

BOOK OF ABSTRACT



INTERNATIONAL CONFERENCE "THE 3RD INTERNATIONAL CONFERENCE ON AGRICULTURE AND FOOD SUSTAINABILITY"

THEME : ENHANCING THE RESILIENCE OF FOOD SYSTEMS FOR FOOD AND NUTRITIONAL SECURITY UNDER CLIMATE CHANGE IN DEVELOPING COUNTRIES



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Welcoming Speech from Rector University of Brawijaya

Assalamu'alaikum Warahmatullahi Wabarakatuh

Honorable keynote speakers,
Respected professor and fellows,
Presenters and participants,
Ladies and Gentlemen,

First, I would like to thank the keynote speakers for attending the third (3rd) ICAFOSY on behalf of Universitas Brawijaya. On this special occasion, I also would like to express my gratitude to the professors, colleagues, presenters, and participants for being here with us this morning. Please be as excited as I am about the insightful discussions and presentations.

It is the third year of the International Conference on Agriculture and Food Sustainability (ICAFOSY) in a hybrid format. With the theme **“Enhancing the Resilience of Food Systems for Food and Nutritional Security under Climate Change in Developing Countries”**, the 3rd ICAFOSY wants to highlight how global climate change has a substantial impact on the uncertainties in agriculture, food, and farm households.

On the other side, various reactions for decreasing the effect of climate change exist, such as adaptation, mitigation, agricultural technology, gender roles, and governance. The goal of this conference is to find ways to deal with climate change in terms of the resilience of food systems for food and nutritional security.

Let me once again thank our fantastic speakers for giving their time and insight today. I also would like to thank the Dean, the Faculty of Agriculture, the Chairman of the 3rd International Conference on Agriculture and Food Sustainability, and all committee members for their hard work in preparing this conference.

I hope all of you enjoy the conference.

Thank you very much

Wassalamu'alaikum Warahmatullahi Wabarakatuh

Main hall, Socio-Economic Agriculture Department Building, FA-UB
October 30st, 2023

Prof. Widodo, S.Si., M.Si., Ph.D.Med.Sc.
Rector of Universitas Brawijaya

Welcoming Speech from Chairman of ICAFOSY 3rd

Assalamu 'alaikum Warahmatullahi Wabarakatuh

Honorable keynote speakers,

Respected Professor and Dean, Faculty of Agriculture and its officials,

Presenters and participants,

Ladies and Gentlemen,

First, I would like to thank the keynote speakers for accepting the invitation and attend the 3rd ICAFOSY and share your research on Sustainable Agriculture, Rural Development, Gender, Governance, Policy, and Socio-Economics in the context of climate change. This year's ICAFOSY was held in hybrid and successfully cooperated with IOP Proceeding Scopus Earth and Environmental Series (EES) for publishing the papers selected. Congratulations to the presenters and authors whose abstracts are accepted and who can attend this event.

The 3rd ICAFOSY committees are members of the Faculty of Agriculture's lecturers and personnel who have dedicated and planned the international conference from June 2023 till the day of the conference. Following the theme of ICAFOSY, 70 titles were submitted by authors for publication in IOP Scopus or Agrise Journal. This conference has 70 presenters and 100 participants, both in person and online.

I hope that we can share our knowledge, expertise, and field experience on the impact of climate change on environmental, economic, and social vulnerabilities during this conference. In these ecological crisis conditions, particularly climate change, we must adjust our habits of consuming and managing resources to ensure the long-term viability of the outcomes and to reduce greenhouse gas emissions.

Finally, I want to express my gratitude to the University of Brawijaya and the Faculty of Agriculture for providing funding support for this event. For the committees, thank you so much for the hard work, dedication, and creativity in arranging the conference. I hope you all have a good time at this conference.

Thank you very much.

Wassalamu 'alaikum Warahmatullahi Wabarakatuh

Main hall, Socio-Economic Agriculture Department Building, FA-UB

October 30st, 2023

Dr. Rizka Amalia S.K.Pm., M.Si.

Chairman of ICAFOSY 3rd

Closing Remark from Dean of Faculty of Agriculture, University of Brawijaya

Assalamu 'alaikum Warahmatullahi Wabarakatuh
Honorable Professor and Dean, Faculty of Agriculture and its officials,
Presenters and participants,
Ladies and Gentlemen,

First, I would like to thank the invited keynote speaker for taking the time to attend this international conference to disseminate your research and participate in the mutual discussion about **"Enhancing the resilience of food systems for food and nutritional security in developing countries."** This year's ICAFOSY is held in hybrid and has successfully collaborated with IOP Proceeding Scopus Earth and Environmental Series (EES). Congratulations to the presenters and authors.

At this moment, I would like to express my gratitude to the committees for their dedication and hard work for the 3rd ICAFOSY amid the busy schedules. I also want to congratulate the teamwork because there are 70 presenters accepted to be the presenters and 100 participants, both offline and online.

On behalf of the Faculty of Agriculture, I would express my sincere gratitude to all stakeholders, especially to the organization committee from the Department of Agricultural Socio-Economics, reviewers, and University partners. They have worked very hard in organizing and reviewing papers. I express my gratitude to the keynote speakers and moderators on the conference day. The 3rd ICAFOSY is successful and enjoyable to all participants.

I hope that this moment can be a valuable experience for all the presenters and participants to share and get knowledge from the fruitful and insightful discussions on the impact of climate change that has led to significant disruptions in agriculture. Also, discover the strategies for managing the challenges in many aspects such as social, economic, political, and environmental factors.

Thank you very much.

Wassalamu 'alaikum Warahmatullahi Wabarakatuh

Main hall, Socio-Economic Agriculture Department Building, FA-UB
October 31st, 2023

Prof. M. Purnomo, SP, M.Sc., Ph.D.
Dean of Agricultural Faculty
Universitas Brawijaya

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CONFERENCE PROGRAM

No	Date	Time	Activity
1	Moday, 30 Oktober 2023	07.30 - 08.00	Registration
		08.00 - 08.05	Opening Ceremony:
		08.05 - 08.08	1. National Anthem: Indonesia Raya
		08.08 - 08.13	2. Traditional welcoming dance
		08.13 - 08.15	3. Prayer
			Welcoming Speech:
		08.15 - 08.20	1. Chair of ICAFOSY 2023
		08.20 - 08.25	2. Rector of Brawijaya University
		08.25 - 08.30	Photo Session
		08.30 - 08.35	Coffe break
			Speaker Session 1:
		08.35 - 09.05	Dr. Wanglin Ma
		09.05 - 09.35	Kenichiro Onitsuka, PhD
		09.35 - 10.00	Q and A Session 1
			Speaker Session 2:
		10.00 - 10.30	Dr. Juwaiddah Sharifuddin
		10.30 - 11.00	Prof. Dr. Ir. Bustanul Arifin, M. Sc.
		11.00 - 11.25	Q and A Session 2
		11.25 - 11.30	Information Pararel Session and closing Day 1

No	Date	Time	Activity
		11.30 - 13.00	Break and Lunch
		13.00 - 16.00	Presentation Pararel Session
2	Tuesday, 31 October 2023	07.30 - 08.00	Registration
		08.00 - 08.05	Opening day 2
			Speaker Session 3:
		08.05 - 08.35	Prof. Dietrich Darr
		08.35 - 08.50	Q and A Session 1
		08.50 - 09.20	Dr. Amy Ickowitz
		09.20 - 09.50	Dr Maria Fay Rola-Rubzen
		09.50 - 10.15	Q and A Session 2
		10.15 - 12.15	Presentation Pararel Session
		12.15 - 13.45	Break and Lunch
		13.45 - 13.50	Best Presenter announcement
		13.50 - 13.55	Closing remarks
		13.55 - 14.00	Clossing

PARALLEL SESSION

OFFLINE PRESENTATION DAY 1

Monday, October 30, 2023

Room : Mainhall Sosel

Moderator : Dr. Rachman Hartono, S.P., M.P.

Time Keeper : Devy Ratnasari

No	Presenter	Abstract Code	Title	Schedule
1	Suhartini	ABS-2	Agroforestry Implementation As Farmers Resilience Strategies To Support Farming System Sustainability Facing The Land Vulnerability At The Mount Semeru Slopes, Indonesia	13.00 - 13.15
2	Kliwon Hidayat	ABS-47	Melon Production Using a Greenhouse in Blitar, East Java, Indonesia: Obstacles and Solutions	13.15 - 13.30
3	Alia Fibrianiingtyas	ABS-61	Farmer^s Barrier in Using Innovative Technology to Promote Agricultural Product in Batu City	13.30 - 13.45
4	Neza Fadia Rayesa	ABS-63	Market development strategies of smoked fish using participatory rural appraisal (PRA)	13.45 - 14.00
5	Muhammad Yamin	ABS-64	The use of technology against climate change: Impact on farmers^ income in lebak swamplands	14.00 - 14.15
6	Fitrotul Laili	ABS-68	Twin Challenge between Price Uncertainty and Household^s Economic Resilience on Post COVID-19 Era in Indonesia	14.15 - 14.30

Room : Room 1 Main Hall

Moderator : Rizkiana Maharddhika, SS., M.Pd.

Time Keeper : Elizabeth Annesia Lumbantoruan

No	Presenter	Abstract Code	Title	Schedule
1	Claudya Ariesa	ABS-49	Application Of Internet Of Things (Iot) In Industrial Scale Hydroponic Cultivation Of Lettuce (Lactuca Sativa) And Its Effect On Business Feasibility	13.00 - 13.15
2	Iwan Nurhadi	ABS-44	Promising Effect On Food Security And Agrotourism: Insights From Womens Participation In Sukowilangun, Malang, East Java.	13.15 - 13.30
3	Sumaiya Al-Kindi	ABS-20	Study Of Veterinary Drugs Residues In Different Brands Of Brown Eggs Using Agilent Quechers Method And 6495 Lc-Ms/Ms	13.30 - 13.45
4	Suhartini	ABS-37	The Role Of Root And Tuber Crops On Food Diversification Facing The Climate Change In East Java, Indonesia	13.45 - 14.00
5	Novi Haryati	ABS-51	Sugarcane Agribusiness Dynamics In East Java, Kediri: How Can Partnerships Assist Small Farmers In Accessing Markets?	14.00 - 14.15

Room : Small Room 2 Main Hall

Moderator : Dian Islami Prasetyaningrum, S.S., M.Pd.

Time Keeper : Adrian Indrasena

No	Name	Abstract Code	Title	Schedule
1	Novi Haryati	ABS-52	Farm Workers' Perception of Orange Commodity Cultivation towards Food Security (A case in Mardosniuhur Village, Simalungun Regency, North Sumatra)	13.00 - 13.15
2	Setyo Yuli Handono	ABS-53	Dynamics of Rural Entrepreneurship and Innovation (Case Study in Kucur Village, Dau, Malang)	13.15 - 13.30
3	Alia Fibrianingtyas	ABS-58	Does Industrial Development Affect The Sustainability of Shallot Farming ? (A Study in Nganjuk Regency)	13.30 - 13.45
4	Riza Rahimi Bachtiar	ABS-62	Inventory Control Analysis in Banana Snack Using Economic Order Quantity (EOQ) Method at CV. Eldanan Berkah Karya	13.45 - 14.00
5	Resti Prastika Destiami	ABS-65	Antithesis of Rice Farmer Exchange Rate amidst Climate Change: Welfare Improvement or Food Stock Depletion	14.00 - 14.15

OFFLINE PRESENTATION DAY 2
Tuesday, October 31, 2023

Room : Main hall

Moderator : Dr. Rizka Amalia, S.K.Pm., M.Si.

Time Keeper : Devinda Bagus Arnanda

No	Name	Abstract Code	Title	Schedule
1	Fitrotul Laili	ABS-69	Partnership and Farmer [^] s Resilience : Case between Juragan and Citrus Farmers in Kucur, Dau, Malang Regency	10.15 - 10.30
2	Mofit Jamroni	ABS-71	Strategy Adaptation and Farmers Land Processing in the Upland Arfak Mountains (Case Study on the Hatam Tribe of West Papua)	10.30 - 10.45
3	Marinus Gea	ABS-27	Genealogy Green Mining in Europe and Asia	10.45 - 11.00
4	Jennifer Sakti Ramadhani	ABS-59	Implementation of Saudi Aramcos Sustainable Development Goals to Preserve the Environment in Meeting Global Energy Needs	11.00 - 11.15
5	Azra Nawal	ABS-55	Chinampa and International Agreements: Promoting Climate-Smart Agriculture through Global Cooperation	11.15 - 11.30

ONLINE PRESENTATION DAY 1
Monday, October 30, 2023

Room : Lab Analisis Lantai 1
Moderator : Mahfudlotul 'Ula, SE., MSi
Time Keeper : Shafiyah Ramadhani Arafa

No	Presenter	Abstract Code	Title	Schedule
1	Boni Saputra	ABS-1	Diversification of wood leaf rendang: Strengthening the food security of the Minangkabau community	13.00 - 13.15
2	Ibrahim Gunu Umoru	ABS-7	Enhancing Resilience to Climate Change and Food Security: The Effect of Digital Technologies on Smallholder Farmers^ Produce Marketing in Developing Countries.	13.15 - 13.30
3	Nur Lailani	ABS-8	Climate Change Adaptation and Mitigation Strategy of Smallholder Women Farmers in Bojonegoro Regency: Study in Bulu Village, Balen District, East Java	13.30 - 13.45
4	Sani Saidu Barau	ABS-11	Evaluating Adaptation, and Resilience Strategies in Addressing Post-Harvest Losses, Economic Investment, and Returns in the Sweet Potato Farming Community amid Climate Change Challenges in Kano State, Nigeria^	13.45 - 14.00

Room : Lab Multimedia Lantai 3

Moderator : Dr. Arif Yustian Maulana Noor

Time Keeper : Devinda Bagus Arnanda

No	Presenter	Abstract Code	Title	Schedule
1	Ermie Erene Koeslulat	ABS-31	Toddy Trees and Rice-Farms: Understanding Their Support to Ecology and Livelihoods in Rote Island	13.00 - 13.15
2	Anisa Aprilia	ABS-33	Causal loop to enhance the resilience of the agro-food supply chain: reducing environmental risk factors	13.15 - 13.30
3	Rini Mutisari	ABS-38	A framework for small farmer's livelihood capital, climate change adaptation strategies, and household welfare.	13.30 - 13.45
4	Nurul Arifiyanti	ABS-39	Communities Perception and Adaptation of Climate Change in Madura North Beach Tourism	13.45 - 14.00
5	Chanifah	ABS-41	Advantages of early-maturity soybean varieties as a farmer adaptation effort to climate change in Grobogan Regency	14.00 - 14.15

Room 3 : Ruang Komputer Lt 3

Moderator : Moch. Shodiqur Rachman, PhD

Time Keeper : Heres Ikhsanurijal

No	Presenter	Abstract Code	Title	Schedule
1	Sani Saidu Barau	ABS-6	Research Trends in Oil Palm Production in Ghana: a systematic literature review and future research agenda	13.00 - 13.15
2	Nur Lailani	ABS-9	The Impact of Climate Change on Smallholder Women Farmers in Bojonegoro Regency: Study in Bulu Village, Balen District, East Java	13.15 - 13.30
3	Pradnya Shriram Joshi	ABS-14	Climate change Vulnerability assessment for Onion growers in Solapur district, Maharashtra, India	13.30 - 13.45

4	Gilang Aulia Herlambang	ABS-16	Are our lands getting wetter or drier? A perspective from Climate scenario data in Upper Brantas	13.45 - 14.00
5	Affi Arum Sari	ABS-34	Drought tolerance testing of Inpari 4 rice variety with PEG-6000 in the germination phase	14.00 - 14.15

Room 4 : Ruang Komputer Lt3
Modertor : Deny Meitasari, S.P., M.Sc.
Time Keeper : Firli Ratu Meriana

No	Name	Abstract Code	Title	Schedule
1	Erwin Prastowo	ABS-56	The estimation of above-ground oil palm carbon stocks in different soil and climate conditions through vegetation index	13.00 - 13.15
2	Lintar Brilian Printakami	ABS-32	ANALYSIS THE FACTORS AFFECTING THE ROLE OF COASTAL WOMEN^S IN FOOD SECURITY AND PREVENTING BEACH ABRASION IN INDONESIA	13.15 - 13.30
3	Vonny Indah Mutiara	ABS-74	Women^s Role in Coffee Farming in West Sumatra, Indonesia	13.30 - 13.45
4	Cindy Paloma	ABS-75	The Impact of Product Quality on Customer Satisfaction and Loyalty toward Hydroponic Vegetables in Padang City	13.45 - 14.00
5	Rika Reviza Rachmawati	ABS-3	Analysis of price dynamics and supply chain performance of paddy/rice commodities after changes in Government Purchase Price (GPP) Policy for paddy and Highest Retail Price (HRP) for Rice in Karawang Regency, West Java Province	14.00 - 14.15

Room 5 : Ruang Seminar 2 Lt 3
Moderator : Alia Fibrianingtyas, SP., MP
Time Keeper : Muhammad Rafli Mumtaz

No	Name	Abstract Code	Title	Schedule
1	Budi Dharmawan	ABS-28	Optimizing the Role of Rice Station in Java, Indonesia: The Effect of Toll Roads Construction to the Rice Market Integration	13.00 - 13.15
2	Budi Dharmawan	ABS-30	Developing the Agricultural Commodities on Regional Scale: An Initiative Corporation at Development Area Districts in Central Java, Indonesia	13.15 - 13.30
3	Ratu Falasifah	ABS-35	Halalness and Functional of Kombucha Production Technology : A Review	13.30 - 13.45
4	Sidiq Hanapi	ABS-50	Semendo coffee development and partnership strategy to enhance governance for food security and climate change mitigation	13.45 - 14.00
5	Noor Riskiyah	ABS-67	Corn Price Volatility in the World Market	14.00 - 14.15

ONLINE PRESENTATION DAY 2
Tuesday, October 31, 2023

Room 1 : Lab Analisis Lantai 1
Moderator : Novi Haryati, S.P., M.P
Time Keeper : Devy Ratnasari

No	Presenter	Abstract Code	Title	Schedule
1	Sylviani	ABS-13	Adaptation , Mitigation and Food Security ^ Learning from the Coastal and Surrounding Communities Forest	10.15 - 10.30
2	Surati	ABS-15	Climate Change-driven Food Vulnerability in Customary Law Community in Indonesia: Lessons Learn from Baduy and Citorek, Banten	10.30 - 10.45
3	Aminu Abdu	ABS-18	Effect of pruning intensity and picking for gum Arabic production in Northern Jigawa State, Nigeria	10.45 - 11.00
4	Ellyta Anggraini	ABS-19	Analysis of Water Conservation Priority Locations in Upper Sub Watershed	11.00 - 11.15
5	Wiwit Widyawati	ABS-29	Constructing A Scenario For The Establishment of Rice Supply in Indonesia: Utilizing System Thinking	11.15 - 11.30

Room 2 : Lab Multimedia It 3

Moderator : Moch. Shodiqur Rachman,PhD

Time Keeper : Elizabeth Annesia Lumbantoruan

No	Presenter	Abstract Code	Title	Schedule
1	Rizka Amalia	ABS-43	Households Adaptation Strategies For Disasters: Implication For Smallholder Farm Resilience In Malang, East Java, Indonesia	10.15 - 10.30
2	Dwi Laila Maulida	ABS-45	RISK MITIGATION IN SUSTAINABLE CORN SEED JAB-69 SAKTI SUPPLY CHAIN	10.30 - 10.45
3	Dede Handoko	ABS-54	Analysis of Mini Polder Performance for Improved Water Management in the Dadahup Swampy Irrigation Area	10.45 - 11.00
4	Murti Ayu Hapsari	ABS-4	HEI's commitment on sustainability issue toward nation building: How Indonesia HEI policies conform to SDGs?	11.00 - 11.15
5	Desmiwati	ABS-10	Environmental and Climate Change Education for the Youth to Foster Social Transformation: Case Study in MTs PAKIS Banyumas, Central Java	11.15 - 11.30

Room 3 : Lab Multimedia It 3

Moderator : Dr. Arif Yustian Maulana Noor

Time Keeper : Heres Ikhsanurijal

No	Presenter	Abstract Code	Title	Schedule
1	Intan Aisyah	ABS-57	Understanding Farmers Perception of Climate Change to Prepare Adaptation of Farmers	10.15 - 10.30
2	Nur Lailani	ABS-60	Climate Change Risk Perception among Smallholder Women Farmers in Bojonegoro Regency: Study in Bulu Village, Balen District, East Java	10.30 - 10.45
3	Ida Susilowati	ABS-42	The Role of The United Nation Environment Programme (UNEP) In Overcoming Deforestation In Central Kalimantan 2017-2020	10.45 - 11.00
4	Hasna Marhama	ABS-23	Study of Liquid Biofertilizer and Three Shallot Varieties On the Productivity of Shallot Plants Out of Season	11.00 - 11.15
5	Dwi Laila Maulida	ABS-46	Fostering Food Security through Farmers^ Intentions to Embrace Climate-Smart Agriculture: Unraveling the Impact of Attitude, Subjective Norms, and Behavioral Control	11.15 - 11.30

Room 4 : Ruang komputer It 3

Moderator : Fitrotul Laili, S.P., M.P.

Time Keeper : Adrian Indrasena

No	Presenter	Abstract Code	Title	Schedule
1	Rika Reviza Rachmawati	ABS-5	Analysis of paddy and rice marketing chain to support grain/rice policies in Ngawi Regency, East Java Province	10.15 - 10.30
2	Sulistya Ekawati	ABS-21	Forest And Land Fire Mitigation Policy: Food Security Shocks For Traditional Peat Cultivation And Its Impact On Environmental Improvement	10.30 - 10.45
3	Sucipto	ABS-22	The model for accelerating self-declare halal certification in a local bakery and cookie industry in Andonosari Village, Pasuruan Regency	10.45 - 11.00
4	Setyowati	ABS-25	Alternative Marketing Strategy of Arrowroot Sweet Potato in Kulonprogo Regency, Special Province of Yogyakarta	11.00 - 11.15
5	Aris Munandar	ABS-26	The Microbiological, Chemical, And Physical Attributes Of Bandeng Satay Utilizing Chitosan As A Preservative In Cold Storage	11.15 - 11.30

Room 5 : Ruang seminar 2 It 3

Moderator : Rizkiana Maharddhika, SS., M.Pd

Time Keeper : Shafiyah ramadhani arafa

No	Presenter	Abstract Code	Title	Schedule
1	Veriani Aprilia	ABS-70	Jelly Candy Added with Porang (<i>Amorphophallus oncophyllus</i>) as A New Food Product in Addressing Food Security Concerns	10.15 - 10.30
2	Imaniar Ilmi Pariasa	ABS-73	Strategy to Reduce the Impact of Food Waste Through Environmentally Friendly Household Waste Management in Bojonegoro Regency	10.30 - 10.45
3	Bonataon	ABS-36	Women Empowerment in Environmental Conservation at Toba Caldera UNESCO Global Geopark	10.45 - 11.00
4	Heptari Elita Dewi	ABS-40	A Design Framework for Small Agricultural Businesses^ Dynamic Capabilities, Environmental Performance and Resilience	11.00 - 11.15

ADAPTATION, MITIGATION, AND RESILIENCE

Diversification Of Wood Leaf Rendang: Strengthening The Food Security Of The Minangkabau Community

Rusdi, Boni Saputra, Wirdanengsih, Erianjoni, Etni Hardi

Universitas Negeri Padang
Minangkabau Culture Research Center

Abstract

Rendang is one of the traditional Minangkabau culinary preparations of West Sumatra, Indonesia, that has gone global. In this area, rendang does not always use meat, but some use plants as the main ingredient. Weak economic conditions and the high price of meat in the market do not become an excuse for Minangkabau people not to eat rendang because rendang culinary can be processed with vegetable-based ingredients. In Nagari Harau, Lima Puluh Kota Regency, West Sumatra, wood leaves from wild plants can be processed into a very delicious rendang culinary. They call it ^wood leaves rendang.^ Diversification of wood leaf rendang can be an exciting effort to improve the food security of the Minangkabau people. So, this article will discuss efforts to diversify wood leaf rendang as a strategy to strengthen the food security of the Minangkabau community. The qualitative descriptive method was used in this research. Primary data, secondary data, interview guidelines and in-depth interview activities supported data collection. Informants were selected using snowball sampling. Source triangulation analysis was used to answer the research objectives. Based on the research results, it is known that the diversification of wood leaf rendang is the development of rendang culinary dishes using locally available wood leaf raw materials. Diversification of wood leaf rendang is an innovative step towards more robust food security for the Minangkabau people. Through the diversification of wood leaf rendang, it is expected to create food security for the Minangkabau community.

Keywords: Rendang Diversification, Wood Leaf Rendang, Food security

Agroforestry Implementation As Farmers Resilience Strategies To Support Farming System Sustainability Facing The Land Vulnerability At The Mount Semeru Slopes, Indonesia

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- a) Socioeconomic Department, Faculty of Agriculture, Brawijaya University
- b) Master Program of Agricultural Economics, Faculty of Agriculture, Brawijaya University

Abstract

The condition of land in Mount Semeru slopes is dryland which is rich of sand. This causes a lot of sand mining activities in that location, even on private agricultural lands. The sand mining activities has resulted negative environment impacts including lost of many vegetation and it will also cause soil erosion and loss of biodiversity. The objective of this study was to estimate the impact of agroforestry implementation as farmers resilience strategies on farming system sustainability facing the land vulnerability at Mount Semeru Slopes. This study used a quantitative approach. The location selected purposively at Bambang Village, Wajak Sub District, Malang Regency. The research technique used a survey method by observation and conducting interviews with a number of respondents about implementation of agroforestry, resilience strategy and sustainability indicators on ecological, economics and socio-culture aspects. The data analysis technique used Structural Equation Model (SEM). The results show that farmers who implement agroforestry have the high resilience and improve the farming system sustainability through ecological, economics and socio-culture aspects.

Keywords: Environment- Sand ining- Resilience, Climate change

Enhancing Resilience to Climate Change and Food Security: The Effect of Digital Technologies On Smallholder Farmers' Produce Marketing In Developing Countries.

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Malaysia 43400 Serdang, Selangor, Malaysia

Abstract

Climate change is one of the issues giving the world a great concern, as it is threatening the ecosystem and agricultural activities. This calls for different ways of mitigation measures among which is digital marketing. Smallholder farmers control small piece of land and their farming is a family venture. Marketing of their produce in the traditional way is accompanied with challenges. Digital marketing is an option of connecting the smallholder farmer with world in marketing with more opportunities. This research has investigated various work that have been carried out on digital marketing and how its impact on the smallholder farmer using systematic approach. The finding indicates that, the selling of the produce grown by smallholder farmers can benefit from digital technologies in different forms. The results imply that digital marketing can benefit smallholder farmers' efforts to mitigate climate change in improved information access Farmers can acquire knowledge regarding climate-smart agricultural practices, Improved risk management: Digital technologies can assist farmers in improving the risk management of climate change-related problems like pests, floods, and droughts among others. It also implies that agriculture as a whole and marketing of produce from it by smallholder farmers can be accelerated with the use of digital. The research recommends that stakeholders should gear up effort to making all that is requested to make the use of digital agriculture and digital marketing by smallholder farmers possible. The research recommends development of regulations that encourage the use of digital tools in climate-smart agriculture and Spend money on digital technology research and development for climate-smart agriculture.

Keywords: Please Just Try to Submit This Sample Abstract

Climate Change Adaptation And Mitigation Strategy Of Smallholder Women Farmers In Bojonegoro Regency: Study In Bulu Village, Balen District, East Java

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b) Lecturer of Faculty of Agriculture, Brawijaya University, Malang, Indonesia

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Abstract

Climate change has extreme impacts on agricultural activities and the survival of smallholder farmers, particularly women farmers who are more vulnerable. As a result, action is required to address the effect of climate change. This study aims to analyze the adaptation and mitigation strategies of smallholder women farmers to climate change. With a case study design, This study employed a qualitative approach. A total of 25 smallholder women farmers as informant were selected by purposive sampling. According to the findings of semi structured indepth interviews, Focus Group Discussions (FGDs) and observations, smallholder women farmers used adaptation strategies such as on farm adaptation, non farm diversification, livestock diversification, use of indigenous knowledge systems (IKSs), social capital utilization and migration. Meanwhile, to reduce the risk or minimize the impact of climate change, they mitigate by preserving bamboo plants, planting lots of trees around the house, utilizing waste banks, using energy efficient electronic goods, efficient use of water and actively participating in agricultural extension activities. An important implication of this study is to strengthen the participation and capacity of smallholder women farmers in the face of climate change, allowing them to take proactive efforts to decrease the impact of climate change on their life. It also raises awareness about the significance of assisting smallholder women farmers in dealing with climate change in order to increase rural food security.

Keywords: Climate Change, Adaptation and Mitigation, Strategy, Vulnerability, Smallholder Women Farmers

[ABS-11]
**Evaluating Adaptation, And Resilience Strategies In Addressing
Post-Harvest Losses, Economic Investment, And Returns In The
Sweet Potato Farming Community Amid Climate Change Challenges
In Kano State, Nigeria**

Sani Saidu Barau^a, Juwaidah Sharfuddin and Bello Nasiru^b

^aFederal University Dutsin-ma Katsina State Nigeria

^bUniversity Putra Malaysia State Nigeria

Abstract

Sweet potato is a vital crop in developing nations, especially in the face of climate change. This study delves into the farming and post-harvest handling practices of sweet potato among smallholder farmers in Rimin Gado Local Government Area, Kano State, Nigeria. A sample of 120 smallholder farmers participated in this research, with the primary objectives of characterizing the demographic profile of these farmers, analyzing the costs and returns associated with sweet potato cultivation, and pinpointing the challenges they encounter in sweet potato production. Data collected were subjected to descriptive statistics and gross margin analysis. The study found that the average age of farmers was 45.4 years, indicative of an active working population. Sweet potato production generated an average revenue of ₦54,776.60 per farmer, with a mean gross margin of ₦110,364.50 and a total cost of ₦55,587.90. While the total variable cost amounted to ₦53,525.90. Interestingly, the research uncovered key determinants of post-harvest loss in the region, including challenges such as a deficient transport system, inadequate storage facilities, pest infestations, and diseases, among others. Furthermore, the study identified significant constraints faced by sweet potato farmers, such as high labour costs, inadequate storage facilities, limited access to extension services, and issues related to transportation and market accessibility. In light of these findings, the study recommends the urgent improvement of infrastructure facilities, including the development of robust transportation networks and suitable storage facilities.

Keywords: Descriptive Statistic, Gross Margin, climate change Sweet potato cultivation, Post-harvest loss

[ABS-12]

Food Sustainability: The Social Capital Of The Nagari Harau Community In Preserving The Cuisine Of Wooden Leaves Rendang

Rusdi, Boni Saputra, Wirdanengsih, Etmi Hardi

Universitas Negeri Padang
Minangkabau Culture Research Center

Abstract

The people of Nagari Harau, located in Limapuluh Kota Regency, West Sumatra, Indonesia, have their characteristics in processing rendang dishes. Their rendang is not made from meat or animals like rendang but from the wood leaves of wild plants that grow around their neighbourhood. The dish is called wood leaf rendang. Rendang wood leaves have been around since the time of their ancestors and have occurred from generation to generation until now. The lack of interest in rendang wood leaves among the younger generation today is feared that the sustainability of this cuisine will not occur. Wood leaf rendang dishes are processed to remain sustainable in Nagari Harau by utilizing social capital. So, the purpose of this study is to determine the extent of the role of social capital in preserving the sustainability of wood leaf rendang cuisine in Nagari Harau. The descriptive qualitative method was used to obtain an overview of the community group's implementation in preserving wood leaf rendang cuisine and to see the level of social capital. Data collection was supported by primary and secondary data, with interview guides and in-depth interviews. Informants were selected using snowball sampling. Source triangulation analysis was used to answer the research objectives. Based on the results of the study, it is known that the level of social capital of the Nagari Harau community in preserving and sustaining wood leaf rendang cuisine is classified as good/firm and is in the dominant linking social capital category. So that the level of social capital owned by the Harau community is easy to develop in preserving wood leaf rendang cuisine as a characteristic of rendang cuisine in their area, and food sustainability through processed wood leaf rendang will be maintained.

Keywords: Food Sustainability, Social Capital, Wood Leaf Rendang

[ABS-13]

Adaptation, Mitigation And Food Security Learning From The Coastal And Surrounding Communities Forest

Sylviani¹, Niken Sakuntaladewi²

1. Research Center for Society and Culture, Research Organization for Social, Sciences and Humaniora, National Research and Innovation Agency
2. Reseach Centre for Ecology and etnobiology , Reseach Organization for enviroental and Biology National Research and Inovation Agency

Abstract

Climate change directly influences the pattern and intensity of seasonal changes in various parts of the world. Climate change has had a significant impact on the lives of coastal communities and around forests. Those who are very dependent on the surrounding ecosystem must continue to adapt to changing weather patterns and seasons in order to survive words. Adaptation, coastal, forest, food security, mitigation. The socio-cultural and economic characteristics of coastal communities are diverse and highly dependent on fishing businesses and the season. The characteristics of communities around forests are communities whose livelihoods depend on the forest ecosystem, whose livelihood is as farmers in fields or gardens. This activity aims to get an overview of the impact of seasonal changes, adaptation strategies and the vulnerability of communities, especially those living on the coast and around the forest. The method used is to evaluate several research results and reviews which are summarized in a discussion. The results of the review show that the adaptations carried out were reactive and anticipatory. Coastal communities, especially fishermen, adapt to changes in the dry season by changing fishing times and modifying fishing gear. Meanwhile, pond farmers during the rainy season repair embankments, tertiary water channels and culverts to repair water gates. Communities around the forest adapt to seasonal changes by changing planting times and plant types to suit the characteristics of the local season. Climate change has an impact on high sea levels and rising sea temperatures, causing fish populations to decline. Climate change also causes agricultural land to be disturbed, flooding occurs which inundates lowlands which are fertile land for agriculture. Thus, climate change has a significant impact on food security by disrupting agricultural and fisheries production patterns, and presenting new challenges in maintaining food availability in the future. The impl

Keywords: Adaptation, coastal, forest, food security, mitigation

[ABS-15]

**Climate Change-Driven Food Vulnerability in Customary Law Community
in Indonesia: Lessons Learn From Baduy And Citorek, Banten**

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Abstract

Climate change has changed rainfall patterns, droughts and seasonal shifts threaten food availability, including customary communities. This paper aims to analyze food vulnerability due to climate change in indigenous communities in Indonesia by taking the case of the Baduy Dalam tribe and the Kasepuhan Citorek. The research method uses a qualitative approach with qualitative descriptive analysis. Data collection was carried out using in-depth interviews and field observations. The research results show that in the Baduy Dalam tribe, there is an agricultural transition process: 1) changes in agricultural land management patterns, 2) changes in agricultural orientation, and 3) production relations, which give rise to relations between landowners and farm workers, previously unknown to custom. Meanwhile, in Kasepuhan Citorek, with the community's compliance, there is no food vulnerability due to climate change. The agricultural pattern used is six months of planting rice and the next six months of cultivating fish. With a system of one harvest a year, the community can meet the family's food reserves for the following year. Another form of in-depth compliance is not selling rice so that food availability, food accessibility, and food stability are maintained.

Keywords: Climate change, food vulnerability, Baduy, Citorek, Indonesia

[ABS-18]

Effect of pruning intensity and picking for gum Arabic production in Northern Jigawa State, Nigeria

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Abstract

Climate significantly impacts dryland trees, influencing their adaptation, survival, production, and role in the ecosystem. *Acacia senegal* is a valuable dryland tree planted for gum arabic production and ecological benefits. However, gum arabic production has declined due to the adverse effects of climate and improper management. Thus, silvicultural intervention such as pruning is essential for the health, growth, and gum yield of *A. senegal*. This study investigates the effects of different pruning intensities and pickings on gum arabic yield at Madana and Garin-ladan in the Gumel district of northern Jigawa State, Nigeria. The experiment involved five levels of pruning intensity and eight pickings, conducted using a randomized complete block design with three replicates. The gum yield was collected, dried, and weighed, and ANOVA was performed using Statistix 10.0 software, with Shapiro-Wilk and Turkey tests for data normality and mean comparison. The result showed significant differences ($p < 0.05$) in gum yield among the pruning intensities for most of the pickings at the two sites. The 1st, 2nd, 3rd, 5th, 6th, and 3rd, 5th, 8th pickings are significantly different except 4th, 7th, 8th- and 1st, 2nd, 3rd, 6th, and 7th at Madana and Garin-ladan respectively. The highest gum yield is 52.5a, 46.7a, 50.1a, and 43.5a g/picking, respectively. The lowest is 0.8a and 0.9a g/picking, respectively. Pruning intensity significantly differs ($p < 0.05$) in total gum yield per tree. Pruning intensities B3 and B4 demonstrated the highest total gum yield (251.8a and 147.6a g/tree) at both sites, respectively. At the same time, B0 exhibited the lowest gum arabic yield (97.2c and 38.5b g/tree) at both locations. These findings prove that pruning intensities B3 and B4 are the most effective in promoting gum yield and may enhance the gum productivity of *A. senegal* trees in northern Jigawa State.

Keywords: *Acacia senegal*- gum picking- gum yield- plantation- pruning intensity.

[ABS-19]
**Analysis of Water Conservation Priority Locations in Upper Sub
Watershed**

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Abstract

Water is useful for supplying household, industrial, and agricultural needs. The availability of water supports food security and a decent life. The process of sustaining water resources requires conservation, which is in line with sustainable development goals. The Keyang sub watershed is one of the catchment areas of the Upstream Madiun River, located in East Java. The development of agriculture land in Keyang sub watershed increases the number of disasters. The Central Statistics Office of Ponorogo Regency recorded 24 floods, 11 drought disasters, and 42 landslides in Keyang sub watershed during 2020. Floods and drought disasters in the same location show strong fluctuations in water resources, so Keyang sub watershed requires water conservation actions. The aim of this study is analyze priority locations for water conservation. Indicateurs de Ruissellement Intense Pluvial (IRIP) is a method for determining water conservation priority locations. IRIP divides surface runoff vulnerability area into three types: generation area, transfer area, and accumulation area. Each area requires different adaptations to conservation techniques. The result shows that Keyang sub watershed has 4.96 percent strong potential surface runoff generation area. This priority area is suitable for wetland development, agroforestry, and sustainable agriculture. Then, Keyang sub watershed has 0.03 percent strong potential area of surface runoff transfer, this area is compatible with prevention of erosion and landslides. Keyang sub watershed has 0.63 percent very strong potential and 18.42 percent strong potential for surface runoff accumulation area, this area appropriate for developing flood mitigation strategies.

Keywords: Water Conservation- Surface Runoff- Priority Locations

[ABS-29]

Constructing A Scenario For The Establishment of Rice Supply in Indonesia: Utilizing System Thinking

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Abstract

Predicting the impact of climate change on rice yield is crucial because as a global staple food rice should be available throughout the year. Rice is in trouble as the earth heats up, more than half of the Indonesian population meet their sources of carbohydrates for energy sufficiency by grain group especially rice. The purpose of this study is to determine the dynamic system of rice availability in Indonesia in terms of production and consumption in order to obtain the main variables in determining rice supply. This study used a system dynamics methodology to attain the important variables that become the point for establishing rice availability. The findings showed that climate change reduced rice yield. Rice yield and land area as the base for developing a policy model to ensure the availability of rice supply in Indonesia. This had greatly affected the entire rice production system. The results of this study indicated the importance of increasing productivity through production and trade policy mechanisms as a basis to ensure the rice supply in Indonesia.

Keywords: Rice Supply, Impact of Climate Change, System Dynamics

[ABS-31]

Toddy Trees and Rice-Farms: Understanding Their Support to Ecology and Livelihoods in Rote Island

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Abstract

The Toddy palm (*Borassus flabellifer*, L.) plays a role as a staple food for the Rotenese on Rote Island, East Nusa Tenggara (ENT). We hypothesize that there is a reduction in the area of lontar on Rote Island due to national rice-bias policy in agricultural development/programs. This paper aims to understand livelihood strategies and community ecological changes as an impact on the development of rice farming and negotiate these changes. Data on area dynamics^ trend of toddy and rice crops for the last 20 years rely on the Central Statistics Agency of ENT, while data about participation in land use changing, the role of toddy and rice crops to ecology and economy were obtained by interviews of 20 farmers that practice toddy and rice in once. This study reveals that the area of toddy palm and rice is still preserved by farmers as livelihood strategies because it has proven they support each other in the farmers livelihood. Nevertheless, we found a decrease in sap production because of the decline of human resources which will diminish its economic value and threaten Toddy^s population. We suggest modern technology in rice and toddy farming to maintain the sustainability of those livelihood strategies.

Keywords: toddy palm- rice, semi-arid- small farmers- marginal environment-ecology

[ABS-33]

**Causal loop to enhance the resilience of the agro-food supply chain:
reducing environmental risk factors**

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Abstract. Agro-food supply chains play a crucial role in ensuring global food security. Nonetheless, they are confronted with escalating environmental hazards that pose significant challenges. The primary aim of this study is to identify the environmental risks present across the entire agro-food supply chain, with the ultimate goal of increasing the sustainability of the supply chain. The current investigation employs an analytical framework in order to successfully achieve the study purpose. The analytical framework in this paper is based on systems thinking, and causal loop diagrams are used to show how activities in the agro-food supply chain affect the environment over time. The findings demonstrate the influence of the complex and interconnected framework of the agro-food supply system on the vulnerability of the supply chain to a range of environmental risks arising from climate change, environmental degradation, and emissions. It also provides a systematic framework for policymakers, industry professionals, and researchers to devise specific strategies that boost resilience and foster environmental sustainability.

Keywords: climate change; fresh agri-food; supply chain resilience; system thinking

[ABS-38]

A framework for small farmer's livelihood capital, climate change adaptation strategies, and household welfare.

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Abstract

Climate change has had a negative impact on various sectors, especially the agricultural sector. Small farmers are the ones most affected by climate change because limited access to resources and information which means they do not have the ability to avoid the impacts of climate change, thereby reducing the welfare of their households. Therefore, it is important for farmers to adapt to climate change to reduce the negative impacts of climate change itself. Meanwhile, farmers have livelihood assets that influence their behavior, which include human, capital, natural, physical and social assets. This study aims to recommend a framework that integrates the relationship between farmers' livelihood capital, their adaptation strategies to climate change and its impact on the welfare of farmer households. The method used to achieve this goal is literature study. The results of this study are a framework that can be used by policy makers to design strategies to improve farmer welfare in conditions of climate change.

Keywords: adaptation strategy, climate change, household welfare, livelihood capital

[ABS-39]

**Communities Perception and Adaptation of Climate Change in Madura
North Beach Tourism**

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Abstract

The northern region of Madura Island has great potential for developing natural coastal tourism. However, climate change which, has an impacts on unexpected disasters such as floods, abrasion, and strong winds, requires local communities to adapt. The coastal region of Madura has the potential for mangrove forest vegetation as a way to control climate change. This research aims is to examine coastal community^s perceptions and adaptations to climate change by implementing the conservation of mangroves on the north coast of Madura. This study emphasizes ecosystem perceptions, ecological and socio-economic functions supported by community adaptation participation in reducing the impact of environmental change. The sample of this study focuses on a local community on the northern coast of Bangkalan Regency Madura island. The methodology of this research uses a qualitatif approach. Data analysis uses a social, economic and environmental perception approach from local coastal communities. The results show an optimistic perception regarding the mangrove ecosystem. The perception of the ecological function of mangroves as coastal protectors from the impacts of environmental changes shows positive results and the perception of socio-economic functions has a positive value with the understanding that mangroves have economic value as building materials and tourist attractions. The implementation of adaptation to climate change is carried out by actively participating in managing of coastal mangroves on the tourism north coast of Madura.

Keywords: Adaptation, Climate Change, Mangroves, North Coast, Perception

[ABS-40]

A Design Framework for Small Agricultural Businesses^ Dynamic Capabilities, Environmental Performance and Resilience

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Abstract

The threat of a food crisis is currently of global concern, especially Indonesia which is facing the challenge of decreasing the number of farmers and agricultural land area. Agricultural businesses also face increasing environmental and animal welfare regulations, extreme climate events, and new pests and weeds linked to climate change. These environmental challenges can affect the business strategy and environmental performance of small agricultural businesses (SABs). Some farmers do not have the necessary entrepreneurial skills, so agricultural entrepreneurs must create dynamic capabilities that can reuse agricultural resources. Therefore, this paper aims to recommend a framework that integrates the dynamic capabilities of SABs and their environmental performance. This study also enhances awareness of the environmental disturbances faced by SABs. It also provides a framework for policymakers and researchers to design strategies to increase the resilience of agricultural businesses.

Keywords: dynamic capabilities, environmental, performance, resilience

[ABS-41]

Advantages of early-maturity soybean varieties as a farmer adaptation effort to climate change in Grobogan Regency

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Abstract

The climate change impact is cropping patterns change, including unpredictable droughts and floods. These conditions require soybean farmers to adapt, one of them is adopting early maturing soybean varieties. This research aims to identify the advantages of early-maturity soybean varieties, financial feasibility, and technical efficiency. This study collected data from 57 soybean farmers in the Grobogan Regency. Soybean farming data used in planting season III (May-August) 2021. Biosoy and Detap varieties are early maturing, compared to the Anjasmoro varieties as existing soybeans. The financial feasibility of early-maturing soybeans is analyzed by the Marginal Benefit Cost Ratio (MBCR), while technical efficiency is by stochastic frontier. The research showed that: a) advantages of early maturing soybeans is that risk reduction of crop failure due to drought, b) early maturing soybean Biosoy varieties are feasible to develop with an MBCR level of 3.55, and c) an average technical efficiency is 0.92. The Biosoy variety had better advantages than Detap and Anjasmoro varieties. The government as a policy maker is expected to be able to encourage farmers to adopt biosoy varieties and optimize production inputs to make them more efficient so that farmers can be climate change adaption.

Keywords: Advantages, soybean, early maturing varieties, Biosoy

[ABS-43]

**Households Adaptation Strategies For Disasters: Implication For
Smallholder Farm Resilience In Malang, East Java, Indonesia**

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Abstract

The agricultural sector is a sensitive sector to external pressures such as disasters, climate change and pests attacks. Several disasters have occurred in Indonesia that gives an impact on the loss of farmers livelihoods. Therefore, this research aims to identified various strategies of farmers in dealing with disasters that can increase resilience. This research was conducted in Malang Regency, East Java, Indonesia, where it often faces disasters. We used quantitative approach for this research and It was carried out by conducting a survey to 40 respondents and in-depth interviews to several related informants. The results show that the types of natural disasters that often occur in Malang Regency are the eruption, floods and drought. Smallholders farm households face the disaster by utilizing available capital assets. These capital assets are used to develop adaptation strategy options, with the result economic, ecological and social adaptation strategies. Hence, smallholders farm household can survive.

Keywords: Disasters, smallholders, adaptation, livelihood, sustainability

[ABS-45]

Risk Mitigation In Sustainable Corn Seed Jab-69 Sakti Supply Chain

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Abstract

Even though JAB-69 corn seeds are quite resistant to pests and plant diseases, risks in the supply chain cannot be eliminated. So there is a need for mitigation and adaptation to existing conditions both from an economic, social and environmental perspective. This research aims to identify the most dominant risks according to the aggregate risk potential (ARP) value and formulate risk mitigation strategies in the Sustainable Corn Seed Jab-69 Sakti Supply Chain. The research results showed that there were 15 risk events and 23 risk agents consisting of five risk events and seven risk agents in the environmental dimension, four risk events and five risk agents in the social dimension, six risk events and eleven risk agents in the economic dimension. HOR phase I shows that the risk agent with the highest Aggregate Risk Priority (ARP) value is the distortion of demand and supply, and the risk agent with the lowest ARP value is liquid waste production. Based on the Pareto principle, 7 Risk Agents will be prioritized to be handled according to the highest ARP value, such as distortion of demand and supply, lack of a standard environmental management system, errors in planning calculations, lack of quality control checks, lack of maintenance management, Pest and disease attacks, lack of morale, and poor company communication system. Furthermore, 15 mitigation techniques are proposed. Twelve mitigation technique steps were selected from 15 recommended solutions to prevent the causes of risk based on the effectiveness to difficulty (ETD) value of HOR stage II.

Keywords: Sustainable, Adaptation, Risk, Mitigation, HOR

[ABS-47]

**Melon Production Using a Greenhouse in Blitar, East Java, Indonesia:
Obstacles and Solutions**

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Abstract

The efforts of farmers to produce melons in dry land certainly have their own challenges, one of their efforts is to produce melons in greenhouses. In the research area (Wates District, Blitar Regency, East Java) (dry land) some farmers adopt greenhouses as climate smart agriculture to improve their welfare from farming. But they have their own obstacles. It is very interesting phenomenon to study. Therefore, the purpose of the paper is (1) to understand the obstacles of melon farmers in Wates District, Blitar Regency? (2) know the solutions to their obstacles. Data Analysis used qualitative data analysis results from in depth interviews from 30 informants. The results obtained include (1) obstacles for melon farmers in melon production, including a) water problems during drought, b) poor quality seeds, c) the presence of pests, d) capital and market aspects, especially unstable prices. (2) The solution to the problem of melon farmers, among others, needs the support of the government and stakeholders from upstream to downstream in a practical and efficient manner.

Keywords: Farmers of melon- obstacles, greenhouse

[ABS-54]

Analysis of Mini Polder Performance for Improved Water Management in the Dadahup Swampy Irrigation Area

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Abstract

The Indonesian government has chosen the Dadahup Swampy Irrigation Area as one of its Food Estate regions to address food security concerns. Following the rehabilitation of the irrigation network and the construction of gates from 2020 to 2022, block A5 is chosen as a pilot project using a mini polder as its water system management. In the right block A5, mini polders small-scale embankments, are designed to regulate water flow and optimize land utilization. This research comprehensively evaluates mini polders' effectiveness in right block A5 in improving water control within the swampy landscape, considering the influence of rainfall patterns. Our research aims to comprehensively evaluate how mini polders effectively improve water control in the Dadahup Swamp Irrigation Area. To achieve this, we consider the influence of rainfall patterns, which play a significant role in the region's hydrological dynamics. In addition to traditional data analysis, we integrate hydraulic simulations into our study using HEC-RAS software. These simulations allow us to model and visualize how mini polders interact with the complex water flow patterns in the Dadahup Swampy Irrigation Area. By combining empirical data with hydraulic simulations, we can better understand how mini-polders function in response to varying rainfall scenarios. Based on the simulation results, it was found that without the polder system, the water level would be on dry land during the dry season. The simulation provides direction or guidelines for polder operations to maintain the water level as long as possible during the dry season and prevent flooding during the rainy season. This research can provide valuable insights into sustainable agriculture practices in this unique and challenging environment.

Keywords: mini polders, water management, water control, Dadahup Swampy Irrigation Area, rainfall analysis

[ABS-61]

Farmer's Barrier in Using Innovative Technology to Promote Agricultural Product in Batu City

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Abstract

The era of industrial revolution 4.0 have greatly affect the way delivering information and dissemination method. The effects of information and communication technology is more dynamic and open access, especially through the internet and mobile phones. Information and communication technology in agricultural development requires a certain educational process and capacity building due to several technical difficulties and lack of skills to apply it. The smart city concept that implemented by the Batu City has not been successful. Therefore, the majority of farmers are over 50 years old, so they have difficulty to accepting the technology. This study aims to identify the farmer's barrier in using innovative technology to promote agricultural product in Batu City. This study uses a qualitative approach. The data was obtained through indepth interview to farmers who using technology to promote their agricultural product. The informants was chosen by snowball sampling. Then, the data was analyzed by Miles and Huberman Theory. The result of this study describe that the biggest barrier in using innovative technology is the unsuitable farmer capability to access this innovation. It's means that farmer could not adaptation with the new technology.

Keywords: Smart City, Innovation, Participation

[ABS-63]

Market development strategies of smoked fish using participatory rural appraisal (PRA)

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Abstract

This paper focus on formulate market development strategies of smoked fish using Participatory Rural Appraisal (PRA). Because most of the coastal communities in Dringu subdistrict, Probolinggo district are smoked fish entrepreneurs, the PRA method has great potential to be used. Some alternative of the strategies has been considered, as well as formal and informal marketing strategies have been identified: BCG matrix, Ansoff matrix, and Porter matrix. Those matrices has discussed to the communities for verification. In addition to PRA, data collection was carried out through in-depth interviews, FGDs, and interpretation for 2 months. The results show that the selected subdistric have the potential to develop market, but considering the current conditions, the use of technology is crucial in branding and increasing consumer awareness.

Keywords: market potency, participatory rural appraisal, PRA, rural development

[ABS-64]

The use of technology against climate change: Impact on farmers' income in lebak swamplands

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Abstract

Climate change is a significant and urgent global issue, characterized by the rising occurrence of floods, droughts, and increased intensity and frequency of agricultural pests, intensifying its effects. The impacts of increasing global temperatures, changing precipitation patterns, and fluctuating extreme weather events had significant consequences on both environmental and economic resilience. This article examined the impact of technology adoption on farmers' income in the context of climate change. The research employed a survey methodology, wherein interviews were conducted with rice farmers in Tanjung Pasir and Pemulutan Ulu Village and utilized a questionnaire. The sampling technique employed in this study involves a simple random sampling approach whereby 140 samples were selected. This study's findings indicated that eight technologies were used in the lebak swamplands area: seeding, land processing, planting, fertilization implementation, integrated pest controlling, irrigation, harvesting, and post-harvest harvesting. The technology adoption level was high, with a total score of 217,31/280. This article emphasized the significance of incorporating technology to enhance farmers' income, mitigate the risks of climate change, and promote sustainability in the agricultural sector during climate change.

Keywords: climate change, technology, lebak swamplands, income

[ABS-68]

Twin Challenge between Price Uncertainty and Household's Economic Resilience on Post COVID-19 Era in Indonesia

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Abstract

Food price volatility can affect food availability, consumption, and public health. On the other hand, the level of food price volatility in Indonesia is still relatively high and often significantly impacts households. Economic resilience of agricultural households can be defined as the ability of households to cope with and recover from unstable economic conditions, such as food price volatility. Therefore, improving household economic resilience and reducing food price volatility is essential. This study aims to examine the relationship between food price volatility and household economic resilience. ARCH/GARCH model was used as an approach to describe the pattern of price volatility using a set of consumer price data from January 2022 until August 2023 enumeration period and a Systematic Literature Review (SLR) using PRISMA Protocol to determine the relationship between price volatility and household economic resilience. This research shows a specific movement in price volatility toward an explosive term, which led to great uncertainty that will face both consumers and producers in the future. Food price volatility harms household food capabilities, especially in low-income households, affecting economic resilience.

Keywords: Price Volatility- Economic Resilience- Food Price- Agricultural Household- Consumer- Producer

[ABS-69]

**Partnership and Farmer's Resilience : Case between Juragan and Citrus
Farmers in Kucur, Dau, Malang Regency**

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Abstract

The formation of the partnership was motivated by the problems faced by farmers regarding limited capital and a need for more ability and knowledge in the field of crop marketing. Thus, the partnership is expected to provide benefits for farmers. However, in the implementation of the partnership itself, many failures still tend to harm the farmers. Thus, the purpose of this study is to describe the partnership between the juragan and citrus farmers concerning the resilience of farmers in Kucur Village, Dau District, Malang Regency. This study used a sample of 20 partner farmers, 28 non-partner farmers, and one informant. The data analysis techniques used are descriptive analysis, farm income analysis, and t-test. The results show the partnership pattern between the juragan and partner farmers is the Pattern of Operational Agribusiness Cooperation. There are four roles of juragan for partner farmers: providing capital loans, providing technical guidance on citrus cultivation, guaranteeing the price and marketing of citrus crops, and providing capital guarantees when crop failure. The fulfillment of farmers' needs from the partnership can affect production results such as good quality, maximizing the quantity of crops, and obtaining high prices, so this can certainly affect farmers' farm income and their level of resilience.

Keywords: partnership pattern- partnership role- farm income- resilience

[ABS-71]

Strategy Adaptation and Farmers Land Processing in the Upland Arfak Mountains (Case Study on the Hatam Tribe of West Papua)

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Abstract

Research that is subject to Arfak traditional farmers from the Hatam sub-tribe has been carried out in Syoubri, Kwau and Mokwam Villages, Warmare District, Manokwari Regency. documenting local wisdom that is still being practiced-describe and analyze the typology of mixed gardens and find a strategy for developing a traditional Hatam mixed garden model that is socio-culturally acceptable, and can improve their welfare and is environmentally friendly This research is a descriptive study designed using a naturalistic qualitative approach which is intended to describe or describe systematically, factually and accurately related to the facts, characteristics and relationships between the phenomena studied. Determination of the sample based on a deliberate division of the region (sampling and purposive area), namely based on land typology, ethnicity, and farming methods. From this research, it can be concluded that the mixed garden of traditional Hatam farmers currently has the SEE (Social-Economic-Ecological) typology, which is characterized by limited types of commodities planted where garden management involves the entire extended family, semi-subsistence oriented on a limited area of land and wisdom is still practiced. local traditional Hatam farmers. Strategies that can be used in developing the ideal mixed garden model for traditional Hatam farmers are: adding the number of plant species that are in accordance with the biophysical characteristics of the land, have high economic value and are known to farmers and can reduce land degradation- establishing economic institutions and marketing networks for local products, utilizing local wisdom of the land zoning system to limit non-agricultural land conversion- build a brand image of Hatam farmers^ products as organic products- structuring mixed garden management by utilizing appropriate technology, local wisdom and simple conservation techniques adapted to farmers^ conditions, and increasing farmer capacity through counseling, mentoring and training.

Keywords: Strategy, Adaptation, Upland, Hatam, Manokwari

**CLEAN ENERGY, ENERGY EFFICIENCY,
NATURE-BASED SOLUTIONS, CARBON
CAPTURE**

[ABS-27]

Genealogy Green Mining in Europe and Asia

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Abstract

The green mining concept is a consequence of the world's commitment to realizing sustainable economic development. This aims to maintain the availability of natural resources in the future by minimizing environmental and social damage due to mining. This article focused on explaining the green mining genealogy in Europe and Asia. This is important, considering that Indonesia has abundant natural resources and is committed to accelerating green economy-based downstream programs. It is hoped that this study can become a preference for natural resource management, especially mining, that prioritizes sustainability. Our research used literature studies starting from searching, collecting, evaluating and analyzing relevant sources according to the research topic. We found that there were differences in the background to the emergence of the concept of green mining in Europe and Asia. Environmentally friendly mining in Europe stems from public awareness of climate change due to environmentally unfriendly mining processes. So, this awareness gives birth to environmentally friendly policies in the mining process. Meanwhile, in Asia, the emergence of green mining is caused by international policies that pressure countries in Asia both politically and economically to implement green mining. This shows that environmentally friendly mining is related to the geopolitical and geo-economic spectrum.

Keywords: green mining, sustainable economic, environmental sustainability

[ABS-59]

Implementation of Saudi Aramcos Sustainable Development Goals to Preserve the Environment in Meeting Global Energy Needs

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Abstract

The Sustainable Development Goals (SDGs) have become a key guide for global organizations to preserve the environment while meeting global energy needs. Saudi Aramco, one of the world's largest oil producers, has a key role in achieving these goals. This study aims to analyze the implementation of Sustainable Development Goals by Saudi Aramco in preserving the environment in line with their efforts to meet global energy needs. The method that will be used in research is a qualitative research method involving case studies to explain variables related to Saudi Aramco Companies in implementing Sustainable Development Goals (SDGs) to preserve the environment. This research explores various concrete steps that have been taken by Saudi Aramco in integrating the principles of SDGs in their operations. The main focus is on the company's efforts to reduce the environmental impact of its oil production activities, including the reduction of greenhouse gas emissions, water management, and biodiversity protection. The results show that Saudi Aramco has taken various important initiatives in support of the SDGs. They have invested in environmentally friendly technologies, such as increased energy efficiency and improvements in carbon capture technology. In addition, the company has prioritized sustainable water management and efforts to preserve natural ecosystems in the areas where it operates. The research also highlights the challenges faced by Saudi Aramco in implementing the SDGs, including regulatory issues, required investments, and corporate culture change. However, the steps taken by these companies demonstrate their commitment to achieving the SDGs.

Keywords: The Sustainable Development Goals, Saudi Aramco Goals, Environmental Sustainability.

CLIMATE CHANGE EDUCATION FOR SOCIAL TRANSFORMATION

[ABS-4]

HEI's commitment on sustainability issue toward nation building: How Indonesia HEI policies conform to SDGs?

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Abstract

Higher education institutions (HEIs), and education in general, are playing a crucial role the discourse of promoting sustainability. HEIs have a substantial responsibility to increase awareness and access to the technology and resources required to build a sustainable future through education. HEIs have a substantial responsibility to increase awareness and access to the technology and resources to build a sustainable future through education, research, and policy recommendation. Therefore, strategic plan policies at many levels are required to be catalysts and key engines of social transformation in order to establish and encourage the best practices of sustainability in higher education. The paper aims to map and identify all of the patterns and characteristics of sustainability policies at Indonesian HEI and to what extent it contributed to the national sustainable policy. Data was collected by searching policy documents on each target university's website using the terms ^sustainability^, ^green campus^, and ^sustainable development^, ^kampus hijau^, dan ^berkelanjutan^. The analysis in this research has been limited by curating only the Top 10 Universities from listed in UI Greenmetrics of 2022. The result shows the pattern and characteristics of sustainability policy in Indonesia is still not adequately and systematically structured, Furthermore, several HEIs structured policies in order to comply with Greenmetrics^ regulations. In conclusion, the situation may be the result of the absence of a national-level policy in Indonesia that gives comprehensive guidance and blueprints for how sustainable practices and policies should be implemented at HEIs.

Keywords: sustainability policy, HEI, nation building

[ABS-10]

Environmental and Climate Change Education for the Youth to Foster Social Transformation: Case Study in MTs PAKIS Banyumas, Central Java

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Abstract

MTs PAKIS is an educational institution in a geographically isolated region, with a primary emphasis on imparting knowledge to young individuals on environmental matters and climate change. This is achieved through the integration of local wisdom and the utilization of available resources within the surrounding hamlet. Students are provided with a comprehensive array of academic disciplines encompassing agriculture, agroforestry, animal husbandry, biodiversity, and climate change. This educational experience equips individuals with important skills and knowledge that may be efficiently applied in their future pursuits. PAKIS has demonstrated efficacy in imparting knowledge and deterring early marriage and urban migration. It serves as a valuable foundation for prospective social transformation, fostering improved lifestyles in terms of economic prosperity and environmental sustainability. Notwithstanding their achievements, PAKIS must prioritize the matter of teacher retention for the purpose of long-term viability, since they have challenges in maintaining a stable roster of volunteer^s teacher. The objective of this study is to assess the efficacy of environmental education initiatives and climate change interventions, with the intention of offering suggestions for

enhancement. Used interviews and observations as data collection to students, administrators, and parents, which was analyzed using qualitative with the POET Model from Micklin & Poston.

Keywords: Climate Change Education, Junior High School, Banyumas Regency, Social Transformation

CLIMATE IMPACTS ON AGRICULTURE AND FORESTRY

[ABS-6]

Research Trends in Oil Palm Production in Ghana: a systematic literature review and future research agenda

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Abstract

The research trend on oil palm in Ghana has been growing in recent years, with an increasing number of studies examining various aspects of sustainable oil palm production practices. This study presents a comprehensive review of research trends in oil palm production in Ghana, employing a systematic literature review. By synthesizing existing studies, the objective of this review is to identify the main areas of research focus, advancements, and gaps in knowledge within the oil palm sector in Ghana. Furthermore, a future research agenda is proposed to guide and prioritize future investigations in order to promote sustainable development and enhanced practices in the oil palm industry of Ghana. The findings revealed that the research on oil palm in Ghana has been on the rise over the past decade, with a focus on various aspects such as socio-economic, ecological, and technological factors. Research on sustainable oil palm production in Ghana is complex and has attracted significant attention. Numerous studies have provided valuable insights on the challenges facing the industry, highlighting the need for policy and institutional reforms. The available literature on oil palm research in Ghana is limited and insufficient to provide a comprehensive understanding of the various aspects related to sustainable oil palm production practices in the country. Despite the growing attention to this topic in recent years, there is still a need for further research to address the gaps and limitations in the existing literature. The findings of this study contribute to a deeper understanding of the current state of research in oil palm production in Ghana and provide valuable insights for researchers, policymakers, and industry stakeholders.

Keywords: Oil palm, literature review, research trend, Ghana

[ABS-9]

The Impact of Climate Change on Smallholder Women Farmers in Bojonegoro Regency: Study in Bulu Village, Balen District, East Java

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Abstract

Smallholder women farmers are particularly vulnerable to climate change. It means that they are the most affected by climate change. This study aims to describe the impact of climate change on smallholder women farmers. The qualitative approach used in this research with a case study design. a purposive sampling was use to choose a total of 25 smallholder women farmers. Based on data obtained through semi structured in-depth interviews, focus group discussion (FGD) and observations, it was found that the impact of climate change on smallholder women farmers in their livelihood at the individual level is low asset ownership, access and control to various sources of capital such as natural capital, human capital, physical capital, financial capital, and social capital are still weak. At the household level, it has an impact to the roles of women in family which are growing increasingly numerous and it also leads to international migration. An important implication of this study is to promote the protection of rights and equality for smallholder women farmers in the face of climate change, as well as sustainable and inclusive growth. Given the influence of smallholder women farmers in rural regions, the success of this study will be critical in successfully mitigating the effects of climate change in rural communities.

Keywords: Climate Change, Impact, Smallholder Women Farmers, Vulnerability

[ABS-14]

Climate change Vulnerability assessment for Onion growers in Solapur district, Maharashtra, India

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Abstract

Climate change is problem occurring at global as well as regional level. Agriculture is one of the sector facing problem by climate change. Farmers are facing problems while performing agricultural practices like sowing, harvesting etc. Some educated and alert farmers have knowledge about climate change and how to manipulate it with farming practices. But remaining are unaware about the issue and facing the loss. Onion is one of the crop affected by climate change issue while growing phase as well as storage period till getting reasonable price in market yard. Lack of storage facility, scientific knowledge about storage condition, may hamper production and quality of onion. Various farmers are cultivating the onion as it gives high price or money but there is high level of fluctuation in supply and demand at market level causing uncertainty in price. Solapur is among major onion producers in Maharashtra state followed by Nashik, Ahmednagar and Satara. In the recent years farmers showing interest in cultivating the onion in Solapur region. In the above context survey was conducted during October 2021 to January 2022. It is conducted by using closed ended questionnaire interview method, interviews were conducted face to face on field of onion farm).Set of 20 questions were taken to get the response from the farmers. Individual Responses were recorded and data was tabulated and analyzed by using MS Excel software the purpose of the study is to find out problems of onion cultivators due to climate change. The Research indicates indicate high vulnerability to loss among onion cultivators due to climate change in Solapur district.

Keywords: Keywords: Climate change, Onion, Onion cultivators, Vulnerability

[ABS-16]

Are our lands getting wetter or drier? A perspective from Climate scenario data in Upper Brantas

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Abstract

Changes in rainfall are considered influential for the sustainability of agriculture and land resources in the humid tropics. Many areas in East Java are classified as top priorities in adaptation and mitigation programs, especially in the agricultural and water resources sectors. Climate change impacts have been documented through global-scale General Circulation Models (GCM). This study aims to examine climate projections derived from the CMIP5 global climate Model of four greenhouse gas scenarios in upstream brantas, test their accuracy, and measure the consequences for shifting agricultural climate suitability for Indonesia main food staples: rice and corn. The study use exploited method the 18 climate calculation models at the regional level by focusing on RCP 4.5, the development scenario considered in Indonesia climate action. Prediction algorithms will use bias correction, chain factors, and quantile mapping for upstream brantas. During the 2000-2099 predictions, precipitation increased in all models RCP.

Keywords: Climate Change, Prediction, RCP, GCMS

[ABS-34]

Drought tolerance testing of Inpari 4 rice variety with PEG-6000 in the germination phase

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Abstract

Paddy (*Oryza sativa* L.) play a very important role in the life of Indonesian people. The challenge that will be faced in the future is global warming which can cause drought in the agricultural sector. Paddy is very sensitive to drought during the germination phase and early stages of growth. Such drought can cause crop production to decline. This research aims to provide earlier information on drought-tolerant paddy varieties. This research was conducted at Laboratory of Ecology and Plant Production Management, Sebelas Maret University. It was applied FCRD consisting of the first factor of PEG-6000 concentration (C) which is 0% (C0), 10% (C1), 15% (C2), 20% (C3) and 25% (C4), the second factor of soaking duration (S) is 12 hours (S1), 24 hours (S2) and 36 hours (S3). The data obtained were analyzed using ANOVA and further tested with DMRT 5%. The results of research from PEG-6000 application that can have a drought effect show that at a temperature of 26°C produces germination of 84,30%, C3S3 gave the highest value on germination (90,50%) and growing speed (47,58%/etmal), C0 gives the highest value at lead length (29,05 cm) and C4 gives the highest value at radicle length (35,64 cm).

Keywords: *Oryza sativa* L., drought stress, peg-6000, seed viability

[ABS-57]

Understanding Farmers Perception of Climate Change to Prepare Adaptation of Farmers

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Abstract

Climate change due to the impact of global warming has resulted in a decline in agricultural productivity, but farmers do not understand this phenomenon. This study assessed farmers' perceptions of climate change by comparing highland and lowland farmers in Bantul Regency. This study collected data using questionnaires to 79 respondents. The results showed that there six indicators of climate change became farmers' perceptions, and the most common perception of farmers in the highlands and lowlands was a decrease in crop quality. The perception of farmers on hilly land regarding climate change is that 54% of farmers feel a decrease in rainfall, 54% feel drought, 55.2% feel a longer dry season, 60.8% feel reduced water sources, 74.4% feel a decrease in crop quality and 73.2% feel a decrease in crop quantity. At the same time, the perception of farmers in the lowlands regarding climate change is 66.9% of farmers feel a decrease in rainfall, 68.28% feel drought, 71.03% feel a longer dry season, 68.28% feel reduced water sources, 77.93% feel a decrease in crop quality and 77.93% feel a decrease in crop quantity. The importance of farmers' perceptions of climate change can be used to adapt to climate change. Farmers with a high level of perception should share their knowledge and information with those with a lower level of perception to enhance adaptation strategies. Understanding farmers' perceptions can aid in addressing the impacts of climate change on agricultural productivity.

Keywords: Perception, climate change, smallholders, agricultural

[ABS-60]

Climate Change Risk Perception among Smallholder Women Farmers in Bojonegoro Regency: Study in Bulu Village, Balen District, East Java

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Abstract

Women play a major role in agricultural activities, particularly small-scale ones, in developing countries. Thus, they are also affected by climate change. Smallholder women farmers have carried out a series of adaptations and mitigations based on their knowledge and perceptions to minimise risks. This study aims to determine how smallholder women farmers perceptions of climate change risks are seen from various perspectives. The approach used in this research is qualitative with a case study design. Purposive sampling was used to choose 25 smallholder women farmers. According to data acquired through semi-structured in-depth interviews, Focus Group Discussions (FGDs), and observations, they understand the existence of climate change as evidenced by variations in rainfall, irregular seasons, and rising temperatures. Despite their ignorance of the reasons, they see climate change as a severe threat to their lives and livelihood systems. An important implication of this study is that it helps raise awareness about the risk of climate change on smallholder women farmers and the importance of strengthening their participation in agricultural activities and decision-making. In addition, this study can also help encourage communities to take sustainable action and adaptation to climate change by taking into account the role of smallholder women farmers as vulnerable and directly affected parties.

Keywords: Climate Change, Risk, Perception, Smallholder Women Farmers

CLIMATE SCIENCE AND DIPLOMACY

[ABS-42]

**The Role of The United Nation Environment Programme (UNEP) In
Overcoming Deforestation In Central Kalimantan 2017-2020**

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Abstract

Climate change is a global environmental problem, one of the causes of which is deforestation. As the second largest province in Indonesia with forest area reaching 50% of the total area, Central Kalimantan has an important role in environmental problems and deforestation. Deforestation is a global problem that requires joint attention in handling, especially for UNEP as the international environmental regime. This research is a type of qualitative research that uses analytical descriptive methods to describe the phenomenon of deforestation in Central Kalimantan and UNEP's role in overcoming it. Library study techniques are used to collect research data in the form of documents, which are then compiled, analyzed and concluded. UNEP's role in realizing SDG 13 is analyzed using an international regime approach through global diplomacy. The research results show that UNEP as an international regime plays an important role in making global regulations regarding handling climate change from the deforestation sector through REDD+. In its implementation, UNEP assisted Indonesia in implementing REDD+ in Central Kalimantan and acted as a catalyst, facilitator, advocate and educator on the issue of deforestation in Central Kalimantan in 2017-2020. This research is important to develop, as an effort to show the urgency of the role of multi-stakeholders in global diplomacy in dealing with climate change.

Keywords: UNEP, SDG's, Deforestation, Climate Change, Central Kalimantan

[ABS-55]

Chinampa and International Agreements: Promoting Climate-Smart Agriculture through Global Cooperation

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Abstract

Chinampa, also referred to as the floating lawn, is a form of agriculture that yields 1.5 times more than conventional agricultural farming. However, due to rapid technological improvements, this approach is essentially unknown and seldom utilized, and is frequently considered obsolete. Chinampa, on the other hand, has enormous potential to cut carbon emissions and hence contribute to global climate change mitigation. In this sense, the function of international accords is regarded as critical in developing global climate diplomacy. The goal of this research is to look at how global collaboration may help Chinampa become a wise agricultural practice in the face of climate change. The research approach employed is library research, which involves collecting data from journals, books, and websites pertinent to the area of study. According to research findings, the Chinampa farming technique has the potential for carbon reduction, sustainability, and international standards, because Chinampa is an organic farming conduct that does not use chemical fertilizers or pesticides that might pollute the land and water, it can help reduce greenhouse gas emissions caused by traditional agricultural production. Furthermore, this method takes advantage of existing wetlands or lakes, implying that considerable freshwater resources are not required. This is a crucial step in promoting long-term water management. Thus it deserves to be referred to as a smart farming strategy for dealing with climate change.

Keywords: Chinampa- Agricultural- Diplomacy- Climate Change- Global Cooperation

CLIMATE-SMART AGRICULTURE ADOPTION

[ABS-23]

Study of Liquid Biofertilizer and Three Shallot Varieties On the Productivity of Shallot Plants Out of Season

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Abstract

The shallots grown in Indonesia come from various varieties. Base on BPS data in 2020, shallot production reached 9.7 t, even though the potential yield can be higher. This is due to the reduced level of soil fertility and global climate change, El Nino and La Nina making farmers unable to grow crops off-season, resulting in a decrease in the value of domestic shallot productivity. Therefore, efforts need to be made to increase productivity by providing liquid biofertilizers tested on three shallot varieties. The aim of the research is to identify resistant shallot varieties to planting off-season when providing liquid biofertilizer to increase productivity. The research was conducted in the rainy season (February-May 2023) in Ngringo Village, Jaten District, Karanganyar, Central Java, at an altitude of 189 MASL. The research used the Split Plot Design method, 2 factors: Shallot Varieties as the main plot (3 levels, Bima Brebes, Maja Cipanas, and Bali Karet) and Liquid Biofertilizer Concentration as subplots (5 levels, 0, 3, 6, 9, and 12 mL/L plot-1) so that 15 combination plots were obtained and repeated three times. The results showed no interaction between liquid biofertilizer and varieties. Variety affects the number of tubers per clump and the harvest index. The liquid biofertilizer treatments of 6 mL/L plot-1 and 12 mL/L plot-1 increased total N content, total P content, and essential oil content in shallots.

Keywords: Shallot, Liquid Biofertilizers and Climate Change.

[ABS-46]

Fostering Food Security through Farmers Intentions to Embrace Climate-Smart Agriculture: Unraveling the Impact of Attitude, Subjective Norms, and Behavioral Control

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Abstract

Food security is a global challenge exacerbated by climate change, especially in developing countries. Promoting climate-smart agriculture (CSA) practices is critical to addressing this issue. This study explores the influence of farmers' attitudes, subjective norms, and perceived behavioural control on their intention to adopt CSA practices, ultimately contributing to increased food security. Using the Theory of Planned Behavior framework, this study investigates how farmers' attitudes toward CSAs, subjective norms within their social networks, and perceived ability to implement these practices influence their intentions to adopt CSAs. Data was collected through surveys and interviews with farmers in various regions in developing countries. The sampling technique used to collect Structural Equation Modeling-Partial Least Squares (SEM-PLS) analysis data follows the guidelines provided by Cohen's table to determine the required sample size. Our findings show that farmers' attitudes towards CSA positively and significantly influence their intention to adopt climate-smart agricultural practices. Additionally, subjective norms are critical in shaping these intentions, indicating that social influence and support networks within farming communities are important in driving CSA adoption. Further, perceived behavioural control emerged as an important factor, highlighting the importance of farmers' confidence in their ability to implement CSA practices. This research underscores the importance of encouraging positive attitudes, strengthening social networks, and building farmers' confidence in adopting CSA practices to improve food security in developing countries. Policymakers, agricultural extension services, and development organizations can leverage these insights to formulate strategies and interventions to encourage the adoption of climate-smart agriculture and ensure food security in the face of climate change challenges.

Keywords: Food Security, Climate-Smart Agriculture (CSA), Farmer Intentions

[ABS-49]
**Application Of Internet Of Things (Iot) In Industrial Scale Hydroponic
Cultivation Of Lettuce (Lactuca Sativa) And Its Effect On Business
Feasibility**

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Abstract

Artagrow is an agritech startup that aims to solve the problems of smallholder farmers in Indonesia, namely production instability in quality and quantity due to high dependence on nature and weather through Precision Greenhouse Farming using the Internet of Things (IoT) and a data-driven management system. This technology provides an opportunity for farmers to penetrate the market with the concept of business to business (B2B) without going through a long marketing chain thus cutting the market chain and increasing the margins of farmers. Precision Greenhouse Farming is supported by using hydroponic cultivation techniques which are considered to have advantages such as being able to produce products with high quality and productivity and provide convenience in production management. Then, the use of IoT in PGH technology can increase business efficiency where the use of IoT is considered to save costs up to 16% percent of production costs and maintain quality control so as to avoid production errors due to human error. This journal will be discuss the role and influence of IoT on the feasibility of farming and the concept of business model, especially in the Arta Grow Persada case study.

Keywords: IoT | Feasibility | Hydroponics | Business to business

[ABS-56]

The estimation of above-ground oil palm carbon stocks in different soil and climate conditions through vegetation index

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Abstract

Carbon stock may play an important role to support the sustainability of plantation, and may vary with type of land use, agronomic practices, soil characteristics, and climate conditions. The common direct approach to assess the aboveground carbon stocks may be time-consuming, and laborious, so may not be suitable especially for large scale observation. Therefore, the use of remote sensing may overcome some limitations coming up for conventional methods, yet requires a considerable data validation to obtain a reliable model. In this study, the normalized difference vegetation index (NDVI) based on Sentinel - 2 satellite imagery, acquired in September 2023, was used in combination with field measurements, i.e. biomass estimation, carried out in three separated of oil palm plantations varying in plant ages, i.e. young (< 10 years), middle (10 - 20 years) and old (> 20 years) with different in the context of soil characteristics, and climate condition, in Bojong Datar, Cibungur, and Cikasungka, West Java. Results show that above-ground carbon stocks increase with oil palm ages, i.e. from young to middle ages, with value ranging from 3.40 - 65.70 ton/ha. Yet, it decreases down to 17 ton/ha with ages > 20 years. Similarly, it also occurred for NDVI index, i.e. increase from 0.50 - 0.59 for young to middle of oil palms, and down to 0.51 for oil palm > 20 years old. This study suggests a strong correlation between carbon stock and NDVI values ($R^2 = 0.878$), pointing out the potential use of vegetation index to estimate above-ground oil palm carbon stocks.

Keywords: above-ground carbon stocks, oil palm, vegetation index, NDVI, climate smart agriculture

GENDER MAINSTREAMING IN FOOD SECURITY AND CLIMATE CHANGE

[ABS-32]

Analysis The Factors Affecting The Role Of Coastal Women's In Food Security And Preventing Beach Abrasion In Indonesia

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Abstract

The aims of this research delve into the identification and analysis of key factors that influence the role of coastal women in ensuring family food security and preventing beach abrasion in Indonesia, from an ecofeminist perspective. Structural equation modeling is used to identify and analyze the influence of factors such as Role Identification (X1), Involvement and Control (X2), Coastal Women Contribution (X3), and the Influence of the Impact of the Adaptation Era (X4) on the Factors that influence the role of coastal women (Y), in food security and preventing beach abrasion in Indonesia. The research results show that coastal women have a role in maintaining family food security by 52%. Apart from that, coastal women also play a role in preserving mangrove forests in an effort to prevent coastal erosion, because the impact of climate change has resulted in high abrasion rates. This research found that the Role Identification and Involvement and Control variables have a weak influence at the structural level on the role of coastal women variable, and the Impact of the Adaptation Era has a moderate influence at the structural level on food security. This research meets the loading factor value > 0.50 in the calculation results of the measurement model (outer model). Next, the Average Variance Extracted (AVE) convergence test for each construct was 0.50. Cronbach's Alpha (CA) and Composite Reliability (CR) with consistency values greater than 0.70. The results of data processing show that Involvement and Control (X2), Contribution of Land Owners (X3), and the Impact of the New Adaptation Era (X4) have a positive effect on the Empowerment of Women Land Owners with an average P-Value of < 0.05 . The implications of this research extend beyond the Indonesian coasts, offering insights into global initiatives aimed at promoting gender equality, sustainable development, and climate change mitigation.

Keywords: Factors of The Role, Coastal Women, Ecofeminism, Food Security, Abrasion.

[ABS-36]

**Women Empowerment in Environmental Conservation at Toba Caldera
UNESCO Global Geopark**

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Abstract

The Toba Caldera UNESCO Global Geopark (TCUGGp) is recognized by UNESCO as having excellent universal values, geodiversity, biodiversity and cultural diversity. The government has made substantial commitment by designating TCUGGp as one of the national priorities. Despite being a super-priority tourist destination, the environmental quality index indicates a deteriorating from year to year. The conservation agenda is still partially managed by the government and local communities. One of the most crucial actors in sustainable development is women's groups. Women play key roles in managing natural resources through environmental conservation according to numerous studies. This empirical study employs a mixed-method approach. This article analyzed factors that affect women's perceptions of participating in conservation activities, and policy initiatives to support women's long-term involvement in conservation activities in TCUGGp. According to the research findings, the availability of water, incentives, the compatibility of seeds, the degree of trust in the initiator, and the effectiveness of prior conservation efforts are the key elements that influence local communities' engagement in conservation operations. Gender mainstreaming and women participation play significant role in climate change adaptation and support food security. Women would contribute more favorably to various development initiatives, particularly agroforestry, if given the chance.

Keywords: Environmental conservation; Gender mainstreaming; Toba Caldera UNESCO Global Geopark

[ABS-44]

Promising effect on food security and agrotourism: Insights from womens participation in Sukowilangun, Malang, East Java.

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Abstract

Lately, there has been a growing concern regarding agrotourism as a type of tourism that has been rapidly expanding in many parts of the world, including Indonesia. This phenomenon can be observed from the context of tourism development, especially in the rural areas which now utilize ecotourism in the context of sustainable tourism. Indonesian tourism aspect has developed rapidly, especially in rural locations that are based on agrotourism with policies issued by the Ministry of Tourism and Creative Economy. The aims of this research are: 1). Menganalisis peran Perempuan dalam ketahanan pangan keluarga- 2). Analyze the participation of women in the development of agrotourism- 3). Formulate an agrotourism development model based on the participation of women. This research utilizes a qualitative approach. The research method used is a survey and in-depth study, which is initiated using the Rapid Rural Appraisal (RRA), the study of secondary data sourced from the Village Office, focused group discussions, and in-depth interviews with women's groups to formulate a model. The result of the study indicates that there is potential for the development of agrotourism based on processed cassava which is driven by women. The local community that carries a very important role is the ^Women's Cassava Community^ which processes cassava into processed mocap flour, instant tiwul, cassava chips, and various processed cakes that are made from cassava. By leveraging income from the manufactured product, they can effectively achieve two goals: ensuring food safety for families and supporting the development of tourism in Sukowilangun.

Keywords: agrotourism- women participation- food security

[ABS-74]

Women's Role in Coffee Farming in West Sumatra, Indonesia

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Abstract

Climate change influences different ecosystem services including impact to the sustainability of coffee agrosystems. Moreover, coffee farmers are facing challenges not only the climate change but also inadequate infrastructure, low price and also labour costs. Division of labour work types prevails between men and women in coffee farming activities. The fact that women farmers are still responsible for domestic activities and become part of the social community, local culture influences the division of roles in a household unit. Using a coffee farming cooperative, Solok Radjo in West Sumatra, this study aims to investigate the role of Solok Radjo women coffee farmers, including productive, reproductive and social and also to analyse their access, control and benefit of coffee farming. This study used a descriptive method using Harvard Analytical Framework. The research result shows that the productive role of women coffee farmers involved in planting to harvesting and selling coffee. The reproductive role of women farmers play a significant role in the needs and health of their families as well as the education of their children. For the social role, they participate in regular religious activities and arisan. Having three roles at once requires the woman farmer to take advantage of the time 24 hours a day with the appropriate portions. It found that women have less access to information related to coffee farming. In terms of control over land ownership was exclusively dominated by women farmers. Both men and women gain equal benefit from coffee farming.

Keywords: women's role, coffee farming, Solok Radjo Cooperative

[ABS-75]

The Impact of Product Quality on Customer Satisfaction and Loyalty toward Hydroponic Vegetables in Padang City

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Abstract

Hydroponics can be an innovative and sustainable agricultural method that offers potential solutions to some of the challenges posed by climate change. This study aims to analyze the relationship between product quality, consumer satisfaction on consumer loyalty to hydroponic vegetables in Padang City. Gender is also considered a moderating variable in customer loyalty. Between May and June 2023, data was collected from 100 hydroponic vegetable consumers in Padang City using the accidental sampling method and were analyzed using Structural Equation Modeling-Partial Least Squares (SEM-PLS) with SMART PLS 3.3 software. The results revealed a positive and significant correlation between the quality of hydroponic products, consumer satisfaction, and consumer loyalty. Consumer satisfaction was found to be positively and significantly related to consumer loyalty. However, genders moderating effect on consumer loyalty was found to be positive but insignificant. The findings hold practical implications for stakeholders, especially hydroponic producers and marketers. They underline the pivotal role of product quality, necessitating careful attention to aspects like freshness, cleanliness, and durability prior to market entry. Policymakers and marketers can promote hydroponic vegetables as a gender-neutral, healthy, and sustainable food option. The universality of vegetable needs makes vegetables attractive to a wide range of consumers.

Keywords: customer loyalty, satisfaction, hydroponic, gender

GOVERNANCE FOR FOOD SECURITY AND CLIMATE CHANGE

[ABS-3]

Analysis of price dynamics and supply chain performance of paddy/rice commodities after changes in Government Purchase Price (GPP) Policy for paddy and Highest Retail Price (HRP) for Rice in Karawang Regency, West Java Province

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Abstract

A common problem in paddy/rice farming is the presence of fluctuations in the price of paddy during the harvest season, and an increase in the price of rice during the rice shortage season. The study aims to analyze the dynamics of production, prices, marketing chains, and rice/rice price policies. The study was conducted in April-May 2023 in Karawang Regency. The data collected includes primary and secondary data. Data analysis was carried out quantitatively and qualitatively descriptive. The results of the study show: (1) Paddy production in Karawang (2018-2022) has increased by 2.61% per year. The development of paddy and rice prices on a monthly basis (2021-2023) increased by 1.18% and 0.73%- (2) Policy on adjusting GPP for rice and HRP for rice, applies according to National Food Agency Regulations Number 6/2023 and 7/2023- (3) In the paddy/rice supply chain, many marketing institutions are involved starting from farmers and various levels of traders. The presence of GPP and HRP has resulted in stable rice selling prices at the farmer level and stable rice prices at the consumer level. For this reason, it is necessary to periodically evaluate GPP and HRP policies, and continue to provide incentive support for rice farming.

Keywords: paddy, rice, GPP, HRP, Karawang regency

[ABS-5]

**Analysis of paddy and rice marketing chain to support grain/rice policies
in Ngawi Regency, East Java Province**

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Abstract

Marketing margin is an essential factor for rice traders. The study aims to analyze the dynamics of the rice marketing chain to support the grain/rice price policy. The study was conducted in June-July 2023 in Ngawi Regency, East Java. The study used primary and secondary data and was analyzed quantitatively and descriptive qualitatively. After the implementation of the grain/rice policy in accordance with National Food Agency Regulations No. 6 and 7 of 2023, the results showed: 1) Harvested dry grain/GKP prices at the farmer level increased by 7.93%, 2) RMU margins increased by 11.22% for medium rice and 34.46% for premium rice, 3) retailers obtained the smallest margin among grain/rice marketers, only Rp. 100/kg. The institution of grain/rice marketing has been well developed since the operation of intermediate actors who are partners with farmers. Government intervention through grain/rice price policy effectively stabilized grain/rice prices and improved rice marketing conditions in Ngawi. However, regular evaluation and monitoring are needed considering the global and geo-political dynamics affecting the condition of the grain and rice market in Ngawi Regency. Ngawi Regency significantly contributes to the provision of rice regionally and nationally.

Keywords: Please Just Try to Submit This Sample Abstract

[ABS-20]

Study of veterinary drugs residues in different brands of brown eggs using Agilent QuEChERS method and 6495 LC-MS/MS

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Abstract

Food Safety is one of the major global concerns which can affect food security and health of individuals. Residues of veterinary drugs in animal-based food is still under debate. However, it showed an effect on human health and is linked to resistance to antibiotics. In this study, the residues of veterinary drugs were investigated on three commonly used brands of eggs produced locally. Thirty-five compounds from five groups were studied namely Tetracyclines, Macrolides, Quinolones, Sulfonamides and Beta-Lactams. The extraction was done by using Agilent QuEChERS method with some modifications. The analysis of extracts was carried out using liquid chromatography with tandem mass spectrometry 6495 LC-MS-MS. Around 75 samples (in triplicate) from three different brands of brown eggs were investigated. The results showed that the concentrations were lower than the detection level of extraction method 0.2 µgml⁻¹. All brands of eggs were free of harmful concentrations of the studied veterinary drugs and did not exceed the maximum residual limit which might reflect the implementation of the regulation in handling and use of veterinary drugs.

Keywords: Veterinary drugs, Residues, LC-MS/MS and Eggs.

[ABS-21]
**Forest and Land Fire Mitigation Policy: Food Security Shocks For
Traditional Peat Cultivation And Its Impact On Environmental
Improvement**

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Abstract

Indonesia is one of the countries with the most vulnerable food security to the effects of climate change. Peatlands have a considerable potential for crop production, but they must be managed carefully. The government issued a regulation restricting burning the land for farming preparation in response to forest and land fires on peatlands. Unfortunately, traditional farmers lost their food security due to that policy. This research aims to: i) analyze the food security of farmers and its impact on improving the environment after the policy of banning burning in land preparation. Data was collected through interviews, field observations, and focus group discussions. The acquired data is analyzed qualitatively and descriptively. According to the study's findings, their land no longer supports farmer's food availability, and they must pursue new livelihoods to afford to buy their daily needs from the nearest market. Food utilization is still superficial. Farmers's food stability is extremely fragile due to the impact of policies, pest invasions, droughts, and floods. Although the policy bans burning in land preparation causes farmers to lose their self-sufficient food security, it has improved peatland ecosystems. The government needs to strengthen community empowerment programs to restore farmers' food security.

Keywords: food security, peat, climate change, fire, environmental improvement

[ABS-22]

The model for accelerating self-declare halal certification in a local bakery and cookie industry in Andonosari Village, Pasuruan Regency

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Abstract

Consumers consider local food to be of greater value after considering halal aspects. Halal food ensures material, equipment, and production. Applying for self-declare halal certification is one process for ensuring a halal certificate for small-scale industries. One of the procedures that must be followed is halal traceability. The bakery and cookie industry is one of the micro and small enterprises (MSEs) in Andonosari Village, Pasuruan Regency. The research aims to analyse the Halal Control Point (HCP) traceability model for bakery and cookie products. The results were collected from 8 products (palm cheese, nastar, kastengel, cheese stick, banana cake, and kue kerang). The HCP was identified in cake flour, bread flour, premix flour, margarine, butter, premix butter, edam cheese, spread cheese, palm sugar, powdered sugar, granulated sugar, Super Polymer (SP), baking soda, and baking powder. HCP is found in the flour group through the addition of vitamins, in the butter group through the fermentation process, the source of fat, colouring, lecithin, and glycerol. For the cheese group, HCP in rennet, emulsifier, colouring, and flavouring. For the sugar group, HCP in ion-exchange resins and activated carbon. The leavening agent group must adhere to the halal criteria of the material and process documents. HCP material and equipment that do not comply with halal standards should be substituted. Implementing self-declare halal certification in a local bakery and cookie industry simultaneously fulfils the government's requirements for halal certification obligations, but it also improves SMEs' awareness of the importance of halal assurances.

Keywords: Bakery and cookie industry- Halal Control Point (HCP)- halal traceability- self-declare halal certification

[ABS-25]

Alternative Marketing Strategy of Arrowroot Sweet Potato in Kulonprogo Regency, Special Province of Yogyakarta

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Abstract

During the post-pandemic period, local food potential received special attention as an effort to maintain food security. One of the local food potentials is arrowroot sweet potato, commonly grown in rural areas as food reserves in the lean season. The development of the potential of arrowroot tubers in realizing food security is inseparable from the product marketing activities themselves involving various stakeholders, so this study aims to identify the formulation of internal and external problems faced by the arrowroot tuber industry and determine alternative relevant marketing strategies. The basic research method is descriptive. The method of determining the research location was carried out purposively in Kulonprogo Regency, Yogyakarta. Determination of informants using the snowball method. Key informants of this study are arrowroot sweet potato farmers, arrowroot sweet potato business owners, competitors, consumers, marketing intermediaries, trade offices, and UMKM cooperative offices. The method of determining key informants is done purposively. The data analysis method used is the IFE and EFE matrix, Grand Strategy matrix, and SWOT matrix. The results showed that the internal factors and external factors that have the most influence on arrowroot tuber business development are good natural resource management (strengths), lack of business capital availability (weaknesses), market development and expansion (opportunities), and high business competition (threats). IE matrix analysis shows the position of the arrowroot tuber business is in quadrant II (grow and build).

Keywords: Arrowroot sweet potato, Strategy, Marketing

[ABS-26]

The Microbiological, Chemical, And Physical Attributes Of Bandeng Satay Utilizing Chitosan As A Preservative In Cold Storage

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Abstract

Sate bandeng, a traditional product from Serang, Banten, typically has a 7-day shelf life when stored in cold conditions. To extend its shelf life, chitosan is employed as a preservative. Using preservatives in fishery products is one way to support food security so that food is always available and of good quality. This study aims to identify the most effective chitosan concentration and the extended shelf life of sate bandeng under cold storage conditions. Chitosan concentrations of 0% (control), 1%, 1.5%, and 2% were tested during a 15-day cold storage period (0-10°C). Parameters such as Total Plate Count (TPC), Total Volatile Base (TVB), and sensory attributes were assessed every three days. At the same time, peroxide levels and proximate analysis were conducted at the start and end of storage. The results showed that sate bandeng treated with chitosan remained below 5×10^5 cfu/mL for TPC throughout the 15-day storage, whereas the control exceeded this limit. Sate bandeng with 1.5% and 2% chitosan exhibited TVB values of <30 mg N/100 g, indicating it was safe for consumption until day 15. As for sensory qualities like appearance, aroma, texture, color, and taste, sate bandeng with 2% chitosan remained favorable until day 15. Peroxide values decreased by the end of storage but not significantly, while protein and fat content increased significantly across all treatments. Ultimately, sate bandeng with a 2% chitosan concentration emerged as the most effective, with a shelf life extending to 15 days. Chitosan has benefits

as a preservative for sate bandeng, which supports food security, especially the availability and quality of this product.

Keywords: Fisheries products, milkfish, preservative, shelf life

[ABS-28]

Optimizing the Role of Rice Station in Java, Indonesia: The Effect of Toll Roads Construction to the Rice Market Integration

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Abstract

Rice is a staple food that Indonesian people mostly consume on a daily basis. The need for rice is always increasing due to the growth of the population in Indonesia. On the other side, the government of Indonesia has invested intensely in the development of a toll road network. The length of toll road operation has increased from around 750 km in 2014 to over 2,500 km in 2022. The construction is encroaching on the paddy fields and resulting in the production of rice decreasing every year. The objective of the research is to investigate the impact of toll road investment in regard to the rice market integration in Java as the central rice-producing region in Indonesia. We used the Vector Error Correction Model (VECM) approach to analyze the long-ranging daily rice price data series. This approach is used to estimate the short-term and long-term spatial price adjustments across the rice markets. The result of the study found that Cipinang rice station in Jakarta has the only significant spatial market integration with West Java regional rice markets. The spatial market integration between Cipinang rice station with Central Java and East Java rice markets showed less significance. These findings as a basis to enhance the efficiency of rice markets in Java.

Keywords: rice station, toll road, spatial market integration, Java

[ABS-30]

Developing the Agricultural Commodities on Regional Scale: An Initiative Corporation at Development Area Districts in Central Java, Indonesia

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Abstract

The agricultural sector in the economic structure of Province of Central Java, Indonesia for the last five years has been the top three contributors to Central Java's Gross Regional Domestic Product (GRDP). However, in the last five years, the role of the agriculture, forestry and fisheries sectors has shown a downward trend. The Central Java Regional Medium Term Development Plan states that the leading sectors that can be developed in the Districts of Banjarnegara, Purbalingga, Banyumas, Cilacap and Kebumen (Barlingmascakeb) development areas are agriculture and plantations. Therefore, a study is needed to analyze the development of agricultural commodities as a basis for the regional cooperation in the Barlingmascakeb development areas. This research uses a quantitative approach, i.e., Location Quotient (LQ), Shift Share Analysis (SSA), and Klassen Typology. We used document analysis and field observations to obtain data. The objectives of the research are to: 1) investigate the commodities that have comparative and competitive advantages in Barlingmascakeb, and 2) analyze the areas in Barlingmascakeb that have comparative and competitive advantages for the agricultural commodity. Research shows that there are four selected commodities, namely rice, coconut for water, coconut for sugar, and rubber that can be developed in Barlingmascakeb. The agricultural commodity that has comparative and competitive advantages in each district in sequence as follows: coconut for water is in Banjarnegara District, coconut for sugar is in Purbalingga District, coconut for sugar is in Banyumas District, rubber and coconut for water is in Cilacap District, and rice is in Kebumen District.

Keywords: agricultural commodities, Barlingmascakeb, comparative and competitive advantages

[ABS-35]

Halalness and Functional of Kombucha Production Technology : A Review

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Abstract

Kombucha drinks are popular with consumers because of their functional aspects for health. Kombucha is the result of fermenting substrate and sugar using a Symbiotic Culture of Bacteria and Yeast (SCOBY) starter. Several ingredients containing high phenolics are used as substrates, for example, green tea, black tea, turmeric, ginger, and others. Kombucha is high in antioxidants such as glucuronic acid, vitamin C, and vitamin B to increase immunity, prevent cancer, reduce inflammation and arthritis. In addition, as a fermented drink, kombucha contributes to increasing food security by extending the shelf life and development of food products. This review article aims to find production technology through a combination of substrate, sugar content, fermentation time, and other fermentation conditions so that kombucha alcohol is produced with levels that meet halal standards and high antioxidant content. The research method used is descriptive analytics, which involves collecting previous research data. Kombucha production is through alcoholic fermentation followed by acetic fermentation. Several factors influence kombucha fermentation, including sugar content, substrate concentration, fermentation time, pH, temperature, oxygen, and SCOBY. The problem is that the halal status of kombucha's alcohol content is debated based on differences in drinking alcohol standards in several countries. In Indonesia, fermented drinks are categorized as halal if the alcohol content is less than 0.5%. Several studies related to kombucha with different substrates have resulted in significant differences in alcohol and antioxidant levels.

Keywords: Alcohol, Functional, Halal, Kombucha

[ABS-37]

The Role of Root And Tuber Crops On Food Diversification Facing The Climate Change In East Java, Indonesia

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Abstract

Root and tuber crops consisting of cassava, sweet potato, potato, taro and others root and tubers have the important roles as the source of food, nutrition and cash income for many farmers in Indonesia. These crops also as a source of carbohydrates beside rice, corn, cereals, wheat etc. Root and tuber crops are the second most important group of crop plants after the cereals. The government of Indonesia accelerate food diversification based on local food resources, especially facing the climate change. The objective of this study was to estimate the role of root and tuber crops on food diversification and to estimate the household root and tuber crops demand in East Java Indonesia. The research used SUSENAS (Indonesian National Socio-Economic Survey) 2020 data with 31.990 household respondents in East Java Indonesia. Demand for food was estimated by AIDS (Almost Ideal Demand System) model. The results show that the average consumption for root and tuber crops was 0,69 kg/household/week (11,23% from carbohydrates foods), whereas rice consumption amount 4,86 kg/household/week (79,68 %), maize amount 0,25 kg/household/week (4,13%) and cereals amount 0,3 kg/household/week (4,96%). The expenditure elasticity of root and tuber crops was 1,36, while the expenditure elasticity of rice amount 0,78 (normal food), maize (1,41) and cereals (1,27). The expenditure elasticity more than 1 means that root and tuber crops as a superior food, also for maize and cereals. People no longer considers that root and tuber crops to be an inferior food. The root and tuber crops consumptions have the highest proportion after rice. It can be mean that root and tuber crops have the important role on food diversification in East Java Indonesia. Facing the climate change, root and tuber crops development be a right decision, moreover, root and tuber crops can be planted on dry land which is still widely available in Indonesia.

Keywords: Food demand- AIDS model- Food diversification- Climate change

[ABS-50]

Semendo coffee development and partnership strategy to enhance governance for food security and climate change mitigation

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Abstract

Semendo coffee is a major income source for agricultural households in the Semendo region. Agroforestry is commonly employed practice at numerous Semendo coffee plantations. Timber and Multipurpose Tree Species widely cultivated to provide shade. This study examines Semendo coffee's governance-enhancing development and collaboration methods. SWOT (strength, weakness, opportunities, threats) and AHP (analytic hierarchy process) analysis are used to determine the most suitable governance strategies and policy for Semendo coffee development. The data was gathered from key persons who possess expertise and serve as representatives for pertinent stakeholders and commercial entities throughout the Semendo coffee supply chain. SWOT analysis shows that the Strength-Opportunity (SO) strategy could improve Semendo coffee governance. High-quality coffee production, relevant party cooperation, and marketing network expansion are the proposed strategies. The AHP says mutual need drives partnership decision-making the most. Plasma-core partnerships are best for creating a strong sense of mutual need. Integration of the SO strategy with the core-plasma partnership is proposed to improve Semendo coffee governance. Agroforestry in Semendo coffee production can produce fruits and sequester carbon, reducing climate change. Agroforestry-based Semendo coffee management is expected to improve food supply, distribution, and consumption. This development is expected to maintain environmental integrity, notably in climate change mitigation.

Keywords: coffee, agroforestry, AHP, inti-plasma, SWOT, UMKM

[ABS-51]

Sugarcane Agribusiness Dynamics in East Java, Kediri: How Can Partnerships Assist Small Farmers in Accessing Markets?

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Abstract

In the face of climate change, numerous factors pose risks to efficient farm management. A solution for sustainable agriculture lies in forming partnerships. Collaborations between sugarcane farmers and sugar factories have proven mutually advantageous. However, it's crucial to evaluate the feasibility of sugarcane farming within these partnerships and how they facilitate product marketing. This research was conducted in Watugede Village, Puncu District, Kediri Regency, East Java, from March to April 2023, utilized in-depth interviews and purposive sampling to gather data. Findings reveal a R-C ratio of 1.2, a breakeven point (BEP) of 37,837 kg, and revenue of Rp. 65,615,000, exceeding the BEP. This suggests the economic viability of sugarcane farming in the area. The partnership model between PG. Tjoekir and sugarcane farmers resembles subcontracting. Farmers encounter multiple risks, with financial constraints being the most significant hindrance. Strong collaboration between farmers and sugar factory partners is vital for partnership success. Consequently, the government should promote fair trade and foster more such collaborations to help farmers absorb their sugarcane yields.

Keywords: farm, risk, sugar cane, sugar factory, partnership

[ABS-52]
**Farm Workers Perception of Orange Commodity Cultivation towards
Food Security (A case in Mardosniuhur Village, Simalungun Regency,
North Sumatra)**

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Abstract

Increased production and higher selling prices have generated community interest in honey pomelo orange cultivation in Mardosniuhur Village. The substantial demand for labor in this enterprise, combined with a limited labor pool, has triggered wage adjustments. However, the wage increases within the orange commodity sector have established a new standard and significantly impacted laborers' perspectives. Consequently, this study aims to depict the perceptions of laborers engaged in this cultivation. A total of 73 respondents participated in the study, comprising 40 from the orange commodity sector and 33 from non-orange commodity areas, selected via purposive sampling. The analysis primarily employed descriptive statistics. The findings indicate that wages in the orange commodity cultivation sector are tailored to the nature of the work, including provisions for overtime pay. Laborers have agreed-upon working hours and receive additional benefits. Overall, laborers hold a positive perception of orange commodity cultivation. As an implication, to further enhance laborers' perceptions, it is essential to address leadership issues and introduce incentives that can contribute to heightened job satisfaction among workers in the field.

Keywords: farmers perception, labor, orange, wage

[ABS-53]

Dynamics of Rural Entrepreneurship and Innovation (Case Study in Kucur Village, Dau, Malang)

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Abstract

Dry land which lacks water causes changes in crop commodities, from previously vegetable crops to orange crops. This shows changes in the phenomenon of farmer adaptation in responding to change. So this change requires entrepreneurial insight from farmers. Although rural entrepreneurship is an emergent field of study and has emerged as one of the most noticeable ways to promote rural development, the few studies concerning the theme are still incipient. Moreover, a lot of studies focus on rural entrepreneurs as a whole and little research emphasizes rural entrepreneurship, specifically in Kucur Village, Dau, Malang. This study explores the dynamics of rural entrepreneurial and innovation, conducted by orange farmers where potential agriculture continues to be the main economic activity. This research was conducted qualitatively, with stages including- data reduction, data presentation, and drawing conclusion. These orange farmers have been stimulated to develop entrepreneurial activities in their communities, taking advantage of endogenous materials, local culture and traditional knowledge. They try to not only create their own work, but also keep the culture and local traditions alive, therefore contributing to rural development. They have innovations in early planting with an intercropping system (chilies and vegetable plants) in climate and environmental change.

Keywords: rural entrepreneurship- innovations, orange farmers

[ABS-58]
Does Industrial Development Affect The Sustainability of Shallot Farming? (A Study in Nganjuk Regency)

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Abstract

Industrial Development in Nganjuk Regency is now being intensified. The number for industrial area is 2105 Ha, which is divided into four regions, one of this is Rejoso District. Instead, Rejoso District is also an Agropolitan Area that shallot being the potential commodity. However, there is a lot of critical agricultural land in Nganjuk Regency that will be converted into industrial land. This phenomena in contrast with the principles of sustainable agriculture that showed from social economic and ecological perspective. Therefore, this research aims to identify farmers's perceptions of the sustainability of shallot farming in Nganjuk Regency. This study uses quantitative approach. The sampling method in this study using a simple random sampling. The primary data was collected using questionnaire, meanwhile the secondary data was obtained from literature study. Then, collected data was analyzed using descriptive statistic and logit regression. The result of this research describe the economic aspect being the most affect factor to implicate shallot resilience.

Keywords: Sustainability, Shallot, Industrialization

[ABS-62]
**Inventory Control Analysis in Banana Snack Using Economic Order
Quantity (EOQ) Method at CV. Eldanan Berkah Karya**

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Abstract

The most important thing in business are raw material stock and product inventory. Product inventory monitoring is required to ensure that products are available when consumers place orders and also can help to maintain food security. Food security is not limited to rice, but also for local food based such as sweet potato, banana, taro, and etc. Inventory control is an inventory management system for business needs. CV. Eldanan Berkah Karya is an industry that operates in the field of banana processing. One of the main products of this industry is banana chips with ^Banana Snack^ brand. Banana chips produced by CV. Eldanan Berkah Karya has advantages compared to other industrially produced banana chips, including: it has a crunchier taste, has a unique shape (waffle shape), has various flavors, comes from good quality bananas, and is hygienic. There are several problems experienced by CV. Eldnanan Berkah Karya includes raw material inventory management which is still manual, raw material availability which has not been properly managed, as well as recording stock of finished products which is still manual. This study was aimed to determine the Analysis of Inventory Control in Banana Snack Using the Economic Order Quantity (EOQ) Method at CV. Eldanan Berkah Karya. Data collection is done by using a preliminary survey, literature study and field survey. Data analysis used descriptive and quantitative analysis. The results of this study indicated that the number of purchases is 94,5 kg banana per month. According to EOQ calculation is 24,95 kg banana, with total ordering frequency is 144 times a year. Price for raw material is Rp 12.000 - 15.000 per kg, with ordering cost per unit is Rp 8.794,00.

Keywords: Banana Snack, Inventory Control, Economic Order Quantity Method, Food Security

[ABS-65]

Antithesis of Rice Farmer Exchange Rate amidst Climate Change: Welfare Improvement or Food Stock Depletion

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Abstract

During 2023, the Farmer Exchange Rate (NTP) reached an index above 100, which means that the price index received by farmers is greater than the price index paid by farmers. NTP is one of the proxy indicators of farmer welfare, so an increase in NTP is in line with an increase in farmer welfare. However, an interesting phenomenon arises that rice production has decreased and is projected to have a downward trend due to extreme temperature and weather changes during 2023. This study was conducted to forecast the farmer exchange rate of rice commodities using monthly data from January 2018 - August 2023 using the ARIMA method to analyze that when associated with other variables such as climate change, NTP is less accurate as a proxy for farmer welfare. The results showed that the farmer exchange rate continued to increase until the beginning of 2024 but was not in line with the increase in rice production. This indicates that the price index received by farmers is greater not because the price of rice has increased but because of the depletion of rice reserves. Rice demand is higher than farmers' supply. This is because climate change this year has caused production to decline. The decline in the short term will open the rice import faucet so that the anticipation of rice imports can be reduced.

Keywords: demand- farmer exchange rate- forecasting- price index

[ABS-67]
Corn Price Volatility in the World Market

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Abstract

Corn is one of the food commodities traded globally as food, feed and biofuel commodities. Global demand for corn will tend to increase from year to year considering the multifunctional uses of corn. Climate change also take part in decreasing global production. Producer countries, namely China, America, and Brazil, suffered severe drought in 2020. It had impact in global corn market since the low of production. Globally, corn is used as food, but Indonesia imports corn as feed. Therefore, the price of corn in the global market is of concern to the Indonesian government. Fluctuations alone are not enough to describe the movement of corn prices, it is necessary to do a volatility analysis to find out how much uncertainty corn prices are in the global market. This study aims to determine the volatility of corn prices in the world market. The data used is secondary data obtained from the World Bank's Pink Sheet Data from 1960 to 2020. This study uses the econometric method using the ARIMA (Autoregressive Integrated Moving Average) and ARCH GARCH (Autoregressive Conditional Heteroscedasticity-Generalized Autoregressive Conditional Heteroscedasticity) model. The results showed that corn prices were volatile most of the year from 1960 to 2020.

Keywords: ARCH GARCH, corn, price, volatility, climate change

[ABS-70]

Jelly Candy Added with Porang (*Amorphophallus oncophyllus*) as A New Food Product in Addressing Food Security Concerns

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Abstract

JPorang (*Amorphophallus oncophyllus*) is one of local food source that may be developed in addressing food security concern. The diversification in processing should be done to increase its consumption. Jelly candy added with porang macerated with *Strobilanthes crispus* (PMS) was developed as low sugar food product with functional properties as antihyperglycemic. It was produced based on patent with submission no. S00202211830. The treatment was the amount of PMS were: 2.8 g, 5.6 g, 8.4 g, dan 11.2 g per 70 kg of human body weight for F1, F2, F3, and F4, respectively. Colour and profiles properties were each analyzed by chromameter and texture analyzer. The results showed that the increase of PMS yielded the increase of L value (the range of 17.53-20.64), but the decrease of a value (the range of 3.85-6.27). It did not affect the b value (the range of 4.54-4.88). For the texture profiles, increasing the PMS caused a decrease in hardness bite 1, gumminess, fracture, chewiness, but increased in cohesiveness. It did not affect adhesiveness and stringiness. This research is important in developing of new food product for sustainable food source and determining governance for food security in Indonesia.

Keywords: porang- jelly- securiy- new food- *Strobilanthes crispus*

[ABS-73]

Strategy to Reduce the Impact of Food Waste Through Environmentally Friendly Household Waste Management in Bojonegoro Regency

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Abstract

Food waste is a description of people's behavior regarding consumption patterns that are not in accordance with daily needs. The negative impacts caused by food waste behavior have become a world issue, including: food crisis, water and land pollution, and global warming. Global warming occurs partly due to food waste which accumulates in large quantities which produces methane gas, thus forming greenhouse gases. This greenhouse gas then triggers global warming. Therefore, this research aims to identify the types of waste produced by households and analyze strategies for reducing negative impacts due to food waste behavior in Bojonegoro Regency, East Java, Indonesia. The research location includes 4 villages in Bojonegoro included Sembung, Bangilan, Pilang Gede, and Kenep. The method approach used is quantitative. The results of this research show that households have made several waste management strategy efforts such as rethink, refuse, reduce, reuse, rot and recycle strategies, however, in overcoming environmental problems, consistency and mutual support between parties is needed.

Keywords: Foodwaste, household waste, waste, climate change, management

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Letter of Acceptance for Abstract

Dear Authors: Veriani Aprilia*(a), Nurul Kusumawardani (b), Rizal Fauzi (b), Daru Estiningsih (b), Effatul Afifah (a), Dwi Kusumawati (a), Imroatul Anifa (a), Aprilinna Effendi (a)

We are pleased to inform you that your abstract (ABS-70, Oral Presentation), entitled:

"Jelly Candy Added with Porang (*Amorphophallus oncophyllus*) as A New Food Product in Addressing Food Security Concerns"

has been reviewed and accepted to be presented at ICAFOSY 2023 conference to be held on 30-31 October 2023 in Malang, Indonesia.

Please submit your full paper and make the payment for registration fee before the deadlines, visit our website for more information.

Thank You.

Best regards,

Dr. Rizka Amalia, S.KPm, M.Si.
ICAFOSY 2023 Chairperson



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