rice; eco-friendly agriculture

Abstract ICSAE-IX ID 156

Environmental Issues, Poverty and Media: Bibliometric Analysis

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Abstract. This study contributes to the understanding of how environmental issues are connected to poverty issues and new media, including social media in the period 2016-2022. The novelty of this study provides information on the focus of the study on environmental issues, poverty in the era of social media penetration. The research uses a systematic literature review with bibliometric analysis of the type of co-occurance by all keywords. The data is taken from the articles in the Scopus database with the search key words "environment" AND "Poverty" and "environment" AND "social media" between 2016-2022, then the collected 13 articles are analized using Vosviewer. This study found 3 research streams on environmental issues, poverty and new media: (1) the relation between population issues, poverty and environmental degradation; (2) advocacy and communication of environmental issues through social media; (3) sustainable development. This bibliometric study of environmental, poverty and social Media issues contributes to enriching the category of studies and the direction of further research development. By analyzing the number of publications from each category over the last 7 years, we recommend 3 research questions from 3 research streams

Keywords: environment, social media, poverty

Abstract ICSAE-IX ID 157

Sustainable Artwork with Nature Theme by The Jakarta Modernist Painters: Zaini, Rusli, Nashar, and Oesman Effendi

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Abstract. This article discusses four Jakarta painters: Zaini, Rusli, Nashar, and Oesman Effendi who jointly fought for Indonesian independence through SIM organizations in Madiun and Yogyakarta. After the war was over, they created works of modernism in an abstract style that was far different from the SIM ideology which was based on realism. They then built LPKJ in Jakarta, a non-conventional art school that prioritizes freedom of expression, appreciation of nature, outdoor studies, and interdisciplinary studies. This research uses a descriptive method through observation techniques with several case studies, namely examining their painting styles and finding similar characteristics in their works. It turns out that they have a common thread, namely love and appreciation for nature in order to get to its essence. Their thoughts were then passed on to LPKJ students and inspired a younger generation of Indonesian artists.

Keywords: abstract painting, modernism, nature, realism, sustainable artwork

Abstract ICSAE-IX ID 158

Implications of Corporate Social Responsibility Legal Policies in Indonesia on the Impact of Saving the Environment

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Abstract. Environmental problems are an important issue because cases of pollution and environmental damage due to company activities are alleged to be the cause of the high rate of pollution and environmental damage in Indonesia. In order to emphasize the importance of management to protect the environment for human life, especially as a result of the implementation of company activities that exploit nature either directly or indirectly, the Government of Indonesia has issued various regulations in the context of environmental protection and management. This policy was formed to ensure legal certainty and provide protection for the environment that ensures the sustainability of environmental care in Indonesia. However, although various regulatory policies in Indonesia have provided clear guidelines regarding environmental management, in reality there are still violations by a company in exploiting Indonesia's natural resources. This article will analyze various CSR legal policies on environmental management and maintenance in Indonesia, especially for mining and oil companies. The implementation of CSR is faced with the obligation to carry out social and environmental responsibility functions, and is important because it has multiple effects, namely effects on companies, effects on the environment, effects on society, and effects on the state.

Keywords: Corporate Social Responsibility, Environmental, Protection, Legal Policies, Corporate

Abstract ICSAE-IX ID 159

Context of function and aesthetics in disaster mitigation comics

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Abstract. Global climate change has an impact on natural conditions, which in the extreme, can bring disaster. To avoid or reduce a more severe impact, disaster mitigation efforts are needed. In order to convey these mitigation efforts to the public, a publication media that is able to persuade and attract attention is needed. Comics are media that provide these facilities, apart from entertaining and attracting attention from a visual perspective, they are also able to convey messages. Through the comparative method and content analysis in the form of qualitative descriptive to see how the media is visually aesthetically appealing and functionally able to convey messages to the public. Comics as a medium for conveying messages become more effectively accepted by the public if they are supported by attractive visual presentations.

Keywords: Disaster mitigation, Media, Comics

Abstract ICSAE-IX ID 160

Institutions To Improve Farmers' Resilience In Facing Climate Change

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Abstract. Farmers have vulnerability to climate change when exposed and sensitive but have low adaptive capacity. Adaptation capacity can be increased through institutional strengthening. Strong institutions will encourage farmers to have a chance to succeed by improving their performance. This study examines the institutional form of farmer self-organization and resources access in Banyumas Regency. The target population is farmers affected by climate change. This study uses SWOT to analyze farmers' self-organization. The results showed the strenghthen of farmers are young farmers, agriculture as the main livelihood, farmers have social capital and resources to support farming. Weaknesses of Farmers are low level of education and family income. The opportunities of farmers are having a network to strengthen their farming business and easy access to production factors. The threats faced by farmers are the absence of norms in the community to regulate land and water use as well as local wisdom to support farming, existing institutions in the community that do not support farming optimally and the average production per hectare is still below the national average production. The policy implication is that farmers must increase their capacity and build strong institutions to increase farmer resilience in the face of climate change.

Keywords: Institutions, Resilience, Climate Change

Abstract ICSAE-IX ID 161

The effects of Isomalto-oligosaccharide, Inulin, and Polydextrose on the Development of Sugar-Free Pineapple Jam

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Abstract. The aim of this study was to elaborate the effects of using isomalto-oligosaccharide, polydextrose, and inulin as humectant towards sugar-free pineapple jam physicochemical and sensory characteristics. Eleven different samples were made with the determined concentration of each prebiotic, followed with the analysis of water activity, degree of brix, color, 72-hour syneresis, sensory evaluation of spreadability, hedonic test, and Just About Right test. The results obtained from the physicochemical analysis showed the lowest water activity and syneresis level is the sample with 35% isomalto-oligosaccharide with the ºBrix of 61,00. The two best sample is followed by the sensory evaluation test, where the sample with 35% isomalto-oligosaccharide has the best spreadability,favorable and more acceptable by the panelists as well as with the fewest penalty shown based on the JAR results obtained.

Keywords: pineapple jam, sugar-free, isomalto-oligosaccharide, inulin, and polydextrose.

Abstract ICSAE-IX ID 162

Functional Food Rich In Flavonoids To Prevent Corona Virus: *Opportunities And Challenges*

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Abstract. The threat of a new type of corona virus causes Covid-19 has become pandemic for more than 2 years. Even though the prevalence has decreased considerably and many countries have started into new habit adaptations, in some countries exposure to the virus has increased again. Therefore, one of the efforts to avoid virus infection is to increase the body's immunity, for instance, by consuming foods rich in nutrients and bioactive compounds. Various studies have been conducted to explore spices and medicinal plants as antiviral for corona and as immunomodulators. Although vaccination has been promoted, but because the Covid-19 virus is always mutating, people still have to be vigilant and increase their immune system by consuming vitamins including indigenous Indonesian spices and medicinal plants. One of potential active compound from plants for Covid-19 is flavonoids. Flavonoids are secondary metabolites abundant in fruits, vegetables, whole grains, roots, stems, leaves, and flowers. Flavonoids have a broad spectrum of health benefits due to their activity as antioxidants, anti-inflammatory, antiviral, and immunomodulatory. Study of flavonoid sources from plants as antiviral for corona and immunomodulators have been widely carried out. The objective of the review was to explore the potential and opportunities of plant rich in flavonoids as anti-viral and immunomodulator during and post covid pandemic.

Keywords: functional food, flavonoids, Covid-19, immunomodulators

Abstract ICSAE-IX ID 163

Public Service Advertising Video Invitations To Dispose Of Waste Properly

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Abstract. The volume of domestic waste in Surakarta City always increases every year, based on the records of the Surakarta City Environmental Service, the daily volume of waste in Surakarta City is an average of 300 tons per day or 3600 tons per year. This figure increases with the population gain. The public's indifference is still very lacking, as evidenced in every important event in the city of Surakarta such as football matches, and music concerts which always leave garbage scattered about in the form of food and drink packaging. Lack of individual understanding of the importance of maintaining cleanliness is one of the problems that need to be solved. The research conducted using qualitative descriptive methods. Data collection was carried out through a literature study as a basis for designing a Public Service Advertisement video about the invitation to dispose of garbage properly. Socialization media in the form of videos was chosen because it is easier to distribute by utilizing social media that is currently being harvested such as Youtube, TikTok and Instagram reels.

Keywords: Waste, Public Service Advertising, Video

Abstract ICSAE-IX ID 164

The Characteristics of Soil Organic Carbon (SOC) at Forest Stands of Mount-Merbabu National Park and Upland Farming

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Abstract. The island of Java has a wet tropical climate and has a variety of vegetation stands. Each vegetation stand has a composition of species, age, and vegetation density that varies and affects the level of soil fertility. This study examines the analysis of vegetation and soil organic carbon (SOC) characteristics at forest stands of Mount-Merbabu National Park (Pine (*Pinus merkusii*), Puspa (*Schima noronhae Theaceae)*, Acacia (*Acacia decurren Fabaceae*), Bintamin (*Cupressus sp*), and Mixed) and upland farming at a soil depth of 0-70 cm. Observations of vegetation analysis were made by Observing Plot Units measuring 50 m x 50 m and 3 replicates, while the observations of soil organic carbon included: organic-C and bulk density soil at a depth of 0-70 cm (0-10, 10-20, 20-30, 30-50, and 50-70 cm) and 3 replicates. The research data were analyzed descriptively, followed by the F-Test and DMRT Test at 5% level. The results obtained: (a) the forest stands of Mount-Merbabu National Park has the highest important value index in Puspa (*Schima noronhae Theaceae)* forest stand, followed by Pine (*Pinus merkusii*), Acacia (*Acacia decurren Fabaceae*), Bintamin (*Cupressus sp*), and Mixed; (b) the content of SOC decreased with increasing soil depth (0-10, 10-20, 20-30, 30-50, 50-70 cm). At soil depth (0-70 cm) the highest of SOC content was in the Puspa (*Schima noronhae Theaceae)* forest stand (5.34%), followed by Mixed (5.00%), Bintamin (*Cupressus sp*) (2.81%), Acacia (*Acacia decurren Fabaceae*) (2.44%), and the lowest is Pine (*Pinus merkusii*) (2.01%); while the upland farming (1.53%). Puspa (*Schima noronhae Theaceae*) can be recommended as a good type of revegetate plant (reforestation).

Keywords: forest of Mount-Merbabu national park, pine, puspa, SOC, upland farming

Abstract ICSAE-IX ID 165

Factor Affecting Chilli Market Supply Towards Sustainable Domestics Production

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Abstract. Chilli (*Capsicum Sp*) is a tropical and economic crop commodity with encouraging market potential in the domestic market. It consists of various species and variety. Red chili varieties that are popular among farmer are Kulai 469, Kulai 461, Kulai 151, Kulai 223 and Kulai 568. Currently, domestic chilli production in Malaysia facing a downward trend. The sustainability in production needs to be strengthen for domestic's market to avoid high dependency on imports. This study aimed to determine factors that influencing local grown chilli supply to domestic market. Data were collected using a well-structured close ended questionnaire via face to face and also distributed through google form link to 102 chilli farmers. The obtained data were analysed using descriptive analysis, exploratory factor analysis and regression analysis. Three factors identified by exploratory factor analysis as the factor affecting chilli market supplied are extension service, knowledge and credit access. The result of regression analysis revealed that farm size and income per season show positive relationship and significant (<0.05) to factor affecting chilli market supplied. The study recommends the need for designing appropriate intervention mechanism focusing on the aforementioned factor to improve the local chilli production in the domestic market and uplift the status of smallholder chilli farmer.

Keywords: chilli, market, supply, extension services, knowledge, sustainable production

Abstract ICSAE-IX ID 166

Value Chain Mapping of Porang Commodity (*Amorphophallus muelleri*) in Wonogiri Regency

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Abstract. Porang *(Amorphophallus muelleri)* is a plant commodity with a high value primarily for export. Therefore, this commodity has a huge opportunity to be developed in Indonesia as a superior commodity. This study explores the value chain mapping of Porang in Wonogori to describe the flow of Porang from on-farm production to manufacturing, including the activities in each chain actor to increase the added value. The survey was conducted in Wonogiri regency by interviewing the actors from the upstream until downstream. A total of 55 respondents were interviewed from the actors involved in the chains, such as farmers, rural traders, sub-district traders, and wholesalers. The interviews asked about the flow of the product and activities to increase the value added of Porang. There are four value chain mapping found in the survey. First, farmers go directly to the factory. Second, farmers to traders in sub-district to wholesalers to the factory. Third, farmers to wholesalers to the factory. Fourth, farmers to traders in rural to traders in sub-district to wholesalers to the factory. The whole actors in the chains have different roles and activities to increase the added value of Porang.

Keywords: value chain, Porang, Amorphophallus Muelleri, Wonogiri

Abstract ICSAE-IX ID 167

The Determinants of Cocoa Export Growth to the Main Export Destination Countries

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Abstract. According to the International Cocoa Organization (ICCO), world cocoa consumption will reach around 4 million tons annually. The world's leading cocoa-producing countries, such as Indonesia, must utilize this condition. Indonesia is ranked sixth in the world's cocoa producer, contributing around 5%. Indonesia's exports are still dominated by cocoa beans (60%), most of which are exported to foreign countries, and the rest is marketed domestically. In 2020, the top five importing countries for Indonesian cocoa are Malaysia, America, India, China, and the Netherlands. This study aimed to analyze the determinants of the growth of Indonesian cocoa beans exports to 5 export destination countries (Malaysia, America, India, China, and the Netherlands). The method used is panel data analysis. Using STATA, this study uses time series data from 2010 – 2020 and cross-section data from 5 countries. The results showed that the variables that had a significant effect on the export growth of Indonesian cocoa beans were the export volume of cocoa beans, Indonesia's GDP, economic distance, and population of export destination countries, while other variables (GDP of export destination countries, production, productivity, exchange rate, price of cocoa beans) world, harvested area, the domestic price of cocoa beans) is not significant.

Keywords: Cocoa Bean, Destination Countries Export Growth, Gravity Model, Panel Data

Abstract ICSAE-IX ID 168

Biofortification in an effort to meet micro Fe nutrients using Moringa leaf extract (*Moringa oleifera*) on rice plants

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Abstract. Fe is an important mineral that plays a role in the body's metabolism. Fe functions as a form of hemoglobin, a catalyst for the conversion of beta-carotene to vitamin A, purine and collagen synthesis, antibody production, and detoxification of drugs in the liver. Fe in the body is automatically renewed by food, especially rice. To meet these needs, the minimum consumed rice contains Fe 26.1-78.2 ppm but in reality it is only around 9.4-16.2 ppm. Therefore, biofortification efforts are needed to increase the Fe content in rice. The purpose of this study was to determine the potential of Moringa leaves in increasing Fe uptake. The experimental design was factorial with Completely Randomized Design as the basic design, consisting of 2 factors: Liquid organic fertilizer (P0: no liquid organic fertilizer, P1: Moringa extract, P2: Moringa fermentation), Fertilizer concentration (K1:2 %, K2: 4 %, K3: 6 %, K4: 8 %). Data were analyzed by statistical analysis using ANOVA 95% significance level followed by Duncan Multiple Range Test 95% significance level. The results showed that the highest Fe absorption was in the P1K2 treatment (Moringa extract+4%) which was 8.31% or 90.25% compared to the control.

Keywords: Biofortification, Fe, Moringa oleifera

Abstract ICSAE-IX ID 170

The nutritional quality of silverside and chuck meat of thin-tailed lamb fed rations containing protected soy groats in various ratios

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Abstract. This study aims to examine the effect of using protected and unprotected soybean groats with different ratios on the nutritional quality of silverside and chuck thin-tailed lamb meat. The research design used was a completely randomized design (CRD) with three treatments. The treatment consisted of a ration containing protected: unprotected soybean groats with a ratio of P1= 10%: 5%, P2= 7.5%: 7.5% and P3= 5%: 10%. The data obtained were analyzed for variance, if there was an effect of treatment, further tests were carried out with orthogonal contrast tests. The results of the analysis of variance showed that cholesterol levels were affected by the ratio of protected and unprotected soybean groats ($P<0.05$) while the water, protein and fat content of beef and thin tail lamb ham were not affected by the ratio of protected and unprotected soybean groats ($P>0.05$). The nutritional content of thin-tailed lamb was not affected by differences in the type of meat ($P>0.05$). The conclusion of the study was that the cholesterol levels of thin-tailed lamb that were given rations containing protected : unprotected soybean groats (10%: 5%) were 20% lower than those given rations with a ratio of 7.5%: 7.5% and 5%: 10. %. The nutrition of thin tail lamb has the same quality based on water, protein and fat content.

Keywords: Nutrients-meat, silverside-meat, chuck-meat, thin-tailed lamb, soybean-groats, protected

Abstract ICSAE-IX ID 171

The role of SMEs in Indonesia in Encouraging the Green Economy Concept for Quality Economic Growth

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Abstract. This study aims to analyze the role of SMEs in encouraging the concept of a green economy in Indonesia. The method in this study uses dynamic panel data with GMM estimates in the period 2015 to 2021. The GMM estimates in this study are used to determine the influence of SMEs in Indonesia to encourage the concept of green economy in the short and long term. The use of the green economy variable is measured using the green GDP indicator by adding the cost of environmental damage, namely the level of depletion and environmental degradation. The results of this study indicate that the role of SMEs in encouraging the concept of a green economy is still low. Recording and reporting on green economy activities is important so that they can be encouraged if appropriate so that they can be given a subsidy policy. Matters regarding the green economy need to be applied by the government in order to make decisions on a sustainable policy.

Keywords**:** SMEs, Green Economy, GMM

Abstract ICSAE-IX ID 173

Effects of biochar-compost (BioCom) on cadmium availability and plant growth

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Abstract. In recent years, the accumulation of heavy metals such as cadmium in soil has increased resulted from various natural processes and industrial activities. Combination of biochar and compost (BioCom) as one of the potential methods in remediating the contaminated soil is not fully understood. Therefore, the study was conducted to investigate the effects of BioCom on cadmium availability and plant growth. Four treatments with four replications ranging from 0 to 40% of BioCom application were arranged randomly in the glasshouse. The result showed significant at phosphorus concentration in green mustard with 40% application of BioCom. Similar result was found with soil pH which significant higher at pH value of 5.30 as compared to the control. The increasing application rate of BioCom application in soil showed decreasing trend of Cd concentration in soil and green mustard. It is recommended that the BioCom Application have a greatre potential in reducing the cadmium availability and also promoted plant growth with the optimum application rate of 40%.

Keywords: Cadmium, Biochar, Compost, Biochar-Compost, Soil, Remediation

Abstract ICSAE-IX ID 174

Smart IoT-Based Misting System of Capsicum frutescens Seed Germination for Sustainable Agriculture

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Abstract. The demand for the *Capsicum frutescens* is gradually increased in the agriculture market. The propagation of this aromatic plant starts from the seed germination phase. One of the vital factors to ensure a high germination rate is the percentage of the moisture content of the germinating medium. This paper presents a sustainable method of germinating *C. frutescens* seeds by using an Automated Misting System (AMS) based on soil moisture. The system utilizes ESP32 as the microcontroller to receive feedback from the soil moisture sensor to automate the misting system. Additionally, the Internet of Things (IoT) is also implemented as the monitoring and data acquisition platform. The soil moisture is controlled at 20, 40, and 60% during the germination period of 7 days to analyze the germination rate. The observation was done for a planting period of one week to ensure that the pepper seeds have a sufficient germination period. The germinating medium used in this study is burned paddy husk. The results of this study show that 20, 40 and 60% of the soil moisture can germinate 1 seed (3.33%), 18 seeds (60.00%), and 30 seeds (100.00%) of germination rate respectively. The optimized percentage of soil moisture (60%) can reduce water wastage to ensure a sustainable agricultural operation.

Keywords: Capsicum frutescens, Internet of Things, Smart Farming, Soil moisture, Sustainable agriculture

Abstract ICSAE-IX ID 175

Repeatability and most probable producing ability of egg weight and one-day-old chick weight in Merawang chicken

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Abstract. Merawang chicken is one local Indonesian chicken that originated from Bangka Belitung Province. This chicken has dual purposes as a meat and egg producer. This research aimed to estimate the repeatability and most probable producing ability (MPPA) of egg weight and one-day-old chick (DOC) weight in Merawang chicken. Around 50-60 Merawang pullets were reared in single bird cages and monitored for egg weight at 36-38 and 56-58 weeks. The eggs were then hatched, and the DOC was weighed. The repeatability was estimated using the linear mixed model (lmm) method in the rptR package. The average egg weight at 36-38 and 56-58 weeks were 46,43±5,44 and 52,14±6,15. Meanwhile, the average DOC weight at 36-38 and 56-58 weeks were 31,92±4,54 and 35,40±4,36. The result showed that at 36-38 and 56-58 weeks, the repeatability of egg weight was 0,77±0,05 and 0,69±0,05, whereas the DOC weight was 0,84±0,04 and 0,64±0,07. The average MPPA ranges based on egg weight and DOC weight were 46,51-52,23 and 31,97-35,52, respectively. The percentages of pullets having MPPA above the average were 38,46%-50,72% (egg weight) and 48,94%-56% (DOC weight). The results from this study can then be used as a basis for selecting Merawang pullet in the population.

Keywords: Repeatability, MPPA, Egg weight, DOC weight, Merawang

Abstract ICSAE-IX ID 176

Non-Wood Forest Products Potency from Community Forest in Gempolan Village, Karanganyar Regency, Central Java

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Abstract. Non-wood forest products are part of forest ecosystem and it has certain functions that support ecosystem sustainability. Utilization of non-wood forest products is a sustainable use or utilization of by-products from trees or other forest products. This study aims to inventory non-wood forest products from community forests and the utilization of those non-wood forest products by Gempolan Village community. Field observation was conducted in 38 community forest by making plots 40 × 25 m^2. Furthermore, interview was conducted with the owner of those community forests to obtain information on the non-wood forest product utilization and productivity. The results showed that non-wood forest products can be classified as their function, namely as food, animal feed, and spices/condiments. Most of the non-wood forest products was only used to meet their own needs. Non-wood forest products that produces from community forest in Gempolan Village was dominated by multi-purposes tree species (fruits) such as durian (*Durio zibethinus*), avocado (*Persea americana*), jengkol (*Pithecellobium lobatum*), petai (*Parkia speciosa*), pakel (*Mangifera foetida*), sawo (*Manilkara zapota*), melinjo (*Gnetum gnemon*), jackfruit (*Artocarpus heterophyllus*), and breadfruit (*Artocarpus communis*).

Keywords: community forest, ecosystem sustainability, agroforestry, Gempolan village, non-wood forest products

Abstract ICSAE-IX ID 177

Eco-brick Infographic Animation as a Campaign Medium for Plastic Waste Management in Yogyakarta Special Region

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Abstract. *Our World in Data* noted that Indonesia produced 824,234 tons of plastic waste that was not managed properly throughout 2019. This crucial condition also occurs in many big cities in Indonesia, one of which is in Yogyakarta City. In 2018, the Environment Agency of Yogyakarta Special Region (DIY) issued *Jogja Free Waste program 2025* and several policies to support it. However, the program cannot immediately reduce the massive plastic pollution. The lack of individual awareness and dissemination of the program information to deal with plastic waste is one of the causes of the long going problem. Willa Ecobrick Indonesia, a social alliance in Gunung Kidul, DIY, is trying to promote Ecobrick as an environmentally friendly brick which is expected to be an alternative solution to the plastic waste problem. Using infographic animation media, Willa Ecobrick seeks to inspire and influence the younger generation to agents of change in educating the public about the importance of reducing plastic waste, especially in Yogyakarta area.

Keywords: Plastic waste, eco-brick, infographic

Abstract ICSAE-IX ID 179

Effects of Different Organic Fertilizers on Growth and Yield Potential of *Solanum melongena* (Eggplant)

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Abstract. Eggplant is a vegetable crop where its growth rate and yield quality are largely influenced by fertilizer application. The application of organic fertilizer has high economic advantages when compared to inorganic fertilizer. The study aimed to determine the growth of eggplant and quantify its fruit yield based on the fresh weight as affected by different organic fertilization. The experiment was conducted in the Greenhouse 3, UiTM Malacca Branch, Campus Jasin from April to June 2022 with 4 treatments and 4 replications by using the Randomized Complete Block Design (RCBD). The treatments consisted of T_0 (control), T_1 (252g chicken dung), T_2 (252g vermicompost), and T_3 (252g biochar) with two split applications. The results showed that the application of chicken dung had significantly increased the plant height, number of leaves, leaf area, plant fresh weight and dry weight, and number of flowers compared to the other treatments. This study confirmed that chicken dung was the best organic fertilizer for eggplant's growth and yield potential.

Keywords: Solanum melongena, biochar, chicken dung, eggplant, organic fertilizer, vermicompost, plant growth

Abstract ICSAE-IX ID 180

Metagenomic analysis of non-pathogenic and pathogenic cecal bacteria profiles in quail supplemented with betaine

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Abstract. Cecum microbes are important in utilizing feed nutrients and immunity systems in poultry. This study aimed to define the differences in the composition of the genus *Collinsella*, *Coriobacteriaceae UCG-002*, and *Olsenella* in the quail cecum supplemented with betaine. The treatment consisted of 3 levels, namely: control (C); C+0.12% betaine supplementation (B1); and B1–0.12% betaine supplementation (B2). This study used a CRD with three replications. The next-generation sequencing method of the 16S rRNA gene region V3–V4 was applied to view the taxonomy profile of microbes (Threshold: 0.8~1). The relative abundance of the genera *Collinsella*, *Coriobacteriaceae UCG-002*, and *Olsenella* were analyzed using ANOVA and the DMRT test on R software. The results showed that the provision of B1 increased genus *Collinsella* and *Coriobacteriaceae UCG-002* more than C and B2 ($p<0.05$). A significant decrease occurred in treatment B1 compared to treatment C indicated in the genus *Olsenella* as a pathogenic bacterium in the quail cecum ($p<0.05$). The B2 treatment showed the relative abundance of the genera *Collinsella*, *Coriobacteriaceae UCG-002*, and *Olsenella* tended to return to the microbial composition of treatment C. This study concluded that giving B1 improved the genus *Collinsella*, *Coriobacteriaceae UCG-002*, and *Olsenella* in the quail cecum tract.

Keywords: metagenomic, cecum microbes, betaine, pathogenic bacteria, non-pathogenic bacteria

Abstract ICSAE-IX ID 181

Creative Strategies for Utilizing Glass and Fabric Waste

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Abstract. Ecological sustainability is increasingly becoming an important aspect that must be considered in every production activity, so that the cycle of utilization of raw materials needs to be considered from upstream to downstream. Glass and cloth are two commodities that significantly contribute to waste generation. However, there are people that able to utilize both types of waste and provide significant economic benefits as well, that meaningfull in supporting the green economi activities. This article is an analysis of how the creative use of glass and cloth waste exists in our society, especially in small and medium enterprice (SME) economic activities. Through field studies, investigations into the activities of small craftsmen who utilize glass and cloth waste, as well as from literature data and interviews, can be identified and classified the types of methods, processing techniques and skills of local human resources. From the results of the study, it was found that there were several types of utilization of cloth and glass waste that varied from simple to complex in their processing systems. These findings provide information and recommendations for the application of appropriate models to communities, industries and institutions that are concerned on controlling glass and fabric waste.

Keywords: Waste, Glass, Fabric, Reuse, Recycle

Abstract ICSAE-IX ID 182

Effect Of Various Photoperiod Towards *Lollo Bionda* Growth Using IoT Based Lighting Control For Indoor Hydroponic Farming System

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Abstract. Sustainable agriculture is actively developed to ensure food security which is a major threat to the world population in 2050 as projected by the Food and Agriculture Organization (FAO). Due to the increasingly limited agricultural land nowadays makes indoor farming the best. Indoor farming is the method of growing crops in vertically staked layers by the implementation of hydroponic and artificial light. The used of Light Emitting Diodes (LEDs) mimicked the sunlight for plant growth has been widely used, however every plant growth depends on the difference optimal value of light quality (light spectrums) and quantity (photoperiod). This study presents the investigation on the effect of light exposure on *Lollo bionda* growth and determine which growing environment will provide optimum results in growing *Lollo bionda*. This study conducted four types of experiments with different photoperiod treatments, namely T1 (no light exposure), T2 (24 hours), T3 (18 hours) and T4 (12 hours) with 6 replicates. The results shows that significant differences between treatments mean. Compared to others treatment, treatment no 2 provides the most significant result for all parameters. In summarize, the light exposure helps in consistency of the productivity in term of weight, height and average leaf size of *Lollo bionda*. This finding can be beneficial to the small-medium size entrepreneur.

Keywords: Hydroponic, Indoor farming, IOT, Smart farming LEDs, Lollo bionda, Suistanable agriculture

Abstract ICSAE-IX ID 183

Protein to protein interaction of genes responsible for economic trait of Madura Cattle: an in silico analysis

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Abstract. Our previous study found five candidate genes associated with economic traits in Madura Cattle, consist of Insulin-like growth factor-1 (IGF-1), Growth hormone (GH), Growth hormone receptor (GHR), Myostatin (MSTN), and Leptin (LEP). This paper aimed to identify protein to protein interaction of genes responsible for economic traits of Madura Cattle. In silico study was done using STRING v.11.5 with *Bos taurus* IGF1, GH1, GHR, MSTN and LEP as input analysis. Results show 24 biological processes, 3 molecular functions and 6 KEGG pathways as potential protein interaction. All genes involved in six biological processes i.e. response to hormone, response to oxygen-containing compound, cell surface receptor signaling pathway, regulation of signal transduction, positive regulation of cellular metabolic process, and positive regulation of macromolecule metabolic process. Five genes were predicted as functional partner genes, namely Leptin receptor (LEPR), Tyrosine-protein kinase receptor (INSR), Activin receptor type-2b precursor (ACVR2B), Insulin-like growth factor 1 receptor (IGF1R), and Insulin-like growth factor-binding protein 3 (IGFBP3). Based on the results, we can demonstrate protein to protein interaction of IGF-1, GH, GHR, MSTN and LEP genes which are potentially related to each other. Association study between mentioned genes with economic traits on Madura Cattle is required to validate the interaction.

Keywords: Candidate genes, Biological process, Molecular function, KEGG pathways

Abstract ICSAE-IX ID 184

Generation Z's Preference For Choosing A Visual Animation Style As A Medium For Promoting Environmental Sustainability

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Abstract. Many new media were introduced to increase public awareness of the importance of understanding environmental issues. Animation as a medium of communication has the ability to persuade and express many things that other mass communication media cannot do. Generation Z is a productive age that also holds the key in determining environmental sustainability in the future. This study tries to explore the preferences of Generation Z on the choice of visual animation style as a medium for promoting environmental sustainability on the YouTube platform. By conducting a survey on 100 Generation Z in Surakarta City, Indonesia, this study found that the visual aspect and the content aspect are the factors that determine the preferences of Generation Z to watch environmental animation films. This study also found the interest of Generation Z on the issues of global warming and climate change.

Keywords: preference, promoting, generation Z, enviromental sustainability

Abstract ICSAE-IX ID 185

Community paradigm towards green economy movement to support sustainable development

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Abstract. Environmental damage, climate change, and global warming have been significant issues in recent decades. It can cause severe impacts such as pollution and changes in weather and climate. The impact is more severe due to the utilization of natural resources without considering sustainability aspects and environmental protection. The implementation of policies and strategies is considered for prioritizing economic interests rather than thinking about environmental sustainability. This study uses a literature exploration method jointly with the perception exploration method from stakeholders. This study aims to answer various questions about implementing the green economy in Indonesia. We conclude that the community paradigm regarding the green economy needs to be encouraged to support policies on the management and utilization of natural resources related to environmental sustainability. To implement green economy-based sustainable development, several instruments are needed in the form of government regulations, strategic planning documents, subjects involved in the implementation, and socialization.

Keywords: Community paradigm, green economy, sustainable development

Abstract ICSAE-IX ID 186

Regional Analysis of Large Chili Commodities (Capsicum Annum L.) In Kolaka Regency

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Abstract. This study aims to determine the base commodity, analyze the level of specialization and find out the spread of large chili commodities in Kolaka Regency. The analysis methods used are location quotien, specialization index and localization index. The data used is in the form of secondary time series data for 2016-2020 sourced from the Central Statistics Agency of Kolaka Regency. Based on the results of the study, there are 6 large chili community base districts in Kolaka Regency, means Toari District with a LQ value of 3.05, Iwoimendaa District with a LQ value of 1.84, Kolaka District with a LQ value of 1.78, Latambaga District with a LQ value of 1.73, Wolo District with a LQ value of 1.69 and Pomalaa District with a LQ value of 1.37 meaning that the 6 districts can meet the needs of large chilies in their regions and can export to other regions, the results of the analysis of the specialization index in 12 sub-districts no one specializes or there is no potential area to develop chili commudity in Kolaka Regency but there is 1 district, means Baula District whose localization value is close to 1 with a localization value of 0.966 which means that its development is relatively prominent compared to other regions.

Keywords: large chili commodities, location quotien, specialization, localization.

Abstract ICSAE-IX ID 187

ESG-Based investment products: a burden or an answer for corporate sustainability?

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Abstract. The ESG concept is necessary considering the number of manufacturing companies contributing to increasing carbon and GHG emissions as well as excessive electricity consumption. This study aims to provide a reference for companies in making decisions regarding the issuance of ESG-based investment products. In order to find out whether ESG is a burden or an answer for the company's sustainability, a literature study is carried out, which is then analyzed descriptively. Currently, investor trust is increasing when companies are able to implement ESG with financial products in the form of investments in shares and mutual funds. In fact, ESG is not only a focus in Indonesia but throughout the country and has developed into a positive trend. Not only beneficial for conventional financial institutions, but ESG also positively impacts Islamic financial institutions. Even though the implementation of ESG in the company has an unfavorable impact or result, it cannot be denied that ESG is an important concept that must be instilled early and focused on long-term plans. Even during the pandemic, ESG investment remains stable and tends to increase. Thus, ESG-based investment is not a burden but an answer for the company's sustainability.

Keywords: ESG, investors, company sustainability

Abstract ICSAE-IX ID 188

Video Art as Environmental Communication Media for The Problem of Plastic Waste in Solo City

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Abstract. Garbage is a big problem in the city of Solo. It can be seen in the *Putri Cempo* Final Disposal Site (TPA), which is the place where the final processing of waste from all areas of Surakarta City takes place. The waste management activities of the *Putri Cempo* harm the safety and comfort aspects of the environment as well as location and accessibility but also become an opportunity in the economic part. To campaign for Solo as a city that supports and cares about environmentally friendly issues, what art actors can do is disseminate the crisis that occurs through various media so that the public more easily understands it. One of the most effective ways to attract people today is through a video. They are supported by music that can foster empathy for the audience. Research methods, creation, and presentation are based on research and experimentation. The process of creating works consists of several stages, including the exploration stage, experimental experiment stage, improvisation stage, forming step, and finishing stage.

Keywords: Video Art, Plastic Waste, Communication Media, Environmentally Friendly, Solo City

Abstract ICSAE-IX ID 189

The Role of Budgeting in Realizing a Green Economy and Economic Growth

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Abstract. The Green Economy concept is an important component of Indonesia's economic development plan. This concept is a comprehensive approach to reflect the interdependence between the economy and the ecosystem, taking into account the negative impact of economic activities on the environment from a sustainable development point of view. The trust growth program seeks to create a conducive environment for investment and capital raising, which is carried out with the government to build investors, attract capital, and create sustainable 'green' business models that can generate profits, as well as open up new untapped opportunities. The purpose of this study was to determine the importance of the role of budgeting in realizing a green economy and economic growth. This study uses a type of library research. An important step towards realizing green growth for Indonesia is to establish a convention for a vision of what Indonesia wants to achieve by 2050 – a vision linked to a comprehensive green growth strategy. Achieving this vision requires taking advantage of current and future green growth opportunities strategies. The obligation to carry out budgeting, if any, must also be carried out at the regional level.

Keywords: budgeting, green economy, economic growth

Abstract ICSAE-IX ID 190

Interior Accessories Product Design using Fabric Rope from Patchwork Waste

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Abstract. Indonesia is one of the countries with the most significant contributor to the production of patchwork waste. Based on its characteristics, cloth is a waste that is difficult to decompose and has a long time to destroy without polluting the environment properly. In addition, another fact shows that Indonesia has become one of the world's second-largest waste suppliers. In the interior sector, cloth is needed as the primary medium, especially in making interior accessories products made from textiles or upholstery. The interior can use patchwork waste into a product with beauty, function, and economic value. Therefore, this service will focus on processing patchwork into interior accessory products, such as blankets, carpets, pillows, etc. In this case, we will use patchwork waste material as the primary material to make home accessories products as an addition to the house's aesthetic value. Some of the products implemented use macrame rope processed from household patchwork waste.

Keywords: Interior design, Product design, Accecories, Waste, Patchwork

Abstract ICSAE-IX ID 191

Training on Financial Management of Sinar Karungan BUMDes and Pineapple Fiber Processing of Appropriate Technology for ATBM Weaving in Karungan Plupuh Sragen Village

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Abstract. One of the purposes of establishing Village-Owned Enterprises (BUMDes) in Karungan Village, Plupuh District, Sragen Regency, is to support the community's economy, including the Bahulak Market business actors in Karungan Village, Plupuh District, Sragen Regency. Based on the results of a survey conducted by a research team from Sebelas Maret University, Surakarta and Yogyakarta State University, in carrying out the business management of the Bahulak Market Tourism Village at BUMDES Sinar Karungan Mandiri, it is necessary to get support and availability of appropriate technology. This Community Service activity aims to help solve the problems faced by business actors in the Financial Management of SINAR Karungan Mandiri BUMDes located in Plupuh District. Community service activities in the form of increasing knowledge for the community are achieved by training and socialization methods. Karungan Village, Plupuh District, Sragen Regency has product and pineapple business potential which is shown by the opportunity for production innovation and increasing the economic value of products that can be used as an element of product novelty using the basis of local natural resource potential, namely by developing the design and utilization of pineapple plants as a distinctive characteristic of products that will be marketed locally in the Bahulak Market as well as the national market and even the international market.

Keywords**:** Village-Owned Enterprises (BUMDes), Pineapple Fiber, production innovation, International Market

Abstract ICSAE-IX ID 192

Effects of different floor spaces and betaine supplementation on performance and physiology of quails

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Abstract. As environmental stressors, decreased production performance due to heat stress in poultry often occurs in tropical environments. Tonic immobility (TI) is an index of fear level used to measure heat stress. This study aims to see TI's response, body temperature, and production performance of quail raised in different floor spaces and supplemented with betaine. The study was designed as a CRD, consisting of floor space treatment (225 and 164 cm^2/bird) and supplementation treatment (0% and 0.15% betaine). ANOVA test and DMRT were conducted to determine the treatments' significance. Body temperature measurements showed that rectal, wing and average temperatures in quail with betaine supplementation were lower than the control treatment ($P<0.05$). The TI's interaction showed that betaine supplementation to floor spaces of 225 cm^2/bird and 164 cm^2/bird was lower than the control ($P<0.05$). These results are in line with the feed, protein, and energy efficiency with betaine supplementation, which is better than the control ($P<0.05$). The egg production at floor spaces 225 cm^2 and 164 cm^2 supplemented with betaine was higher than in the non-supplemented group ($P<0.05$). It is concluded that betaine supplementation to 225 cm^2/bird and 164 cm^2/bird floor spaces reduced heat stress and improved performance quality in laying quail.

Keywords: Tonic immobility, Body temperature, Performance, Betaine, Floor space, Quail

Abstract ICSAE-IX ID 193

Sensitive social factors and the sustainability of organic dragon fruit agribinsis in banyuwangi

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Abstract. Banyuwangi is one the producers of organic Pitaya or dragon fruit with good quality. The quality assurance of organic dragon fruit has been certified by an independent institution. The availability of quality has increased the confidence of the domestic market in the product. The steady demand has prompted many farmers to try to farm it. The development of the farming business has caused dynamics in the social dimension that affect the sustainability of organic dragon fruit agribusiness. The study aims to assess the level of sustainability and important and sensitive social elements in the development of organic dragon fruit agribusiness. The research method uses the intellectual judgment assessment of experts to evaluate the elements, and then further analyze through Multi-Dimensional Scaling (MDS) so that the level of sustainability of organic dragon fruit agribusiness is obtained on the social dimension. The results of the analysis show that the organic dragon fruit business is quite sustainable. The important factor of leverage on the social dimension is the occurrence of conflicts at the village community level.

Keywords: Sensitive social factors, sustainability, organic dragon fruit

Abstract ICSAE-IX ID 194

Cytotoxic Activity Of *Acalypha wilkesiana* Mull.Arg., *Ziziphus nummularia* (Burm.f.) Wight & Arn., and *Glochidion zeylanicum* (Gaertn.) A.Juss. on 4T1 Breast Cancer Cell Line

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Abstract. Akalifa (*Acalypha wilkesiana*), bidara (*Ziziphus nummularia*), and glosidion (*Glochidion zeylanicum*) have been used to treat cancer in several ethnics in Indonesia. The plants are potential candidates as anticancer drug development. The purpose of the study was to examine the effect of the medicinal plants on cell viability, cell cycle, and apoptosis in human breast cancer 4T1. The dried plants were macerated with 96% ethanol, fractionation was done by liquid-liquid partition using hexane, ethyl acetate, and methanol. Cytotoxic activity was carried out using the MTT assay. Cell cycle profile and apoptosis induction were observed by flow cytometry. Akalifa ethanolic extract performed the strongest cytotoxic effect on 4T1 cells with the IC_{50} values of 171.83 µg/ml. Among 3 fractions, the hexane fraction of akalifa showed the highest cytotoxic activity with the IC_{50} of 85.02 µg/ml. Still the fraction has no effects on cell cycle and apoptosis.

Keywords: anticancer, Acalypha wilkesiana, Ziziphus nummularia, Glochidion zeylanicum, 4T1

Abstract ICSAE-IX ID 195

The Effect of Role Playing Activities with Finger Puppets Made from Recycled as a Media for Independent Intervention for 'Daily Living' Children with Down Syndrome

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Abstract. Nervous disorders in children with Down syndrome have an impact on children's intellectual, social, vocational achievements, and adaptive behavior. This causes children with Down syndrome to experience delays in various things, including independence in daily living such as: maintaining body hygiene, eating and drinking, and dressing. Independence is needed so that children with Down syndrome are able to take care of themselves in their daily activities, so they are not completely dependent on others. One of the media used to intervene in the independence of children's daily living is role playing using a finger puppet of a family figure. These finger puppets are made by recycling household waste (such as scraps of patchwork, yarn, buttons, cotton, etc.). The purpose of this study was to analyze the effect of finger puppet role-playing activities on daily living, independence in children with Down syndrome. This pre-experimental research design with a one group pre-test-post-test design approach has a sample (non-probability purposive samples) of 10 children with Down syndrome aged 6-8 years, who are members of POTADS Central Java. The instruments used were finger puppets made from recycled household waste and observation sheets which were analyzed with the Wilcoxon Signed Rank Test statistical test with a significance level of < 0.05.

Keywords: independence of daily living, children with down syndrome, recycled waste.

Abstract ICSAE-IX ID 197

Women's Empowerement on Food Security

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The role of women is one of the keys in increasing food security. Extensive literature on women's empowerment in the context of food security is limited. This research presents a study using the Preferred Reporting Items for Systematic Review and Meta Analysis (PRISMA) method which filters articles from various reliable sources using ideas about women's empowerment and food security. The results of this study indicate that there is a consistently positive relationship between various ideas about women's empowerment and food security. This research is useful for other researchers in looking at previous studies and seeing the prospects for research that can be done.

Keywords: Women, empowerment, food security

Abstract ICSAE-IX ID 198

The impact of the Russia-Ukrainian war on green energy financing in Europe

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Abstract. The crisis of energy has been started because of the war between Russia and Ukraine and the imposition of economic sanctions by European countries. In fact, Russia supplies 40% of gas and 25% of crude oil to the majority of European countries. In retaliation for the sanctions, Russia required the purchase of its gas and oil in its ruble. However, this policy was rejected by European countries and resulted reduction of energy supply that the price of gas and oil to rose. European countries are trying to reduce Russia's energy dependence by looking for environmentally friendly energy alternatives. As the first step, European countries increase the budget for the development of environmentally friendly energy. This paper use data from the European Commission (EC), Greenmatch, Bloomberg, and the World Bank. The author finds that European countries have increased the budget for the development and the use of environmentally friendly energy to remove the dependence on gas and oil energy from Russia. European countries believe that environmentally friendly energy can become the major energy resources in the future.

Keywords: Russia-Ukrainian war, green energy financing, crisis of energy in Europe

Abstract ICSAE-IX ID 199

Utilization of Household Waste As a Supporter of Sensory Coordination Interventions for Early Childhood Down Syndrome

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Abstract. Parenting in the family affects the child's development in terms of sensory, motor, and social abilities. It is possible for children who look normal and intelligent, but in fact experience obstacles in sensory development which later affect the optimization of their growth and development. Some parts that tend to be underdeveloped in children are coordination (physical movement), mental (behavior), perception, and response (motor which is directly related to sensory). Especially in children with Down syndrome, delays in handling can make children tend to fail in carrying out their developmental tasks, Down syndrome children are children who have genetic disorders since they were born due to errors in cell division (non-disjunction). Embryos that produce more than two copies of chromosome 21, where in Down syndrome children there are three copies of chromosomes, as a result the child has 47 chromosomes instead of the usual 46. These conditions make the growth and development of children with Down syndrome experience delays so that their sensory skills need to be trained from an early age (3-5 years). The price of learning media equipment for sensory-motor training is not cheap and not easy to find, making household waste an alternative media/intervention tool to train the sensory-motor coordination. This study uses a descriptive qualitative approach with data collection techniques in the form of observation, interviews, and documentation. The results of this study are expected to be an alternative learning media that improves the motor skills of children with Down syndrome so that it helps their ability to communicate with others.

Keywords: sensory integration, children with down syndrome, recycling waste

Abstract ICSAE-IX ID 201

Robusta Coffee Development Policy: Efforts to Strengthen the Brand Image of Regional Superior Products

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Abstract. The development of sustainable agriculture demands the active participation of all parties. Coffee is a superior product of the Temanggung Regency area. Coffee products in this area are dominated by robusta coffee which has a unique taste and is indicated geographically. Policies are the impetus for coffee development; however, studies on robusta coffee development policies in this area have not been widely found. The purpose of the study was to identify and find the facts about the implementation of the robusta Temanggung coffee development policy. This research was conducted with a constructivist paradigm with a qualitative approach and case study techniques. Data were taken with in-depth interview techniques, observation, focus group discussion, literature review, expert discussion, peer group discussion, and document recording. Informants are as many as 20 people and are deliberately determined by specific criteria. The data were analyzed using qualitative interactive methods with the help of the NVIVO 12 Plus application. The results showed many variations in robusta coffee development policies and have not run optimally. In addition, the results showed new facts about policies for developing superior regional products.

Keywords: policy, brand image, coffee, development, regional product

Abstract ICSAE-IX ID 202

Application of green budgeting in finance and development policy

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Abstract. Climate change and extreme weather have negative impacts on human life. Efforts are needed to prevent environmental damage. In the Indonesian economy, there is a Green Growth Program, which is a program to realize economic growth that can reduce poverty and ensure social inclusion, environmental sustainability, and resource efficiency. One of the programs is green budgeting which consists of actions and fiscal policy to prevent environmental problems. This study focuses on the relationship between green budgeting and financial and development policies, it aims to see how the proportion of the budget is set on finance and development. This study uses a quantitative approach with descriptive analysis. Green budgeting has been implemented in Indonesia, but it is facing various problems. At the local level, the government does not understand green budgeting. There is also a lack of data for formulating the next green budgeting policy. Lack of government commitment causes the budget for environmental management not as a priority. This causes the limited local government budget (APBD) allocated. Limited budget constraints have to be overcome by finding other sources, for example, prepare of sustainable programs or environmental approach.

Keywords: green budgeting, finance policy, development policy

Abstract ICSAE-IX ID 204

Analysis Of The Utilization Of Rice Seeds Of Improved Variety (Inpari 32) In Indramayu District, West Java

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Abstract. Indramayu is the district with the highest rice production center in West Java. To support its production, adequate seed availability is required. This study aims to analyze the use of improved varieties Inpari 32 and its distribution problems. The study was conducted in Indramayu in 2021. The data collected included primary and secondary data. Sources of primary data from interviews with 30 lowland rice farmers, and secondary data from the Indramayu Agriculture Service. Data analysis was carried out by analyzing farming and varietal distribution. The results of the study found that in Indramayu, the use of improved varieties Inpari 32 in 2021 reached 45.97% of the total area used for various varieties. The use of the Inpari 32 variety has shifted the dominance of the Ciherang variety. The productivity of lowland rice farming of the Inpari 32 variety is 7.2 tons/ha GKP and the farming profit is Rp. 17.70 million/ha/season. The problem with the distribution of the Inpari 32 variety is the limited availability of seeds and a description of the superiority of the variety. To increase the dissemination of the use of Inpari 32, it is necessary to support the provision of seeds and socialize the superiority of varieties.

Keywords: rice, seeds, Inpari, Indramayu

Abstract ICSAE-IX ID 205

Optimisation of Yield on Peanut-Sorghum Intercropping in Dry Land, North Lombok

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Abstract. As a source of carbohydrates, sorghum can be used as an alternative for food diversification. To introduce more sorghum is by intercropping with peanut without reducing the production of this main crop. This experiment aims to determine the pattern of plant arrangement and the best planting time in the peanut-sorghum intercropping system; indicated by the best growth and yield on peanut and sorghum plants.The experiment was conducted in Genggelang Village, Gangga, North Lombok by using a factorial randomized block design with 2 treatment factors, sowing time and plant arrangement. Sowing time of peanuts was carried out 14 days before, at the same time and 14 days after sorghum, while plant arrangement consisted of: intercropping of 1 row of sorghum on 1 row of peanuts, 2 rows of peanuts, 3 rows of peanuts, and 4 rows of peanuts; Overall, this experiment consisted of 12 treatment plots, replicated 3 times, so there were 36 experimental plots. The results show that sowing peanut before sowing sorghum gave the highest yield of peanut and sorghum. Plant arrangement with 1 row of sorghum in every 4 rows of peanuts showed the best yield in this peanut –sorghum intercropping.

Keywords: plant arrangement, sowing time, peanut-sorghum intercropping

Abstract ICSAE-IX ID 206

Yield and seed size stability analysis of black soybean lines derived from gamma rays irradiation

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Abstract. The development of black soybean superior varieties is still limited despite its importance in Indonesian cuisine. The gamma rays radiation can be utilized to develop new genetic materials derived from the existing cultivar. National black soybean variety Detam 1 was irradiated as the parental line to produce mutant lines for breeding material. This research was performed to identify the stable and superior genotypes from 13 candidate mutant lines tested in eight environments using stability parameters. Three genotypes showed significant superiority compared to wild-type parent, namely G5, G6, and G12 which showed an average yield of 2.99 t/ha, 3.21 t/ha, and 2.95 t/ha respectively. Based on the Finlay-Wilkinson stability test, 8 lines were considered stable yet only 4 can be further satisfied Eberhard-Russel method, namely G2, G5, G6, and G10. In comparison, stability analysis using AMMI suggested different stable lines: G2, G7, and G12. From this list, G12 and G6 also showed a beneficial large-sized seed trait significantly larger than the parent at 18.00 g and 18.96 g per 100 seeds, respectively.

Keywords: AMMI, mutant lines, seed size, yield stability

Abstract ICSAE-IX ID 207

The environmental impacts of hair craft industry activities on socio-economic community conditions

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Abstract. The aim of this research is to assess impacts of production activities which have been carried out by hair craft industry in Purbalingga Regency, Central Java. These impacts include both positive and negative sides from a socio-economic perspective. The methods using in this research are SWOT analysis and Dollar-based Ecosystem Valuation Methods. It is undeniable that many benefits are felt by the surrounding community, such as declining in unemployment and increasing income, then improving the standard of living, of the local society. However these industry activities have already caused negative social and economic impacts, such as increasing the water pollution that endangers to ecosystem, degradation of social interaction in community life, and lack of motivation and enthusiasm of children to go to school.

Keywords: hair craft industry, ecosystem, environment, socio-economic impacts

Abstract ICSAE-IX ID 208

The Analysis of Indonesia Crude Coconut Oil's Competition in International Market

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Indonesia is the world's largest producer of coconut. Its very high coconut production makes Indonesia one of the world's exporters of coconut oil. Indonesian coconut oil trading partners are the countries that developing coconut derivative products, such as the United States, Netherlands, and Germany. Coconut oil is currently needed in various industrial fields such as food, medicine, and cosmetics industries. The objectives of this study were to (1) analyze the position of Indonesian coconut oil on the international market; (2) analyze the factors that affect the demand share for Indonesian, Philippines, and Malaysian coconut oil in the international market; and (3) analyze the level of competition of Indonesian coconut oil with its competitors in the international market. The analytical method used was *Almost Ideal Demand System* (AIDS). Indonesian coconut oil successfully competed in the international market, especially in the US and German markets. Indonesia competed with Philippines in both markets as it was indicated by the positive value of cross-price elasticity. Indonesia's export of coconut oil has the opportunity to be increased in the Netherlands and German markets, because the elasticity of its own price in the Netherlands market is positive and the expenditure elasticity in the German market was the highest among other exporting countries.

Keywords : AIDS, competition, crude coconut oil, elasticity, import demand

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