International Conference FSSAT 2017

Certificate

Presented to

050/OP/IC-FSSAT/X/2017

Rinaldi Sjahril

Hasanuddin University, Makassar, Indonesia

has successfully delivered an oral presentation :

Effect of selection agents to chrysanthemum (Chrysanthemum morifolium) callus growth after agrobacterium mediated genetic transformation

1st INTERNATIONAL CONFERENCE ON FOOD SECURITY AND SUSTAINABLE AGRICULTURE IN THE TROPICS

October, 24-25th 2017

Swiss-belhotel, Jln. Ujung Pandang No. 8

Makassar, South Sulawesi, Indonesia

Dean

Faculty of Agriculture, Hasanuddin University

Prof. Ir. Sumbangan Baja, M.Phill, Ph.D

ORGANIZING COMMITTEE IC-FSSAT 2017 FACULTY OF AGRICULTURE

Director

Publication Management Center (PMC)

Dr. Ir. Imam Mujahidin Fahmid, M.TDev

IC-FSSAT 2017 EVENT RUNDOWN

Time	Agenda	Venue & Person In Charge
Tuesday, October 24th, 2017		
07.30-08.30 a.m.	Registration	Reception area
08.30-09.0 a.m.	Opening ceremony: - Singing Indonesi's National Anthem, Indonesia Raya - Opening Prayer - Welcome Speech by Rector Hasanuddin University, Makassar, Indonesia	MC
Plenary Session 1: Keynote speakers		
09.00-09.30 a.m.	**Prof. Yoshio Kawamura** *President Kyoto Prefectural College of Agriculture and Professor Emeritus of Rural Development Studies, Ryukoku University, JAPAN* **"Agricultural and Rural Development in Globalizing World: USA and Japanese Experiences"**	Ballroom Muhammad Arsyad, SP.,M.Si.,Ph.D.
09.30-10.00 a.m.	**Prof. Sumbangan Baja** *Faculty of Agriculture, Hasanuddin University, Makassar, Indonesia* **"Spatially Integrated Modelling for Agriculture Land Use Management and Development"**	
10.00-10.15 a.m.	Coffee Break	
Plenary Session 2: Invited speakers		
10.15-10.30 a.m.	**Prof. Hiroshi Ehara** *Graduate School of Bioagricultural Sciences, Nagoya University, JAPAN* **"Sustainable Production of Sago Palm and Its Utilization in Barren Lands with Sterile Soil for Strengthening Food Security"**	Ballroom Prof. Dr. Ir. Yunus Musa, M.Sc.
10.30-10.55 a.m.	**Heikki M. T. Hokkanen, PhD** *Department of Agricultural Sciences, University of Helsinki, FINLAND* **"Multitrophic interactions for Integrated Pest Management"**	
	Dr. Ingeborg Menzler-Hokkanen *Department of Agricultural Sciences, University of Helsinki, FINLAND* **"Invitation to the ICE2020 Helsinki Congress – Time to prepare"**	
10.55-11.10 a.m.	**Dr. Inamullah Khan** *Department of Agronomy, The University of Agriculture, Peshawar, 25130, Khyber Pakhtunkhwa, PAKISTAN* **"Future of major food crops in subtropical semi arid conditions of Pakistan under the changing climate scenario"**	
11.10-11.25 a.m.	Discussion Session-2	
Plenary Session 3: Invited speakers		
11.25-11.40 a.m.	**Prof. Keith Walter** *Pest Management, Harper Adams University, UK* **"Invertebrate Behaviour: A Central Consideration of Integrated Pest Management "**	Ballroom: Prof. Dr. Ir. Christianto Lopulisa, M.Sc.
11.40-11.55 a.m.	**Prof. Salengke** Faculty of Agriculture, Hasanuddin University, Makassar, INDONESIA **"Innovations in Food Processing Technology"**	
11.55 am-12.10 p.m.	**Prof. Razak Alimon** *Department of Animal Science Faculty of Agriculture Universiti Putra, MALAYSIA* **"Role of agro by-products in supporting sustainable livestock production"**	
12.10-12.25 p.m.	Discussion Session-3	
12.25-13.30 p.m.	Lunch and Poster presentation	
13.30-17.30 p.m.	Oral Presentation Session (Five Parallel Classes)	
Wednesday, October 25th, 2017		
7.30-8.30 a.m.	Registration	
8.30-11.30 a.m.	Oral Presentation Session (Five Parallel Classes)	
11.30 am-12.00 p.m.	Closing Ceremony	

Gmail Rinaldi Sjahril <rinaldi.sjahril@gmail.com>

Full Paper IC-FSSAT

6 messages

Rinaldi Sjahril <rinaldi.sjahril@gmail.com> Wed, Jan 10, 2018 at 2:10 PM
To: Hari Iswoyo <iswoyo@yahoo.com>

Assalamu Alaikum Wr. Wb.

Pak Hari, Berikut saya lampirankan full paper Krisan Transgenik, semoga sudah sesuai dengan harapanta.

Terima Kasih,
Wassalam.

Rinaldi Sjahril, Ph.D.

Laboratory of Plant Bio-science & Reproduction Biotechnology
Department of Agronomy, Faculty of Agriculture
Hasanuddin University

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606K

Hari Iswoyo <iswoyo@yahoo.com> Thu, Jan 11, 2018 at 9:08 AM
To: Rinaldi Sjahril <rinaldi.sjahril@gmail.com>

Waalaikum salam Wr Wb.

Sudah saya review kembali kedua paper kita pak, dan mohon maaf saya kembalikan dulu karena ada beberapa kesalahan yang masih perlu diperbaiki dan ada yang cukup fundamental. Mohon dicek karena sudah saya berikan komentar di dalam papernya jadi mudah ditemukan.

Mohon maaf pak dan mohon segera direvisi dan dikirim kembali.

Terimakasih

- Hari Iswoyo - ARCH - VUW
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2 attachments

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2803K

Rinaldi Sjahril <rinaldi.sjahril@gmail.com> Thu, Jan 11, 2018 at 2:10 PM
To: "Muh. Riadi" <riadimuh@yahoo.co.id>, feranita_haring@yahoo.com

Cc: trisna <trisna.ar508@gmail.com>, Asia Arifin Abdullah Bafaddal <asiaarifin@gmail.com>, irma jamaluddin <jamaluddinirma@gmail.com>

Asswrwb.,

Mohon bantuan dikoreksi dan diedit yang dikomentari Pak Hari Iswoyo. Terima kasih.

Wassalam,

Rinaldi Sjahril, Ph.D.

Laboratory of Plant Bio-science & Reproduction Biotechnology
Department of Agronomy, Faculty of Agriculture
Hasanuddin University

Jl. Perintis Kemerdekaan km.10, Tamalanrea
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Trisnawaty Ar <trisna.ar508@gmail.com> Thu, Jan 11, 2018 at 5:12 PM
To: Rinaldi Sjahril <rinaldi.sjahril@gmail.com>
Cc: "Muh. Riadi" <riadimuh@yahoo.co.id>, Feranita Haring <feranita_haring@yahoo.com>, Asia Arifin Abdullah Bafaddal <asiaarifin@gmail.com>, irma jamaluddin <jamaluddinirma@gmail.com>

Waalaikum Salam.
Terlampir saya kirimkan file hasil perbaikan naskah prosiding penelitian WCU sesuai catatan koreksian dari pak Hari Iswoyo.
Mohon Bapak dan Ibu mengecek kembali.
Terima Kasih
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irma jamaluddin <jamaluddinirma@gmail.com> Thu, Jan 11, 2018 at 11:56 PM
To: Rinaldi Sjahril <rinaldi.sjahril@gmail.com>

Assalamu Alaikum,

Pak, berikut saya lampirkan full paper krisan transgenik sesuai koreksian Pak Hari Iswoyo.

Terima Kasih,
Wassalam

Hormat saya,
Irma Jamaluddin
[Quoted text hidden]
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Best Regards,

Irma Jamaluddin

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irma jamaluddin <jamaluddinirma@gmail.com> Thu, Jan 11, 2018 at 11:58 PM
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2018-01-11 14:10 GMT+08:00 Rinaldi Sjahril <rinaldi.sjahril@gmail.com>:
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Conference Committee

Conference Committee

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Peer review statement

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Peer review statement

All papers published in this volume of *IOP Conference Series: Earth and Environmental Science* have been peer reviewed through processes administered by the proceedings Editors. Reviews were conducted by expert referees to the professional and scientific standards expected of a proceedings journal published by IOP Publishing.

International Conference
FSSAT 2017

Programme Book

1st INTERNATIONAL CONFERENCE ON FOOD SECURITY AND SUSTAINABLE AGRICULTURE IN THE TROPICS

(Indexed by SCOPUS : IOP Conference Series)

October, 24-25th 2017

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Tribun Timur SPIRIT BARU MAKASSAR · Jurnal Dinamika Pengabdian · PTPN XIV · Green House Homestay · Yayasan Pendidikan Asoka Makassar · International Journal of IJAS Agriculture System · tkp-unhas · Fajar Harian Pagi Makassar · Rumah Pemuda Gowa

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Prof. Dwia Aries Tina Pulubuhu, MA.
Rector, Hasanuddin University

Dear Colleagues,

Dear colleagues, It is my great pleasure, and on behalf of the Hasanuddin University, to welcome all of you, from abroad and within Indonesia, to participate in the First International Conference on Food Security and Sustainable Agriculture in the Tropics, FSSAT 2017. We are confident that you will have a great time at the conference and enjoy your stay in Makassar, welcome to Indonesia. I would like to take this opportunity to thank the host of this conference, both **Faculty of Agriculture and Publication Management Centre (PMC)**, Hasanuddin University.

It's good to be here and have the opportunity to talk about issues on food security and sustainable agriculture in an international gathering like this one, because it is a topic that is becoming increasingly more important in this recent years. Food security is a crucial issue in this changing world both in natural resources and world population. While numbers of people needs to be feed increased, this field has been facing challenges caused by uncertainty in the food production environment globally. The environmental condition in the tropics somehow is unique compared to other regions on earth. Therefore, agricultural technologies and innovation should take into account the nature of this unique environment for optimum production of the plant. In addition, it is necessary to consider the impact of all agricultural aspects for the sustainability of the food production in the future. This conference brings together researcher, scientist, practitioner and scholar in the field of Food Security and Sustainable Agriculture in the Tropics to promote knowledge, science and technology.

It has been an academic tradition for Hasanuddin University as an institution renowned for its research strengths in agricultural science, technology and innovation to organize a dissemination of research findings to the public. This conference emphasizes on tropical agriculture and covers a wide scope discussion of science, technology and innovation in agriculture to bring up the food security issues. 2 keynote speakers and 5 invited speakers attending the conference are scientists and researchers from Japan, France, UK, Malaysia, Finlandia and Indonesia. I sincerely thank the speakers, **Prof. Yoshio Kawamura (President of Kyoto Prefectural College of Agriculture and Professor emeritus of Ryukoku University, JAPAN), Prof. Alain Rival from CIRAD,**

FRANCE, Prof. Keith Walters from Harper Adams University, UK., Prof. Sumbangan Baja and Prof. Salengke (Hasanuddin University, Indonesia), Prof. Razak Alimon (Universiti Putra, MALAYSIA) and Prof. Hiroshi Ehara (Nagoya University, JAPAN). 10 topics mainly will be discussed are Crop Production and Environment; Plant Breeding and Plant Biotechnology; Biodiversity and Climate Change; Integrated Pest Management; Genetically Modified Foods; Food Safety and Product Development; Food Security Institutions; Geospatial Agriculture; Rural Development; Sustainable Livestock Production; and Sustainable Marine Food Security and Diversity.

An estimate of more than 100 accepted papers will be published from this event in the **SCOPUS indexes IOP Conference Series**. At the end, this event would provide an insight into the state of art of the challenges in food security and sustainable agriculture in the tropics which in turn will lead to additional research so that a snowball effect is created, leading in its turn to additional mass and greater quality.

I would like to close my address by calling on you all to work together for any possibilities that could arise in developing integrated problem solving and collaboration to create a better world. I wish you all an academically innovative and fruitful conference for better tomorrow.

Thank you for attention.

Prof. Dwia Aries Tina Pulubuhu, MA

FSSAT 2017 CONFERENCE RUNDOWN

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07.30 - 08.30 a.m.	Registration	Reception area
08.30 - 09.00 a.m.	Opening ceremony: - Singing Indonesia's National Anthem: "Indonesia Raya" - Opening Prayer - Welcome Speech by Rector of Hasanuddin University, Makassar, Indonesia.	Ballroom; MC
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12.00 - 12.15 p.m.	**Prof. Razak Alimon** *Department of Animal Science Faculty of Agriculture Universiti Putra, MALAYSIA* **"Role of agro by-products in supporting sustainable livestock production"**	
12.15 - 12.30 p.m.	Discussion Session 3	

12.30 - 01.30 p.m.	Lunch	Registration Area
	Poster Presentation Session	Registration Area; Individual Poster Presenter
01.30 - 02.45 p.m.	Technical Sessions 1	Ballroom Room A Room B Room C Room D
02.45 - 03.15 p.m.	Coffee break	Registration Area
03.15 - 05.30 p.m.	Technical Sessions 2	Ballroom Room A Room B Room C Room D
Wednesday, October 25th, 2017		
07.30 - 08.30 p.m.	Registration	Reception Area
08.30 - 09.30 p.m.	Technical Sessions 3	Ballroom Room A Room B Room C Room D
09.30 - 10.00 p.m.	Coffee break	
10.00 - 11.00 p.m.	Technical Session s 4	Ballroom Room A Room B Room C Room D
12.00-01.00 p.m.	Closing ceremony	Ballroom
01.00 - 01.30 p.m.	Lunch	Registration Area

FSSAT Conference Oral Presentation Rundown

DAY 1, Tuesday October 24, 2017	
POSTERS PRESENTATION	
Time	**Registration Area**
12.30-13.30	**001** **Improving Land Productivity by Using Vertical and Horizontal Space** *Abdul Hadid, Bau Toknok, Wardah, Zulkaidha*
	002 **The abundance and identification of indigenous endomycorrhiza for land rehabilitation of nickel post-mining in Sorowako** *Muh. Akhsan Akib, Kahar Mustari, Tutik Kuswinanti, Syatrianty A. Syaiful*
	003 **FOOD EXPENDITURE SHARE ANALYSIS OF HOUSEHOLD : Case Study of Food Reserved Garden Area Program in Bone Bolango Regency of Gorontalo Province** *Nanang Buri1 and Zulkifli Mantau*
	004 **Bureaucratic power politics explaining polycentric and fragmented interests of watershed management in Indonesia** *Muhammad Alif K. Sahide, Yusran Yusran, Supratman Supratman*
	005 **Spatial Pattern of Rice Field Productivity based on Physical Characteristics of Landscape in Citarum Watershed, West Java** *Arif Aprianto, Nugroho Purwono*
	006 **ADAPTABILITY OF DENDROBIUM ORCHID RESULT OF TISSUE CULTURE WITH PLANT MEDIA AND LOCATION (POSITION) ON ACCLIMATIZATION PROCESS** *Lely Zulhaida Nasution, Mieke Afni Hardiani dan Nanang Buri*
	007 **Increasing Efficiency of Oil Palm (Elaeis guineensis Jacq.) Tissue Culture through Embryogenesis by Transcriptomics Analysis** *Teuku Tajuddin, Siti Zulaeha, Imam Civi Cartealy, Devit Purwoko, Karyanti, Anna Safarrida, Hayat Khairiyah*
	008 **CHARACTERIZATION OF DAIRI LOCAL CORN, DAIRi REGENCY, NORTH SUMATERA PROVINCE** *Lely Zulhaida Nasution dan Nanang Buri*
	009 **Factors affecting performance of livestock extension agent increase in the adoption of feed technology beef cattle** *Agustina Abdullah, Jamila Mustabi, Amrullah*
	010

	Modification of Dry Grain Processing for Rice Nutrition Produced *Andi Nur Faidah Rahman; Jalil Genisa; Andi Dirpan; Andi Asril Badani*				
ORAL PAPERS PRESENTATION					
Time	**Ballroom**	**Room A**	**Room B**	**Room C**	**Room D**
13.30-15.00	**001** **Effect of Water Regime and Soil Management on Methane (CH4) Emission of Rice Field** *Orbanus Naharia (a*), Prihasto Setyanto (b), Muhammad Arsyad (c**), Harris Burhan (d), Muhammad Aswad (e)*	**007** **Institution of Agriculture and Agricultural Sustainability** *Nurdin Mappa, Darmawan Salman, Ahmad Ramadhan Siregar, Muhammad Arsyad*	**013** **Capability of Rot Fungus Isolates From Oil Palm Empty Bunches in The Production of Indole Acetic Acid (IAA)** *Sukriming Sapareng, Ambo Ala, TutikKuswinanti, Burhanuddin Rasyid, Akmal, Muh. Yusuf Idris, Yasmin, Abdullah*	**019** **Asset Based Community Driven Development Method for Agrotourism Development on Integrated Farming** *Muhammad AskariZakariah, Muhammad Zakariah, Muhammad RidwanSyah, Muhammad AsraAzis*	**025** **Re-Assessing Land Suitability for Foodcrop Development at a Regional Scale: A Study Case of u Regency** *Andi Ramlan, Sumbangan Baja, and Risma Neswati*
	002 **Improving Quality and Digestibility Cacao Pod With White Rot Fungi** *Jamila Mustabi, Wedawati dan Armayanti, AK*	**008** **Transdisciplinary Research on Local Community Based Sago Forest Development Model for Food Security and Marginal Land Utilization in the Coastal Area** *Dorothea Agnes Rampisela 1) 2) , Rinaldi Sjahrir3), Syamsul A. Lias1), Rosady M.4)*	**014** **Effectiveness of Phosphate Solvent Ekstract and Liquid Organic Fertilizer on Corn Plant Growth and Production QPM** *Sudirman Numba*	**020** **Social Capital on Poultry Farms in South Sulawesi – Indonesia** *Veronica Sri Lestari, Asmuddin Natsir, Ian G. Patrick, Hikmah M. Ali, MawardiAsya, Sitti Nurani Sirajuddin*	**026** **Contribution of Urban Farms to Urban Ecology Of a Developing City** *Harilswoyo*
	003 **Effectiveness of**	**009** **Ecological Wisdom in**	**015** **Vegetative**	**021** **Prospect of Seaweed**	**027** **Field Performance of Several Potato**

	***Azotobacterchroococcum* and Fungi Arbuscular Mycorrhiza on Some Physiological Characteristics and Growth of Cocoa Seedlings** *Nasaruddin*	**Slash Burning Farming of Remote Indigenous Community in North Mamuju Regency** *M. Saleh S. Ali, Rahmadanih, Apiaty Kamaluddin*	**Characterization to Identify Oil Palm (*Elaeisguineensis*Jacq.) Plantlet Abnormalities** *Ernayunita, Hernawan Rahmadi, Yurna Yenni, Retno Diah Setiowati, Iman Yani Harahap*	**Development in South Sulawesi through A Mapping Study Approach** *Syarifuddin Yusuf; Muhammad Arsyad; Andi Nuddin*	**(Solanum tuberosum) Clones using Different Planting Materials** *Awang Maharijaya, Neng Neni, Andi Azhari Putra, Anindita Arum Pratiwi, Ferdhi Isnan Nuryana, Muhammad Syukur, M. Rahmat Suhartanto, Sobir*
	004 **Rainwater Utilization Management Model Development at the Altitude of Cocoa Plantations Area for the Increase of Cocoa Productivity** *Muhammad Hasbi, Rahim Darma, Muhammad Yamin, Muhammad Nurdin, Muhammad Rizal*	**010** **Stakeholder Analysis in the Management of Irrigation Kampili Area** *Jumiati, M.Saleh S.Ali, Imam Mujahidin Fahmid, Mahyuddin*	**016** **Multi Stakeholder Engagement in Indonesia's Sustainable Palm Oil Governance** *Heldi Yunan Ardian, Djuara P. Lubis, Pudji Muljono, Delima Hasri Azahari*	**022** **Impact of Life Expectancy, Literacy Rate, Opened Unemployment Rate and Gross Domestic Regional Income Per Capita on Poverty In the Districts/City in Central Sulawesi Province** *Andi Darmawati, Moh Ahlis Djirimu, Muhtar Lutfi, Fima Anggadini*	**028** **The Interaction Genotypes Environment and Season (Gxexs) of Anthycianine Maize in Central Maize of Indonesia** *M Yasin HG, Faesal, MusdalifahIsnaeni, and M. Azrai*
	005 **Cocoa-Based Agroforestry: An Economic Perspective in Resource Scarcity Era** *Sri Jumiyati, Muhammad Arsyad, Rajindra, Abdul Hadid*	**011** **Increasing Efficiency of Oil Palm (*Elaeis guineensis* Jacq.) Tissue Culture through Embryogenesis by Transcriptomics Analysis** *TeukuTajuddin, Siti Zulaeha, Imam Civi Cartealy, Devit Purwoko, Karyanti, Anna Safarrida, Hayat Khairiyah*	**017** **Effect of Cocoa Pod Husk Compost Produced Using Rot Fungi on the Growth of Cocoa Seedlings** *Laode Asrul, Iradhatullah Rahim , Tutik Kuswinanti, Burhanuddin Rasyid*	**023** **Contribution and Efficiency of Labor Allocation Analysis in f using Raw Material of Agricultural Commodity to Family Income in South Sulawesi.** *A.Nixia Tenriawaru), Mahyuddin, St. Nurbaya*	**029** **Genetic by Environment Interactions And Stability of Tropical Wheat Lines in Indonesia Medium-Plains** *Amin Nur, KarlinaSyahruddin, Muh. Azrai, Muh. Farid*

	006 **Cocoa Farmers Social Engineering through Integrated Cocoa-Goat Farming System** *Sikstus Gusli, Daniel Useng, Hikmah Ali, Darmawan, Samsuar, Nahariah, M.Yusran, M Isnam, Mawardi*	**012** **Analyzes (Personal, Psychology, Culture, and Strategy of Marketing Mix) Forward The Consumer Behavior on People Robusta Coffee Processed by Using Structural Equation Model-Warp PLS 3,0.** *Sri Tjondro Winarno, Darsono, Muhamad Harisudin, Sudiyarto*	**018** **The Institutional Sustainability of Organic Fertilizer Processing** *Muhammad Risal, Darmawan Salman, Asmuddin Natsir, Rahmawaty A. Nadja, Muhammad Hasbi, Nurdin Mappa, Muhammad Yamin*	**024** **Forestry Devolution Model for Resiliency of Small Farmers Livelihood System in the Forest Area of Eastern Indonesia.** *Dassir M; Sadapotto, A; Paembonan, SAP*	**030** **Assessment and Selection of M3 Generation of Wheat Mutants adaptive in Lowland** *Nasaruddin, Muh. Farid BDR, Harilswoyo*
15.00-15.30	**COFFEE BREAK + ASHAR PRAYING**				
15.30-17.00	**031** **COMPOST APPLICATORS FOR HORTICULTURE** *Iqbal, Mahmud Achmaddan Muhammad Tahir Sapsal*	**037** **Mapping of Land Tenure Institution Rotating Patterns in the Highlands (case study at Tombolopao sub-district, Gowa district)** *Nurdin Mappa (a) Darmawan Salaman (b) Ahmad Ramadhan Siregara (c) Muhammad Arsyad (d)*	**043** **Effect Inoculant of *Lactobacillus Plantarum* and *Saccharomyces Cerevisiae*Mixed Culture on Theobromine Cocoa Pod Silage** *Muhammad Askari Zakariah*	**049** **Morphology of Entomophthorales Fungi Infecting Capsicum Aphid (Hemiptera: Aphididae) as New Agent for Biological Control Aphid in Indonesia** *Silvia Permata Sari, TeguhSantoso, Ruly Anwar and Dadang*	**055** **LAND USE CONFLICTS WITH A PARTICULAR REFERENCE TO SPATIAL PLANNING REGULATIONS AND LAND SUITABILITY ASSESSMENT** *Sumbangan Baja, Risma Neswati, Samsu Arif*
	032 **Soil Water Retention and Plant Growth Response on the Soil Affected by Continuous Organic Matter and Plastic Mulch Application**	**038** **Improving Agricultural Commodity Supplay-Chain to Promote Economic Activities in Rural Area**	**044** **OPTIMIZATION PROCESSES ON STARCH MODIFICATION OF PURPLE YAM TUBERS AS A FUNCTIONAL FOOD FROM LOCAL FOOD**	**050** **Infestation Development of *Helopeltisspp* in Various Cocoa Clones** *Vien Sartika Dewi, Erna, Sylvia Sjam, Melina, Asman*	**056** **Increasing Efficiency of Oil Palm (*Elaeis guineensis* Jacq.) Tissue Culture through Embryogenesis by Transcriptomics Analysis** *TeukuTajuddin, SitiZulaeha, Imam CiviCartealy, DevitPurwoko, Karyanti,*

	BurhanuddinRasyid, Masato Oda, and Hide Omae	*Rusnadi Padjung*	*Zainal; Mulyati Tahir, Mariyati Bilang, Argi Reski*		*Anna Safarrida, Hayat Khairiyah*
	033 **Effect of Planting Environment and Seed Tuber Physiological Age on The Pre-Emergent Growth of Potato (*Solanumtuberosum* L.)** *IfayantiRidwan, Shaun N. Lisson, Phil H. Brown, RusnadiPadjung*	**039** **Surface Optional Analysis of Different Slopes the Pinus Entry** *Rosmaeni, Daud Malamaasam, Hazairin Subair, Usman Arsyad*	**045** **Extraction and Characterization of Polyphenol Oxidase from Langsat (*Lansium domesticum*)** *Andi Nur Faidah Rahman, Rindam Latief, Jumriah Langkong*	**051** **Evidence Of *TrichodermaAsperellum* Ability to Spread Systemically and Modulate Co-occuring Dominant Fungal Endophytes in Cacao Seedling** *Ade Rosmana, Satriana Satriana, Nurul Jihad Jayanti, Andi Tendri Padang, Andi Akbar Hakkar, Asman Asman, Sylvia Sjam*	**057** **Effect of selection agents to chrysanthemum (Chrysanthemum morifolium) callus growth after agrobacterium mediated genetic transformation** *R Sjahril1, I Jamaluddin2, M Nadir3, Asman4, and N E Dungga5*
	034 **Initial Assessment on the Use of Cocoa Pulp in Complete Feed Formulation: In vitro dry matter and organic matter digestibility** *Asmuddin Natsir, Andi Mujnisa, M. Zain Mide, Nurul Purnomo, M. Faisal Saade*	**040** **Triple Methods in Determining Prime Agriculture Commodities** *Chairil Anwar, Marhawati M, Ahdan*	**046** **Expression of CYP2A6, KIF12 and SULT1C1 in Liver of Sheep with Divergent Sheepmeat Flavour and Odour** *Kasita Listyarini, Asep Gunawan, Jakaria, Ahmad Furqon, Cece Sumantri, and Muhammad Jasim Uddin*	**052** **Effect Inoculant of *Lactobacillus Plantarum* and *Saccharomyces Cerevisiae* Mixed Culture on Theobromine Cocoa Pod Silage** *Muhammad Askari Zakariah*	**058** **Optimalization and Regeneration of In Vitro Seedling of Shallot Variety Lembah Palu in Providing Good Quality Seedling** *Maemunah, Ramal Yusuf, Sakka Samudin, Hawalina, Yusran* **I**
	035 **Evapotranspiration and Water Balance in a Hot Pepper (*Capsicum***	**041** **The Chemical Properties and Functional Groups of**	**047** **Effect of Various Treatments on the Properties of Emergency**	**053** **The Roal Of Coastal Communities Support Management Mangrove**	**059** **ICT for Rural Development** *Susri Adeni, Amiruddin Saleh, Musa Hubeis, Arif Satria*

	***frutescens* L.) Field during a Dry Season in the Tropics** *Sartika Laban, Hiroki Oue, D. Agnes Rampisela*	**Soil Organics in Different Land Use Types of Jeneponto'sVertisol Soil in South Sulawesi** *Masria, ChristiantoLopulisa, HazairinZubair, BurhanuddinRasyid*	**Food Products Originated from Denaturized Whey Protein Concentrate and Sweet Potato Flour** *RobiAndoyo*, Shafira Khairunnisa, Herlina Marta, and Gemilang Lara Utama Saripudin*	*PawanaNur Indah and Mulyadi*	
	<u>036</u> **Collaboration of Liquid Bicoo-ameliorant and Compost Effect to Crop Yield and Decreasing of Inorganic Fertilizer Utilization for Sustainable Agriculture** *Burhanuddin Rasyid*	**<u>042</u>** **Physical and Mechanical Properties of Bamboo Laminated with Permethrin Preservative and SC-CO_2 as Solvent** *Zakiahuslinawaty, Musrizal Muin, Beta Putranto, S Suhasman*	**<u>048</u>** **Addition of Bay Leaf Extract on Cassava Peel Starch Edible Film and Its Application an Avocado** *MN Handayani, D Cakrawati, Y Sugiarti, Astiyani*	**<u>054</u>** **Management Mangrove Experiences Form Coastal People** *Pawana Nur Indah and Mulyadi*	**<u>060</u>** **The Innovative Characteristics And the Obstruction of Technology Adoption for The Management of Integreted Plants (PTT) of Corn In Gowa Regency** *Muh. Hatta Jamil, Yunus Musa, Novia Eka Rahayu*
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08.30-10.00	**<u>061</u>** **Efficiency of Humic Acid to physical and chemical properties of saline soil and Growth and Rice Result** *WantiMindari, Purnomo Edi sasongko,*	**<u>066</u>** **The Individual Household Food Security of The Elementary Students in Makassar City and Its Relationship With Their Socio-Economic**	**<u>071</u>** **The Use of Unmanned Aerial Vehicle (UAV) for Mapping Rice Condition** *Daniel Useng*	**<u>076</u>** **Enzymatic Production of Maltodextrins Derived from Sago Flour using Heat-Stable Alpha-Amylase and Pullulanase** *Amran Laga, Adiansyah*	**<u>081</u>** **Evaluation of some new plant type upland rice (*Oryza sativa* L.) lines derived from cross breeding for the growth and yield characteristics** *Gusti Ray Sadimantara, Waode Nuraida, Ni Wayan Sri Suliartini, and Muhidin*

	ZaenalKusuma, NurulAini, Syekhfani	**and Demographic Factors** *Diansari Pipi, Nurbaya Bustanul, Rasyidah Bakri*		*Syarifuddin, Andi Dirpan*	
	062 **Tolerance of Various Indonesian Rice Varieties on Drought and Salinity in Germination Phase** *Muh. Farid, IfayantiRidwan*	**067** **Screening Assays of Termite Gut Microbes that Potentially as Probiotic for Human to Digest Cellw Food Source** *Ridwan Abdullah , Khuzyia Rizqi TriaviAnanda, Widjanarka*	**072** **Use of Color Indicator as Smart Packaging System for Evaluating Mangoes Arummanis (*Mangifera indica L. VarArummanis*) Freshness** *Andi Dirpan, Adiansyah Syarifuddin, Andi Nurfaidah Rahman, Rindam Latief, Serli Hatul Hidayat*	**077** **The Status Of Cppb Implementation Of Corn Chips Production In Ukm Mawar Merah, Luwu Utara** *Rindam Latief (a*), Fiqih Vidya Albanjar1 (b), Mulyati Tahir(a)Andi Dirpan (a)*	**082** **Heritability and path coefficient analysis for important characters of yield component related to grain yield in M4 red rice mutant** *Muhammad Riadi, Rinaldi Sjahril, Nurlina Kasim, Raspowo Hadi Kusumo Diarjo*
	063 **Harvest Index and Yield components of Aerobic Rice (*Oryazasativa*) under Effect of Water, Varieties and Seed priming in the Tropical Region** *Elkheir H.A, Yunus Musa, Muslimin Mustafa, Rinaldi Sjahril, Muhammad Riadi and Hendrik Gunadi*	**068** **Strengthening Farmers Group Institutional in Increasing Farm Production and Household Food Security** *Rahmadanih, Muhammad Arsyad, A. Amrullah Majjika, Sitti Bulkis*	**073** **Biophysical and Economic Potential Analysis of Vertisols for Maize Production in The Humid Tropics of Indonesia** *Risma Neswati, Christianto Lopulisa, Asmita Ahmad, Muhammad Nathan*	**078** **Variant Discovery in SheepmeatOdour and Flavour in Javanese Fat Tailed Sheep using RNA Sequencing** *Mutasem Ali M.Abuzahra, Asep Gunawan, Jakaria, Kasita Listyarini, Ahmad Furqon, Cece Sumantri and Muhammad Jasim Uddin*	**083** **Effect of Heavy Ion Beam Irradiation on Germination of Local Toraja Rice Seed (M1-M2) Mutant Generation** *Rinaldi Sjahril, Muhammad Riadi, Rafiuddin, Tadashi Sato, Kinya Toriyama, Trisnawaty, A.R.*
	064 **Integrated Use of Pre**	**069** **The Challenges of**	**074** **Insights and Challenges**	**079** **Comparison Digestibility**	**084** **Phenotypic Performance of M3**

	Plant Seed Bio-invigoration, Organic and Inorganic Fertilizer on Growth and Yield of Local Upland Rice *GustiAyuKadeSutariati, La Ode Afa, Muhidin, La Mudi andI Made Widanta*	**Sustainable Food Security For Livestock Products in Indonesia** *Aslina Asnawi, Sitti Nurani Sirajuddin, Hastang*	**of Integrating Food Security and Food Sovereignty in Indonesia** *Cisma Tami Voletta, Mindi Schneider and Oekan S Abdoellah*	**of Ongole Cross Breed Cattle and Frisien Holstein Cross Breed on Fish Meal, Rice Bran, Soya Bean Meal and Pollard** *Nurul Amin, Muhammad Askari Zakariah*	**Sinjai Red Rice Mutant (*Oryzasativa* L.)** *Nurlina Kasim, Rinaldi Sjahril, Muh. Riadi, Fauzia Arbie.*
	065 **The Shading Effect on the Generative Character of Upland Red Rice From Southeast Sulawesi, Indonesia** *Muhidin, Elkawakib Syam'un, Kaimuddin, Yunus Musa, Gusti Ray Sadimantara, Usman, Sitti Leomo and Tresjia C. Rakian*	**070** **Potential Hazards From Hygiene and Sanitation on Health Safety of Refill Drinking Water at Barranglompo Island (Water and Food Safety Perspectif)** *Agus Bintara Birawida, Makmur Selomo, Anwar Mallongi*	**075** **Application of In Ovo Injection of L-Glutamine For Improving Productivity of Indonesian Native Chicken: Hatchability and Hatching Time** *Djoni Prawira Rahardja, Abdul Rahman Hakim, Veronica Sri Lestari*	**080** **KARAKTERISASI MORFOLOGI DAN PRODUKSI BEBERAPA KLON KAKAO UNGGULAN (*Theobroma cacao* L.) DI KABUPATEN LUWU** *MS. Sasmono, Nursia, KaharMustari, LaodeAsrul*	**085** **Performance of Various Rice Seeds Varieties in Bone Regency** *Muh. Farid BDR, HariIswoyo, Ifayanti Ridwan Saleh, Rahmansyah Dermawan*
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10.15-12.00	**086** **Microsatellite and Snap Marker to Evaluate Pollen Dispersal in Pati Tall Coconut and Evaluated of Xenia Efeect for Kopyor Fruit Yield** *Larekeng, Siti Halimah, Purwito, A., Mattjik, N.A., and Sudarsono,S.*	**093** **For Testing Submission Only: Agricultural Marketing in Indonesian Rural Area: Are Brokers truly Enemy for Smallholders?** *Muhammad Arsyad, AndiNuddin, M Hatta Jami, AmzulRifin*	**100** **Access to Information and Farmers Welfare** *Arafat Abdullah, Nurlaela, Muhammad Arsyad, Abdul Kadir Paloloang*	**107** **Factors Affecting Sustaibale Dairy Production: A Case Study From Uva Province Of Sri Lanka** *Dedunu Wijethilaka, S. De Silva, R.M.C Deshapriya and L.H.P Gunaratne*	**114** **Time Domain Features in Combination with Support Vector Machine Classifier for Constructing the Termite Detection System** *Muhammad Achiul Nanda, Kudang Boro Seminar, Dodi Nandika, and Akhiruddin Maddu*

	087 **Soil Physicochemical Properties to Evaluate Soil Degradation under Different Land Use Types in a High Rainfall Tropical Region: A Case Study from South Sulawesi, Indonesia** *Asmita Ahmad, ChristiantoLopulisaa, A.M. Imran, Sumbangan Baja*	**094** **Agricultural Development-Marketing Nexus: Is Tengkulak truly Enemy of Smallholders In Indonesian Rural Area?** *M8uhammad Arsyad, AndiNuddin, M Hatta Jami, Amzul Rifin and Yoshio Kawamura*	**101** **Impact of Social and Technological Dimensions on Seaweed Business Sustainability** *Gilang Talha, Gunarto Latama, Muhammad Arsyad, Andi Niartiningsih, Muhammad Asdar, Didi Rukmana*	**108** **Sustainable integrated farming syste: A solution for national food security and Soveignty** *Muhammad Ansar, Fathurrahman*	**115** **Detection of Fungi From Rice Black Bug *Paraeucosmetuspallicornis* Dallas (Hemiptera:Lygaeidae) and Inhibition With Crude Extract *Calatropisgigantea*(Asclepiadaceae)** *Sylvia S.,Untung S.T., Adiwena, Syatri, VienSartika Dewi and Ade R*
	088 **The Application of Parallel Wells to Support The Use of Groundwater for Sustainable Irrigation** *Suhardi*	**095** **The Role of Farmers Group as Economic Enterprises Unit in Enhancing Production and Farmers Income** *Muhammad Arsyad, Rahmadanih, SittiBulkis*	**102** **A Web-Based Traceability System for Tuna Fish Supply Chains In Indonesia** *K B Seminar, Marimin, B A Kresna, Y Arkeman and A, Wicaksono*	**109** **Application of Capital Social of Bali Cattle Farmers that Participate in the Partnership System in Barru Regency, South Sulawesi Province** *Sitti Nurani Sirajuddin, A.R. Siregar, Palmarudi, V.Tenrisanna*	**116** **Species Variation of Home-Garden Agroforestry System in South Sulawesi, Indonesia and Its Contribution to Farmers Income** *Samuel A. Paembonan, S.Millang, M.Dassir and M.Ridwan*
	089 **Compost Applicators for Horticulture** *Iqbal, Mahmud Achmad dan Muhammad Tahir Sapsal*	**096** **The Emerging Roles Of Agricultural Insurance and Farmers Cooperatives on Sustainable Rice Productions in Indonesia** *Christianto Lopulisa, Risma Neswati, Andi Ramlan*	**103** **Premix Design for Preparation of Indonesian Otak-Otak** *Abu Bakar Tawali, Nurul Wakiah, Andi Rahmayanti Ramli, Meta Mahendradatta, Suryani Tawali, Sutinah Made*	**110** **The Role of Gender on Beef Cattle Smallholder Farms** *Veronica Sri Lestari, SittiNuraniSirajuddin, Agustina Abdullah, KharismaMulyaUtari*	**117** **Green House Gases (CH4, N2O and CO2) Production and Soil Microbes Responds of Slow Release and Nitrification Inhibitor Urea Fertilizers in Saturated Soil.** *Sri Wahyuni, Oslan Jumadi, Hartono, Rachmawati, Muhammad Junda*

	090 **Yield Potential Test on Synthetic Genotype of Maize Tolerant to Drought and Low Nitrogen** *Yunus Musa, Muh. Farid*	**097** **Towards Sustainable Agriculture Production: Shallot Grows and Production to Various Concentration of Nitrobacter as Bio-organic Vertilizer** *Saharuddin, Novaty Eny Dungga*, Elkawakib Syam'un, A. Rusdayani Amin*	**104** **Response of Sorghum [*Sorghum bicolor* (L.) Moench] Genotypes to Phosphorus Fertilizer in Different Aluminum Saturation Levels in Acid Soil.** *RahmansyahDermawan, DidySopandie, Trikoesoemaningtyas*	**111** **Growth and Production Some Soybeans (*Glycine max* (L.) Merrill) on Various of Liquid Organic Fertilizer Fertilizer.** *Andi Amelia H*	**118** **Effectiveness of Bio-Slurry on The Growth and Production Plant Soybean (*Glycine max* (L.) Merrill)** *Rafiuddin, Abdul Mollah and Hari Iswoyo*
	091 **Modification of Dry Grain Processing for Rice Nutrition Produced** *Andi Nur Faidah Rahman; Jalil Genisa; Andi Dirpan; Andi Asril Badani*	**098** **Induced resistance cacao seedling against Vascular Streak Dieback Disease through inoculation endophytic fungi associated with cacao branch** *Asman, Nur Amin, Ade Rosmana, Tamrin Abdullah*	**105** **First report: Vascular streak dieback (VSD) disease of cocoa associated with new spots in Sulawesi confirmed by PCR analysis** *Muhammad JUNAID1,2, Agus PURWANTARA3 and David GUEST1*	**112** **Oceanographic Conditions and Sediment Dynamic of the Barrang Caddi Island (Spermonde Archipelago, Indonesia)** *1Mahatma Lanuru, 1Wasir Samad, 1Khairul Amri, and 2Dody Priosambodo*	**119** **Sterilization technique of Toraja black rice embryo in in-vitro** *Feranita Haring 1*, M Riadi 1, Rafiuddin 1, R Syahril1, A R Muchlis2*
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	FOOD EXPENDITURE SHARE ANALYSIS OF HOUSEHOLD *NanangBuri, Zulkifli Mantau*	**Sustainable Land Use of Potato in the Upstream Watershed Jeneberang** *Marupah, Hazairin Zubair, Didi Rukmana, Sumbangan Baja*	**Growth and Resistance of Chrysanthemum Flower (*Chrysanthemum indicum* L.) At Various Concentrations of Coconut Water and Vitamin B1** *Rika*	**SEBARAN POLA DAN INTENSITAS CURAH HUJAN DI INDONESIA** *1. Aris Pramudia, 2. Robi Muharsyah*	**Improving the Quality of Strawberry Seedlings (Fragaria Sp.) Using Biotechnology Approach of the Stolon Culture** *Elgavrianti Hamdi, Sri Hardiyanti Saad, Fazya Nabilah Salman, M.Tegar Ilham Taufan, Dharna Aisyah, Abdul Mollah Jaya*
	121 **Competitiveness, Production, and Productivity of Cocoa in Indonesia** *Imam Mujahidin Fahmid, MirahMidadanFahmid NurbayaBusthanul, Saadah*	**122** **Economy and Political Ecology Perspective of Indonesian Food Security at South Sulawesi** *Imam Mujahidin Fahmid, Mirah Midadan Fahmid*	**123** **Indonesian Jellyfish as Potential for Raw Materials of Food and Drug** *Syafyudin Yusuf; Imam Mujahidin Fahmid; Nurlaila Abdullah*		
12.00-13.00	**Closing Ceremony**				
13.00-13.30	**Lunch + Dhuhur Praying**				

[ABS-61]

Collaboration of Liquid Bio-ameliorant and Compost Effect to Crop Yield and Decreasing of Inorganic Fertilizer Utilization for Sustainable Agriculture

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Abstract

Soil quality and plant productivity are main issue in agriculture production. The purpose of this research was to obtain sustainable crop management in effort to improve soil quality and increase maize production through collaboration of liquid bio-ameliorant and compost. Field experiment was carried out in two planting season with factorial experimental design replicated three times in 2m x 2m plots. Duncan multiple range test was used to analysis the effect of treatment on all parameters evaluated. The first planting season, treatments were arranged in three factors as: (1) planting space with two spaces, (2) three concentration of liquid bio-ameliorant, and (3) three level of urea fertilizer. The second planting season, treatments were arranged in two factors as: (1) liquid bio-ameliorant (LBA) with four concentrations and (2) compost with four levels. In the first season, result showed in soil quality parameters such as microbial density and soil chemical properties increased approximately 28%. The highest yield of 9.00 ton/ha was found in application 300 ml/l LBA + urea 240 kg/ha. In the second season, collaboration treatment of 250 ml/l LBA + 10 ton/ha compost had the highest yield by 10.47 ton/ha. This study confirmed that collaboration of liquid bio-ameliorant and compost could be used as fertilizer complement and reducing inorganic fertilizer utilization to sustain crop production and soil quality.

Keywords: Liquid bio-ameliorant, compost, soil quality, productivity, crop management

Topic: Crop Production and Environments

[ABS-63]

COMPARISON DIGESTIBILITY OF ONGOLE CROSS BREED CATTLE AND FRISIEN HOLSTEIN CROSS BREED ON FISH MEAL, RICE BRAN, SOYA BEAN MEAL, AND POLLARD

Nurul Amin, Muhammad Askari Zakariah

Ph.D Student of Universitas Hasanuddin

Abstract

The objective this study were to evaluate feed stuff such as fish meal, rice bran, soya bean meal, and wheat pollard on Ongole cross breed (PO) and Frisien Holsten cross breed (PFH). Each feed stuffs were replicated in 3 replication. Variable were observed in vivo, in sacco, and in vitro digestibility. Collected data were analyzed by independent t-test sample. Result showed dry matter and organic matter in vitro digestibility of soya bean meal on Ongole crossbreed cattle has lower than Frisien Holstein crossbreed cattle (84.54±1.15 vs 90.17±1.34, 82.53±1.20 vs 89.05±0.76) respectively. Degradation theory of some feed stuff on PO has lower than PFH. Coefficient of digestibility on PO has lower than PFH. Concluded that concentrate such as fish meal, soya bean meal, rice bran and pollard has digestibility on ongole crossbreed cattle lower than Frisien Holstein crossbreed.

Keywords: Digestibility; Ongole cross breed; Frisien Holsten cross breed;feedstuff

Topic: Crop Production and Environments

[ABS-69]

IMPROVING QUALITY AND DIGESTIBILITY CACAO POD WITH WHITE ROT FUNGI

Jamila Mustabi, Wedawati dan Armayanti,AK

Hasanuddin University

Abstract

The purpose of this study is the use of white rot fungi in improving the quality and digestibility cacao pod as feed for sustainable livestock development. The study consisted of two phases, namely fermentation using three isolates of white rot fungi (Coprinus comatus, Corilopsis polyzona and Lentinus torulosus) on the substrate cacao pod and quality testing and in vitro digestibility of fermented. Results of analysis of variance showed that the treatment was highly significant ($P < 0.01$) on the content of lignin, cellulose and hemicellulose cacao pod. Fermented cacao pod with white rot fungi can degrade lignin content of 1.42% - 12.28%. Results of analysis of variance showed that highly significant ($P < 0.01$) on the in vitro digestibility of dry matter and organic matter. This suggests that each inoculation of white rot fungi can improve in vitro digestibility of dry matter and organic matter cacao pod. Conclusion Isolates of white rot fungi are most active in degrading lignin is Lentinus torulosus isolates and less ability to degrade cellulose and hemicellulose. Fermented cacao pod by using three white rot fungal isolates (Coprinus comatus, Cantharellus friesii, and Lentinus torulosus), is able to improve the digestibility of dry matter and organic matter in vitro.

Keywords: Isolates of white rot fungi, nutritional quality, digestibility in vitro and cacao pod

Topic: Crop Production and Environments

[ABS-75]

Rainwater Utilization Management Model Development at the Altitude of Cocoa Plantations Area for the Increase of Cocoa Productivity

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Abstract

Cocoa is an important commodity because it involves about 90% farmers. It can produce throughout the year, and easily marketed. However, cocoa productivity tends to decrease by an average of only 300 kg per hectare per year or away from the potential productivity of two tons. Water management is an alternative method to increase its productivity. Water management could be done with harvesting rainwater on the highest part of cacao plantation area and distribute them by applying the law of gravity. The research objective is to improve cocoa productivity through the improved management of rainwater utilization. One of the important implication of rain water management implementation was the improvement of micro environment quality that supports the cocoa cultivation throughout the year. The research method used was an experimental design to identify the appropriate technical specification parts of infrastructure to support the rainwater management. This research generated computation models to determine the technical specifications to support the rainwater management infrastructure from the height area to fulfill the water needs of cocoa plants. The implementation of appropriate rainwater utilization management for cocoa plantation will increase the cocoa productivity and be harvested throughout the year.

Keywords: Management, rainwater, reservoirs, cocoa plantations.

Topic: Crop Production and Environments

[ABS-76]

SPECIES VARIATION OF HOME-GARDEN AGROFORESTRY SYSTEM IN SOUTH SULAWESI, INDONESIA AND ITS CONTRIBUTION TO FARMERS INCOME

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Abstract

Agroforestry home garden is one of the types of agroforestry which is commonly practiced by rural communities in South Sulawesi, Indonesia. The study aimed to determine the diversity levels of the species constituting the home gardens and their contribution to the farmers incomes. The variables used in the study were the widths variation of the land owned as the home gardens and the socioeconomic backgrounds of the community. The study results indicated that in small land, the community cultivated annual crop plants interspersed with agricultural commodities, and the trees as the boundary, while in the wider land they integrated various species plants within the area. The diversity index of the home gardens was categorized as moderate with a value of 1.25 to 2.18, while species uniformity index was ranging from moderate to high with values of 0.49 to 0.77. The total incomes of the community from their home gardens varied greatly from one community to another, and it was largely determined by the composition and density of the constituent species. The contribution of the agroforestry home-gardens to the income of the farmers amounted 43.27% to 49.06%. The sustainable management of the home-garden agroforestry can give a significant contribution to the farmers incomes and the preservation of biodiversity and environment.

Keywords: Home-garden, agroforestry system, species variation, farmers income

Topic: Crop Production and Environments

[ABS-78]

Soil Physicochemical Properties to Evaluate Soil Degradation under Different Land Use Types in a High Rainfall Tropical Region: A Case Study from South Sulawesi, Indonesia

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Abstract

Intensive cropping in the tropical region always becomes one of important driving forces of soil degradation, especially erosion and landslides. The primary aim of this study is to analyze the states and the dynamics of soil physicochemical properties to evaluate soil degradation in the tropical region a high rainfall in agricultural areas. A number of soil characteristics were analyzed including soil pH, texture, Cation Exchange Capacity (CEC), cations of Ca, Mg, K and Na, base saturation (BS), and C-organic content. The degree of soil degradation is determined using Wischmeier equation. To support this analysis, soil temperature in 25 and 50 cm depth was measured with soil temperature tools, and soil minerals with X-ray diffractometer (XRD). This study reveals that mean annual precipitation in 1979-2016 ranges from 1853.15- 3623.10 mm/year. Degraded soils have a temperature (at 25 cm depth) ranging from 24 to 34oC, and 23-29 oC at 50 cm depth. For land used for paddy field, palm oil, cacao and coffee plantation, the range of soil pH was 4.5-6.4, texture dominated with silt loam-clay loam, cation exchange capacity (CEC) ranged of 18.63-26.32 cmol+/kg, C-organic ranged of 0.98-2.91%, Base Saturation ranged of 32-55%, permeability ranged of 0.1-3.5 cm/hour, soil clay minerals dominated with montmorillonite, vermiculite, illite, kaolinite, and halloysite, and the index erodibility was 0.3-0.5. Soils with no degradation has a temperature at 25 cm depth ranging of 26-31oC and 23-29 oC at 50 cm depth. Land used for mixed plants and shrubs, the range of soil pH was 5.0-6.5, texture dominated with silt loam-clay loam-sandy clay loam, CEC ranged 18.63-27.12 cmol+/kg, C-organic ranged 1.09-2.89%, Base Saturation ranged of 32-55%, permeability ranged of 0.2-4.9 cm/hour, soil clay minerals dominated with illite, kaolinit and halloysite, and index erodibility was 0.1-0.3. Land use for cultivated in the high intensity of rainfall has changed the physicochemical properties of soils and has at some degree increased soil erodibility

Keywords: land use, soil degradation, physicochemical properties, erodibility

Topic: Crop Production and Environments

[ABS-90]

The Application of parallel wells to support the use of groundwater for sustainable irrigation

Suhardi

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Abstract

The use of groundwater as a source of irrigation is one alternative in meeting water needs of plants. Using groundwater for irrigation requires a high cost because of the discharge that can be taken is limited. In addition, the use of large groundwater can cause environmental damage and social conflict. To minimize costs, maintain quality of the environment and to prevent social conflicts, it is necessary to innovate in groundwater taking system. The study was conducted with an innovation of using parallel wells. Performance is measured by comparing parallel wells with a single well. The results showed that the use of parallel wells to meet the water needs of rice plants and increase the pump discharge up to 100%. In addition, parallel wells can reduce the influence radius of taking of groundwater compared to single well so as to prevent social conflict. Thus, the use of parallel wells can support the achievement of the use of groundwater for sustainable irrigation.

Keywords: Parallel Wells, Groundwater, Irrigation, Sustainable

Topic: Crop Production and Environments

[ABS-97]

Efficiency of Humic Acid to physical and chemical properties of saline soil and Growth and Rice Result

Wanti Mindari, Purnomo Edi sasongko, Zaenal Kusuma, Nurul Aini, Syekhfani

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Abstract

Humic acid is believed to secure soil nutrients thereby decreasing the need for plants. Sources and doses of humic acid determine the efficiency of cation absorption. This experiment aims to examine the effectiveness of various sources and doses of humic acid in absorbing cations, thereby facilitating the availability of plant nutrients. Greenhouse experiments were prepared according to Factorial Random Block Design (HM): Compost, Manure, Coal and Factor II were 5 doses AH: 0, 0.5, 1.0, 1.5, 2.0, and 2.5 G / Kg. The application of humic acid to saline soil is evaluated against changes in pH, EC, exchange cation, permeability and soil aggregate stability. The impact of humat application to plant growth is evaluated against the weight value of biomass, plant roots, granules, number of tillers, and chlorophyll content. The experimental results show that humic acid from peat gives the best rice yield compared to other organic sources. Humic efficiency can improve rice yield 10-20% supported by the suitability of soil pH and soil salinity.

Keywords: humic acid, saline soil, organic matter, plants

Topic: Crop Production and Environments

[ABS-98]

The Chemical Properties and Functional Groups of Soil Organics in Different Land Use Types of Jeneponto's Vertisol Soil in South Sulawesi

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Abstract

The study aimed to determine the chemical properties and functional groups of soil organic matter in different land use types of Vertisol soil. Soil samples were collected from Punagaya Village, Bangkala Subdistrict, Jeneponto Regency in South Sulawesi. The samples were taken from two types of land use, the cultivated land and the fallow land. Sampling were done at 10 observation points, where each land use was represented by five observation points at a 0-20 cm depth. Soil analysis was done for organic materials content, C-organic content, pH, cation exchange capacity and functional groups analysis by using Fourier transform infrared spectroscopy (FTIR). The descriptive qualitative method were applied to asses the chemical properties of soil. The results showed that both land uses had neutral pH (6.35-6.95), moderately good organic matter and C-organic content, and medium-to-high cation exchange capacity. The FTIR analysis showed no difference of functional groups in the two types of land use. The functional groups of soil organic matter found in both land uses are: alkane, alkene, hydrogen, carboxylic, amines, amides, and carboxylic acid monomers groups.

Keywords: Chemical Properties, Functional Groups, Land Use Types and Vertisol

Topic: Crop Production and Environments

[ABS-103]
COMPOST APPLICATORS FOR HORTICULTURE

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Abstract

Horticulture is the art of planting fruit trees, vegetables, and ornamental or agricultural science that deals with the cultivation of gardens, including planting vegetable plants, fruit, flowers, and shrubs and ornamental trees. Fertilization is one of the important things to increase production, even until now regarded as a dominant factor in agricultural production. The use of compost can provide benefits for soil and plants. Problems that occur at the time of application of compost is needed manpower and considerable expense, so it needs an efficient technology in the form of mechanical equipment that is simple and easy to operate. This study aims to modify applicator for sugar cane dry land so that it can be used on land horticultural crops (vegetables) and seeks to increase the efficiency of the applicator compost through modifications the system coupling that can be drawn using the tractor two wheels. The results showed that the prototype model of applicator conveyor belt type had been made. It is functioning properly. The volume of applicator compost is 1 m3 or equivalent to 352 kg of compost.
Keywords: fertilization, applicators, compost, horticulture

Keywords: fertilization, applicators, compost, horticulture

Topic: Crop Production and Environments

[ABS-106]
Multi Stakeholder Engagement in Indonesia's Sustainable Palm Oil Governance

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Abstract

Natural resource management generally involves parties with conflicting interests and roles. The emergence of a negative issue on palm oil development in Indonesia heralded by NGOs and vegetable oil competitor countries, for some groups, is considered merely a trade war. The rapid development of Indonesias oil palm has made this commodity a source of global vegetable oil as well as raising a controversy over its sustainability aspects covering environmental, socio-economic and health issues.
Stakeholder analysis is a method for identifying, categorizing and investigating relationships among stakeholders involved in palm oil governance believed to enable effective collaboration between stakeholders, maintain a balance of forces by preventing the dominance of a particular group and empowering marginalized groups as well as provide recommendations for future activities and stakeholder engagement.
A national-scale stakeholder analysis shows that the Ministry of Agriculture as a key stakeholder in palm oil governance in Indonesia is required to provide part of its authority which indicates that oil palm issues are no longer a sectoral issue that demands participation and collaboration of all related stakeholders.

Keywords: Palm Oil; Sustainability; Stakeholder analysis

Topic: Crop Production and Environments

[ABS-107]

Soil Water Retention and Plant Growth Response on the Soil Affected by Continuous Organic Matter and Plastic Mulch Application

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Abstract

Soil-water and plant growth interaction is a primary key to develop environmental plant production system. The objective of this research is to evaluate change in soil water retention characteristics and plant response as the effect of continuous organic matter and plastic mulch application. The experiment was conduct in the plastic house field with plot size of 5 m (length) x 1 m (width). The field had treatments of types of plastic mulch (mesh or poly) and no mulch, nitrogen fertilizer (0, 10 and 40 kgN/ha), and 2 ton/ha organic matter (incorporated into all plots). Water retention measurement using sand box method for low suction and pressure plate apparatus was applied for high suction. Completely randomized block experimental design and Duncan-MRT was used to analysis the effect of treatment on the parameters. Soil organic carbon and nitrogen increased slightly in both mulch types, but C:N ratio decreased in poly mulch showed the lowest result during two planting season. Various change in soil water retention was shown in different mulch type with mesh mulch had the highest result on the lower pressure, and control was the lowest water retention on the high pressure. Soil water availability was highest in mesh mulch type followed by control and poly mulch type. This study could conclude that continuous incorporation of organic matter and mesh-plastic mulch was useful in achieving environments to improve soil C:N ratio and soil water retention.

Keywords: soil-water, water retention, water availability, organic matter, plastic mulch

Topic: Crop Production and Environments

[ABS-118]

Integrated Use of Pre Plant Seed Bio-invigoration, Organic and Inorganic Fertilizer on Growth and Yield of Local Upland Rice

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Abstract

The study was conducted to evaluate the integrated use of pre plant seed bio invigoration, organic and inorganic fertilizer on growth and yield of local upland rice of Southeast Sulawesi. . This research was carried out at the Laboratory of Agrotechnology of Agronomy Unit, Faculty of Agriculture Halu Oleo University and dry land in Konawe Selatan district of Southeast Sulawesi from July until November 2016. The research was arranged based on split-plot design in a randomized complete blocks arrangement. The main plots were two pre plant seed bio invigoration techniques (B0: without pre plant seed bio invigoration technique as control and B1: pre plant seed bio invigoration technique using ground brick + Bacillus sp. CKD061). The sub-plots were six organic and inorganic fertilizer treatments (G0: without organic and inorganic fertilizer, G1: organic fertilizer; the recommended Gaksi organic fertilizer 5 ton ha-1, G2: inorganic fertilizer; the recommended NPK 250 kg ha-1, G3: 100% inorganic fertilizer; the recommended NPK 250 kg ha-1 + organic fertilizer; the recommended Gaksi organic fertilizer 5 ton ha-1, G4: 50% inorganic fertilizer; the recommended NPK 250 kg ha-1 + organic fertilizer; the recommended Gaksi organic fertilizer 5 ton ha-1, G5: 25% inorganic fertilizer; the recommended NPK 250 kg ha-1 + organic fertilizer; the recommended Gaksi organic fertilizer 5 ton ha-1. Every treatment was replicated 3 times, therefore overall there were 36 experimental units. Data were analyzed using analysis of variance followed by Duncans Multiple Range Test. The results showed that the integrated use of pre plant seed bio invigoration, organic and inorganic fertilizer have a significant effect on growth and yield of local upland rice. The highest production of upland rice (5,18 t.ha-1) were resulted from integrated use of pre plant seed bio invigoration technique using ground brick + Bacillus sp. CKD061 with 100% NPK 250 kg ha-1 + Gaksi organic fertilizer 5 ton ha-1 (B1G3), and integrated use of pre plant seed bio invigoration technique using ground brick + Bacillus sp. CKD061 with 50% NPK 250 kg ha-1 + Gaksi organic fertilizer 5 ton ha-1 (B1G4). Production increase by this treatment reached 70,96% in B1G3 and 69,31% in B1G4 compared with control. Finally: We recommend using 50% NPK 250 kg ha-1 + Gaksi organic fertilizer 5 ton ha-1 for sustainable agriculture.

Keywords: Bacillus sp. CKD061, organic, inorganic, fertilizer, seed bio-invigoration

Topic: Crop Production and Environments

[ABS-120]

Improving the Quality of Strawberry Seedlings (Fragaria Sp.) Using Biotechnology Approach of the Stolon Culture

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Abstract

Strawberry is one of high economic value fruits. Some farmers in Indonesia, especially in the highlands have commercialized strawberry cultivation. Constraints on strawberry seeding can result in successful cultivation of strawberry plants. Good seeds and quality is one of the critical determinants of success in every strawberry cultivation business. One alternative that can be applied and developed to improve the quality of strawberry seedlings (Fragaria sp.) is by using biotechnology approach based on tissue culture. The aim of this research is to apply and develop cultivation technique through biotechnology approach based on tissue culture to improve the quality of strawberry seedlings (Fragaria sp.) with additional natural nutrient extract of bean sprouts and coconut water. This research produces an outgrowth of high quality strawberry seedlings that can grow and produce well so that it can be developed into a seed industry. In addition to the publication of scientific publications in international journals and materials delivered in international seminars / workshops, and potentially contribute to the development and advancement of science and technology processes in the future. Strawberry tissue culture was carried out by stages of sterilization tools, sterilization work environment, making media, eksplan preparation, eksplan sterilization, planting, multiplication, and acclimatization. The results show that the enrichment of natural nutrients through a combination of bean sprouts extract and coconut water was capable of initiating the formation of cell division and elongation that can stimulate the formation of new individual cells in strawberry stolon tissue.

Keywords: Biotechnology, eksplan, tissue culture, natural nutrients, strawberries

Topic: Crop Production and Environments

[ABS-122]

Effectiveness of Azotobacter chroococcum and Fungi Arbuscular Mycorrhiza on Some Physiological Characteristics and Growth of Cocoa Seedlings

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Abstract

Use of quality plant material in cocoa rehabilitation program can help plants to adapt well in less than optimal field conditions. Soil microbiology currently widely used in the ecological repair of rhizozpher is the bacteria Azotobacter chroococcum and Arbuskula Mycorrhizal Fungi. This research aims to study the effectiveness of Azotobacter chroococcum and Arbuscular Mycorrhiza on some physiological characteristics and growth of cocoa seedlings. The study was conducted from late March to October 2015 carried out in the form of factorial experiments based on the Randomized Block Design at Screen House, Faculty of Agriculture Unhas. Inoculation of A chroococcum as the first factor consisted of control, inoculation of 104 CFU ml-1 water and 108 CFU ml-1 water per seedling given as much as 40 ml. Inoculation of mycorrhizal arbuscula fungi as a second factor consisted of control, inoculation of 3.0 g, 6.0 g and 9.0 g per seedling. The experimental results showed that inoculation of A. chroococcum 108 CFU ml-1 water per seedling and Arbuscula Mycorrhizal Fungi 6.0 g per seedling showed higher leaf chlorophyll a, b and total chlorophyll content, sun radiation absorption rate, leaf stomatal condensation, leaf nutrient N and P content and better seedling growth. Double inoculation of A. chroococcum 108 CFU ml-1 water per seedling and Arbuscula Mycorrhizal Fungi 6.0 g per seedling on cocoa seedlings could serve the needs of N and P nutrient of cocoa seedlings up to 6 months after planting and showed better seedling growth.

Keywords: cocoa, A chroococcum, Arbuscula mycorrhiza fungi, seedling growth

Topic: Crop Production and Environments

[ABS-125]
SUSTAINABLE LAND USE OF POTATO IN THE UPSTREAM WATERSHED JENEBERANG.

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Abstract

ABSTRACT
DAS is a system, if errors in upstream management will affect the downstream area. Watershed management to date still focuses on economic benefits rather than prioritizing environmental aspects. This study aims to develop a model of land evaluation and economic evaluation to support the optimization of land use based on Potato. This research uses land evaluation methods with GIS, which aims to determine the suitability level of potato and economic valuation by farming analysis. Analysis approach The results of this study are sustainable use of potato land in accordance with ecological and economic approaches for sustainable agriculture development. The results of this study provide a picture of the number (rupiah) lost due to the prevalence of conservation techniques in controlling erosion in the area of cultivation of potatoes.

Keywords: DAS, Evaluation of Land Suitability, Economic Value

Topic: Crop Production and Environments

[ABS-127]

The Shading Effect on the Generative Character of Upland Red Rice From Southeast Sulawesi, Indonesia

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Abstract

Upland Red`rice (Oryza sativa) contains anthocyanin, a phenolic compounds that can act as antioxidants and functional food for human dietary. The content of functional food on upland red rice is influenced by shading condition, but the production is also influenced by environmental condition, especially the availability of light. The research was conducted to get the optimal shading condition that can increase the anthocyanin content and the rice production relatively high. This study aims to assess and analyze the effect of shade on the growth and production of upland red rice. The research was conducted using the quantitative method. The research reveals that shade has an effect in decreasing plant production (the higher level of shade, the higher the decrease level of production), but the shade can improve the quality of red rice through the increase of anthocyanin level due to the use of shade.

Keywords: upland red rice, shade, anthocyanin, functional food

Topic: Crop Production and Environments

[ABS-129]

SURFACE OPTIONAL ANALYSIS OF DIFFERENT SLOPES UNDER THE PINUS ENTRY

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Abstract

This study aims to determine the amount of surface runoff below the 40% slope class and above 40% in pine stands, to know the effect of pine stands on the amount of surface runoff. This research was conducted for 6 months with 2 stages. The first stage is the installation of plots and immunization for 2 months. Primary data collected in the form of daily rainfall data, runoff data, soil organic matter data, infiltration rate, canopy surface area, tree height, carried out for 4 months. The research was conducted in UNHAS Forest Education. To obtain run-off data, a plot of 4 m x 22 m in slope class> 40% and <40% under pine stands are constructed. Each slope class consists of 3 plots. The bottom of the plot is made 3 channel holes to 25 liters and 50 liter containment buckets. Extraction of runoff water carried out every rain event. The surface runoff volume is calculated by summing the volume that is accommodated in the container bucket. The collected runoff data will be analyzed using descriptive analysis and variance analysis to determine the average runoff per slope class. The results of this study

Keywords: slope, pine, runoff

Topic: Crop Production and Environments

[ABS-135]

Cocoa-Based Agroforestry: An Economic Perspective in Resource Scarcity Era

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Abstract

Agriculture development towards food self-sufficiency based on increasing production alone has caused the occurrence of environmental disasters that are the impact of the exploitation of natural resources resulting in the scarcity of resources. Agroforestry as a techniques of land management that apply a combination of forest trees with agricultural crops is an innovation model of land use that is more efficient in resource use that aims to optimize production and revenue per unit area refers to the principle of sustainable results. This study aims to assess the optimization of land area, revenue, cost (production inputs), income and use of production input based on economic and ecological aspects of monoculture nantu (2.5 ha), palapi (0.5 ha), cocoa (1.0 ha), agroforestry nantu with cocoa (1.5 ha) and palapi with cocoa (1.5 ha). Optimization of agroforestry land area can optimize revenue, cost, income and use of production input and gives the highest optimum value on agroforestry nantu with cocoa. Sustainable farming by integrating environmental and economic consideration can be made through farmers' decision making with the goal of optimizing revenue based on cost optimization. During this time, farmers make decisions to increase their income through increased production and revenue of farming. This type of decision-making causes environmental damage and land carrying capacity.

Keywords: Agroforestry, Economic perspective, Resource scarcity.

Topic: Crop Production and Environments

[ABS-138]

Response of Sorghum [Sorghum bicolor (L.) Moench] Genotypes to Phosphorus Fertilizer in Different Aluminum Saturation Levels in Acid Soil.

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Abstract

Sorghum is one of high value commodity for food and energy security. The major problem of uplands in Indonesia is predominance of acid soil with Al toxicity. The objective of this research was to obtain information about differential response of sorghum genotype tolerant and sensitive aluminum to phosphorus fertilizer in different aluminum saturation levels in acid soil. This research consisted of two stages, i.e: (1) evaluation of differential response of sorghum genotype tolerant and sensitive aluminum to phosphorus fertilizer in different aluminum saturation levels in acid soil, (2) evaluation of growth and development response of sorghum root to phosphorus fertilizer in different aluminum saturation levels in rhizotrone. Evaluation of differential response of sorghum genotype tolerant and sensitive aluminum to phosphorus fertilizer on different aluminum saturation levels in acid soil was conducted in split plot design in Tenjo, Jasinga. Rhizotrone research was conducted in split plot design in greenhouse at University Farm, IPB, Bogor. Aluminum saturation level as a main plot was 2 levels: high level of aluminum saturation (74.78%) and low level of aluminum saturation (25.51%). Four genotytpes were evaluated in this research as sub-plot: Numbu (tolerant), Kawali (tolerant), B-69 (sensitive), and B-75 (sensitive). Phosphorus fertilizer was given into 4 doses as main-plot : P-25%, P-50%, P-75%, and P-100%. The results from stage one showed that there were different response of each genotype to phosphorus fertilizer in different aluminum saturation levels in acid soil. Numbu has highest value for each variable on this research. On high level of aluminum saturation, P fertilizer didn't effect to almost variable on this research except sugar level of stem in B-69. On low level of aluminum saturation, P fertilizer effect penicle weight, grain per penicle weight, total weight, and stem weight in B-69. On rhizotrone research, P fertilizer effect root dry weight and root wet weight in B-69 on low level aluminum saturation.

Keywords: sorghum, acid soil, aluminum saturation level, P fertilizer

Topic: Crop Production and Environments

[ABS-140]

EFFECTIVENESS OF BIO-SLURRY ON THE GROWTH AND PRODUCTION PLANT SOYBEAN (Glycine max (L.) Merrill)

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Abstract

This research was aimed to determine the effectiveness of bio-slurry fertilizer on the growth and production of soybean plants was conducted at the village of Pucak, District Tompobulu, Maros, South Sulawesi, lasts from July to October 2016. The research used randomized block design (RBD) with 8 treatments, that are: without bioslurry = 0 ml.liter of water -1, 3 ml.liter of water -1, 5ml.liter of water -1, 7 ml.liter of water -1, 9 ml.liter of water -1, 11 ml.liter of water -1, 13 ml.liter of water -1, and 15 ml.literof water-1,with 4 blocks as replications. The variables measured in this research were plant height, number of pods, 100-seed weight, and seed yield per hectare. The results of research shows that awarding bio-slurry effectively improve growth and yield of soybean (pod number, 100-seed weight and seed yield per hectare). Optimal concentration of bio-liquid slurry to obtain maximum results are: concentration of 9.27 ml.liter of water -1for the highest number of pods (68.49 pods); concentration of 8.75 ml.liter of water -1forheaviest weight of 100 grains (14.22 grams); and the concentration 8,12ml.liter of water -1 for the production of seed per hectare highest (23.20 quintal).

Keywords: bio-slurry, optimal concentration, soybeans

Topic: Crop Production and Environments

[ABS-141]

PERFORMANCE OF VARIOUS RICE SEEDS VARIETIES IN BONE REGENCY

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Abstract

As agriculture commodity in general, rice yield is highly dependent on input quality apart from environmental variables. Among the important agricultural inputs in the rice cultivation system are the seeds. Based on previous studies, farmers generally use rice seeds obtained from the government, local seed breeders or using seeds from previous season. This research was conducted in Bone Regency to investigate the variation of seed types and sources planted by rice farmers, as well as the production, productivity and production value of rice varieties in question. The method used in this research was a purposive survey of rice farmers in several rice production centers in Bone regency of South Sulawesi. In addition to seeds utilization, other aspects related to rice cultivation were also evaluated. The results of the study indicated that the use of quality seeds in Bone Regency has not been fully utilized. Among the various varieties found in the field, the Cigeulis, Ciliwung and Mekongga varieties are the most widely used varieties. The results of the farmers production showed a strong influence from other cultivation factors apart from the quality of the seed itself.

Keywords: Rice seeds, Quality seeds, Rice variety, Rice farm

Keywords: Rice seeds, Quality seeds, Rice variety, Rice farm

Topic: Crop Production and Environments

[ABS-142]

Effect of Planting Environment and Seed Tuber Physiological Age on The Pre-Emergent Growth of Potato (Solanum tuberosum L.)

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Abstract

Pre-emergent growth of potato seed tubers having different physiological age were studied over a range of different temperature and moisture conditions. Three temperatures (10, 15 and 20 ºC) and three water potentials [wet (-0.02 MPa), dry (-0.6 MPa) and fluctuated between wet and dry] were applied to two lots of cv Russet Burbank and Atlantic seed tubers that had been treated with storage temperature of 15 °C before planting to established aging. The water potential treatments were prepared based on the relationship of water content and water potential by Whalley et al. (2001). All possible combinations of seed tuber physiological age, cultivar and moisture treatments were randomized in each temperature level with 25 replications of each. Significant interactions ($p<0.05$) were found between cultivar, temperature, soil moisture in affecting the duration of the lag phase. A decrease in water potential at 10 °C from -0.02 MPa to -0.6 MPa extended the lag phase for cv Atlantic from 20 days to 23 days. Increasing the water potential from -0.6 to -0.02 MPa shortened the lag phase of younger tuber of cv Atlantic but lengthened the lag phase duration for older tuber. A weak interactions were found between cultivar, temperature and moisture ($p<0.05$) and the rate of linear elongation. In the case of Russet Burbank, linear elongation rate decreased with increasing water potential at 20 ºC only. In contrast, for Atlantic, elongation rate increased from 2 mm/day to 4.5 mm/day with increase in water potential from -0.6 MPa to -0.02 MPa at 20 ºC.

Keywords: Temperature; soil water potential; potato; pre-emergent growth

Topic: Crop Production and Environments

[ABS-146]
Improving Land Productivity by Using Vertical and Horizontal Space

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Abstract

Increasing land productivity might be achieved by managing land resources efficiently and effectively. The efficient and effective land resources management might be realized on vertical and horizontal space utilization over a plot of land, with integrated land use approaches (timing, crop-specific characteristics, and spacing) on cropping management. It is expected to be an alternative solution to the scarcity of potential land for agricultural production as well as limiting factors of crop production. The objective of this study is to assess the utilization of vertical space and horizontal space on community land as a manifestation of efficiency and effectiveness of land resources to the sustainable management of agricultural land in the framework of Food Security. This research was conducted in Nokilalaki sub-district where is directly bordered with the conservation area of Lore Lindu National Park. The observation and interview methods were conducted to assess the main crops and inserted plants, including cropping pattern of each crop. There are 36 case informants interviewed. The results showed that the land use consists of three forms, i.e. mixed cropping, agrosilviculture and agrosilvofishery, with a combination of some perennials crops, combination of perennial crops (food, grains, vegetables) - seasonal crops, and combination of some seasonal crops. Crop combination are selected based on optimizing the growing space. The minimum vertical and horizontal space utilization in the two canopy stratum of the constituent components of plant species might increase the land productivity by 56% - 58%. Efficiency and effectiveness of land resource utilization would be better when considering the suitability of growing environment of each combined plant species.

Keywords: Land productivity, Vertical space, Horizontal space

Topic: Crop Production and Environments

[ABS-151]

Evapotranspiration and Water Balance in a Hot Pepper (Capsicum frutescens L.) Field during a Dry Season in the Tropics

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Abstract

Evapotranspiration and water balance in a hot pepper (Capsicum frutescens L.) field during a dry season were analysed in this study. Hot pepper was cultivated during the 2nd dry season. Actual evapotranspiration (ET) was estimated by Bowen Ratio Energy Balance (BREB) method, potential evaporation (EP) was calculated by Penman method, and irrigation volume of water was measured manually. Meteorological instruments were installed in the experimental field during hot pepper cultivation. Leaf area index increased during the growing stages where the highest LAI of 1.65 in the generative stage. The daily ET was 1.94 mm and EP was 6.71 mm, resulting in low of crop coefficient (Kc) where the average Kc was 0.25 during the vegetative stage, 0.28 during the generative stage, and 0.33 during the harvesting stage. Those Kc values were significantly different between stage to stage under T-test analysis (a=0.05). Moreover, Kc in every stage could be related by soil water content (SWC) through logarithmic function with R2= 0.86, 0.81, and 0.85, respectively. Totally, ET during hot pepper cultivation was 179.19 mm, while rainfall was 180.0 mm and irrigation water was 27.42 mm. However, there was a water shortages during vegetative and generative stages. This study suggested that consumptive water of hot pepper was complimented by soil and groundwater under the condition of water shortages in the vegetative and generative stages during the 2nd dry season.

Keywords: water balance, hot pepper, evapotranspiration, crop coefficient, groundwater, soil water content

Topic: Crop Production and Environments

[ABS-157]

The abundance and identification of indigenous endomycorrhiza for land rehabilitation of nickel post-mining in Sorowako

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Abstract

Acceleration management of land rehabilitation in nickel post-mining in Sorowako has been main attention of PT. Vale Indonesia. This acceleration can be done by utilizing of natural resources, especially indigenous endomikoriza. Endomikoriza also called mycorrhizal arbuscula (MA) has got a lot of attention for its ability to form a mutualistic symbiosis with 80% - 96% of plant species. This study aims to determine the dominance of indigenous endommycorrhiza spores and its potential to accelerate the management of land rehabilitation post-mining of nickel, which is carried out in three phases; sampling rhizosphere, trapping spores, isolation and identification of spores MA types. The results showed that the dominance of indigenous endomycorrhiza were Acalauspora sp (75, 06%), Gigaspora sp (19,38%) and Glomus sp (5,56%). Research on the effectiveness of indigenous endomycorrhiza using Acalauspora sp in land rehabilitation of nickel post-mining is still ongoing.

Keywords: Acaulospora, Gigaspora, Glomus

Topic: Crop Production and Environments

[ABS-158]

Growth and Resistance of Chrysanthemum Flower (Chrysanthemum indicum L.) At Various Concentrations of Coconut Water and Vitamin B1

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Abstract

This research was conducted in plastic house, Pattapang Village, High District of Moncong, Gowa Regency, South Sulawesi Province, lasted from April to August 2015. This research aims to know the influence of various concentration of coconut water and vitamin B1 to growth and endurance of chrysanthemum flowers . The research was conducted in the form of Randomized Block Design (RAK) of two factor factorial pattern. The first factor was coconut water consisting of control, 200 mL L-1, 400 mL L-1 second factor ie Vitamin B1 consisting of control, 35 ppm equivalent to 35 mg L-1, 70 ppm equivalent to 70 mg L-1, 105 ppm is equivalent to 105 mg L-1. The results showed that the coconut water concentration of 400 mL L-1 gave the best growth of root and flower resistance, vitamin B1 70 mg L-1 concentration gave the best growth and endurance and interaction between coconut water concentration and vitamin B1 gave growth and endurance best interest.

Keywords: Keyword: water coconut, vitamine B, chrysanthemum

Topic: Crop Production and Environments

[ABS-159]

GROWTH AND PRODUCTIONSOME SOYBEANS (Glycine max (L.) Merrill) ON VARIOUS OF LIQUID ORGANIC FERTILIZER FERTILIZER.

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Abstract

The purpose of this research is to study the potential of soybean strain productionWith the provision of liquid organic fertilizer (POC). This research is in the form of DesignSeparate Plot (RPT). The main plot, consisting of POC Banana, POC Pineapple, POCSuperbiota Plus and POC Hormax. The subplot consists of the strain H Psj no. 8,Line I Psj no. 9, strain of J Psj no. 10, and Pandermans varieties as controls.The results showed that POC was not significantly affectedGrowth and production of soybean crops. The strain is significantly different in heightFlowering stadia and harvest stadia, flowering speed, mature speedPhysiological, weight of 100 dry beans, production /ha, number of branches and number of nodulesroot. There is no interaction between the fertilizer type treatment with the strainsTested. The Panderman variety has higher production than the strains Tested.

Keywords: Soybean, liquid organic fertilizer, and strain.

Topic: Crop Production and Environments

[ABS-160]

Harvest Index and Yield components of Aerobic Rice (Oryaza sativa) under Effect of Water, Varieties and Seed priming in the Tropical Region

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Abstract

This research was conducted to investigate Harvest index and Yield components of Aerobic Rice (Oryaza sativa) under Effect of Water, Varieties and Seed priming in the Tropical Region. The experiment was laid out in split-split plot design with three replications. The treatments were priming seed with poly ethylene glycol (PEG) 200 g L-1 treated (P1) untreated (P0) laid in sub-sub-plot design, Three aerobic rice cultivars which were Inpago 8 New potential one as (V1), IR64 Susceptible aerobic rice cultivars as (V2) and Situbagendit normal aerobic rice cultivars as (V3) laid in sub-plot design, and three Irrigation intervals system which were irrigated every 5 days (W1), irrigated every 10 days (W2) and irrigated every 15 days (W3) laid in main plot design. Some yield components and Harvest index parameters were calculated. The result of the effect of water interval (W), varieties (V) and seed priming (P) and their interaction on Harvest index and some yield components of aerobic rice recorded significant and insignificant difference, in spite of there was no significant difference the date of W1 (irrigated every 5 days) and P1 (primed seed with (PEG) 200 g L-1) revealed the highest data compared with W2 (irrigated every 10 days), W3 (irrigated every 15 days) and untreated (P0). High harvest index revealed by W1V1P0 was 0.827 and the smallest by W1V3P1 and W3V1P0 was 0.50. Grain yield recorded between 4.49 - 1.60 ton ha-1 and straw about 15.36 - 5.33 ton ha-1 depend upon aerobic rice cultivars and availability of water. More research about aerobic rice technology need to facing water problem in the future.

Keywords: Harvest index, Aerobic Rice, Yield components

Topic: Crop Production and Environments

[ABS-162]

Cocoa Farmers Social Engineering through Integrated Cocoa-Goat Farming System

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Abstract

As one of the world major cocoa producer, Indonesian cocoa farmers have adopted the farming system on cocoa as main income generator for their family. The farming practices so far using traditional farming system with monoculture farm on cocoa. Even some required farming system special to cocoa plant ha been abandoned such as removing the shaded trees as one of the main support for optimum production of cocoa beans. Also, the farmers in the study region (Polman - West Sulawesi) are not familiar with the concepts of integrated cocoa- animal production system. This research is aimed to develop an integrated cocoa – animal production system, so that the nutrient and feeding system are integrated cycling system in the production system. We used social engineering system to develop farmer's skills to practice an integrated production system. On the early stage, the cocoa-goat system has been introduced. The results shows the farmers have access to the multiple income generation from cocoa bean, goat sell and other additional income.

Keywords: integrated farming, social engineering, cocoa farming

Topic: Crop Production and Environments

[ABS-164]

Tolerance of Various Indonesian Rice Varieties on Drought and Salinity in Germination Phase

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Abstract

This research aims to study tolerance limit of rice to drought and salinity in germination phase using NaCl and PEG as selection agents and to obtain a resistance benchmark of the rice varieties on drought and or salinity. Two sets of experiments were conducted, both set using Split Plot design, to analyse the plant tolerance to salinity stress and to drought, respectively. Four levels of salinity were used as Main Plot i.e. Control, DHL 4 mmhos/cm, DHL 6 mmhos/cm, and 8 mmhos/cm in the first experiment and four levels of drought condition were used in the second experiment i.e. control, -0.33 MPa, -0.67 MPa, and -1.0 MPa. 20 identically Indonesian rice varieties were used as Sub Plots in both experiments and germinated using wet papers previously applied with NaCl and PEG. High genetic diversity was shown by the rice varieties tested on salinity and drought with the highest heritability index (H>0.7) on the PEG concentration of 100 g.L-1 (0.67 MPa) and NaCl concentration concentration of 6 g.L-1. The tolerance limit of the rice varieties to salinity was on the NaCl concentration of 6 g.L-1, while to drought was on the PEG concentration of 100 g.L-1 (0.67 MPa). Parameters that can be used as benchmarks for tolerance to drought and salinity in the germination phase were vigor index, radicle length and plumula length.

Keywords: rice, drought, salinity, NaCl, Polyetilen glycol

Topic: Crop Production and Environments

[ABS-165]

ADVANCED YIELD POTENTIAL TEST ON SYNTHETIC GENOTYPE OF MAIZE TOLERANT TO DROUGHT AND LOW NITROGEN

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Abstract

Increased productivity of maize with intensification can be achieved through the release of tolerant varieties to drought and or low nitrogen conditions while supporting extensification to marginal land. This is a research urgency that impacts the efficiency of water and nitrogen use towards national food self-sufficiency. This is because drought and nitrogen deficiency is a global climate problem causing crop failure in food crops, especially maize. Previous research results (KKP3N, 2013-2015) obtained three candidates of maize new superior varieties (NSV) of drought and low nitrogen tolerant (Syn2-4, Syn2-8, and Syn2-16); and six varieties tolerant to drought or low Nitrogen (Syn2-1, Syn2-2, and Syn2-4, Syn2-8, Syn2-15, and Syn2-16). The potential yield of the NSV candidate was 8 t.ha-1 under optimum conditions and 6.5 t.ha-1 in drought or low N conditions. To examine the potential yield of the 6 synthetic maize genotypes, advanced test was conducted using three maize varieties (Lamuru, Sukmaraga and Bisma) for comparison. A randomized block design with three replications was used. The results show that the genotypes of synthetic maize which gave the highest and better yield potential of the three varieties of Lamuru, Sukmaraga and Bisma comparators were Syn2-4 (8.13 t.ha-1), Syn215 (8.21 t.ha- 1), and Syn2-16 (9.23 t.ha-1). While the other three genotypes only give higher yields of the varieties of Bisma and Lamuru with potential yield of Syn2-1, Syn2-2 and Syn2- 8 were 6.74, 7.06 and 7.78 t.ha-1, respectively. Increased production was more dominant due to the difference in the number of cob harvest and weight of 1000 seeds.

Keywords: advanced yield potential test, synthetic maize, drought, stress, nitrogen

Topic: Crop Production and Environments

[ABS-170]

Sustainable Production of Sago Palm and Its Utilization in Barren Lands with Sterile Soil for Strengthening Food Security

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Abstract

Sago palm (Metroxylon sagu Rottb.) and related species in the genus Metroxylon, which can store a large amount of starch in the trunk and grow under severe environmental conditions, are considered potential carbohydrate resources for not only food but also various industries. Sago palm can be propagated from both seeds and offshoots (suckers), therefore if appropriate sucker control (thinning of excess suckers) can be done, sago palm will be able to be harvested from the same clump at regular intervals. However, even sago palm, the most promising species among starch-producing palms, grows under semi-domesticated or natural conditions, creating many problems in its use. Ecological, physiological, agronomic, and economic studies should be carried out to improve this and other similar species. In this paper, recent the research progress on the growth and physiological response against abiotic stresses is reviewed. Sago palm resisted up to 171mM (1.0%) NaCl concentration in the growth media for a comparatively long period. The salt resistance of sago palm might be due to salt avoidance that mechanically restricts an excess of Na distribution from the roots to leaflets. The Na influx might be disturbed by the endodermal cells of the roots, even with 342mM (2.0%) NaCl concentration. Although the dry matter production was depressed, sago palm could survive under higher salt conditions. Sago palm resisted severely low pH conditions, such as pH 3.6 in the growth media, for at least five months and maintained a low Al3+ concentration in the plant tissues. Sago palm was considered to have a high resistance to Al with Al-exclusion ability. This physiological information on the growth of sago palm and its response to abiotic stresses will be valuable for investigating concrete strategies and/or tactics to introduce new plants as regional resource to barren lands with sterile soil and improve the economy in places with low productivity.

Keywords: Al-exclusion; Metroxylon sagu; Regional resource; Salt avoidance; Starch

Topic: Crop Production and Environments

[ABS-181]

Effect of Water Regime and Soil Management on Methane (CH4) Emission of Rice Field

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Abstract

Keywords: Water Management, No-tillage, Methane, Emission, Irrigated Lowland Rice
Topic: Crop Production and Environments

[ABS-186]

Initial Assessment on the Use of Cocoa Pulp in Complete Feed Formulation: In vitro dry matter and organic matter digestibility

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Abstract

Cocoa pulp is a byproduct from cocoa industry which is produced in large quantity and very potential in polluting the environment. Even though many attempts have been done to utilize this product, very limited study has been carried out in utilizing it as animal feeds. The purpose of this study was to assess the in vitro dry matter (IVDMD) and in vitro organic matter digestibility (IVOMD) of complete feed containing different levels of cocoa pulp and molasses. The feed was formulated using corn cobs as the main source of fibre of the complete feed. The percentage of IVDMD and IVOMD of the diet was determined using the method of pepsin-cellulase in vitro digestibility technique. The experiment was carried out according to completely randomised block design consisting of four treatments, i.e. P0 = Complete feed containing 0% cocoa pulp P1 = Complete feed containing 5% cocoa pulp, P2 = Complete feed containing 10% cocoa pulp, and P3 = Complete feed containing 15% cocoa pulp on dry matter basis. The results of the study indicated that the average IVDMD was 567, 538, 566, and 526 g/kg DM, while the average IVOMD was 522, 491, 502, and 461 g/kg DM, respectively for treatment P0, P1, P2, and P3. Based on the IVDMD and IVOMD it is concluded that cocoa pulp is potential to be used as an alternative feed ingredient in the formulation of complete feed with corn cobs as the fibre source of the feed.

Keywords: Cocoa pulp, in vitro dry matter digestibility, in vitro organic matter digestibility, complete feed, corn cobs

Topic: Crop Production and Environments

[ABS-188]

Effectivity of Azotobacter chroococcum and Arbuscular Mycorrhiza Fungi on Physiological Characteristics and Growth of Cocoa Seedlings

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Abstract

This study aims to study the effectiveness of Azotobacter chroococcum bacteria and Arbuscula mycorrhiza on some physiological characteristics and growth of cocoa seedlings. The study was conducted from late March to October 2015 in the form of a factorial experiment based on the Randomized Block Design in a screen house. Inoculation of A chroococcum as the first factor consisted of control, inoculation of 104 CFU ml-1 water and 106 CFU ml-1 water per tree given as much as 40 ml. Inoculation of mycorrhizal Arbuscules as a second factor consisted of control, inoculation of 3.0 g, 6.0 g and 9.0 g per tree, respectively. The experimental results show that inoculation of Azotobacter chroococcum 106 CFUml-1 water.tree-1 and the ArbusculaR Mycorrhizal Fungi 6.0 g.tree-1 showed higher chlorophyll a, b and total leaf chlorophyll, content, increased sun absorption rate, leaf stomatal conductance and better seedling growth

Keywords: Azotobacter, mycorrhiza, cocoa seedlings

Topic: Crop Production and Environments

[ABS-193]

Effectiveness of Phosphate Solvent Ekstract and Liquid Organic Fertilizer on Corn Plant Growth and Production QPM

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Abstract

This research aims to Analyze the influence of combination of phosphate solvent extract and liquid organic fertilizer in improving growth and increasing corn production of Quality Protein Maize (QPM). The study was conducted from November 2016 to March 2017, in the village of Antang, subdistrict of Manggala, Makassar city, south Sulawesi. This research prepared by a randomized block design with Package treatment : O1 (EPF 100 mL/L + BE 2 mL/L), O2 (EPF 150 mL/L + EPF 3 mL/L), O3 (EPF 200 mL/L + BE 4 mL/L), O4 (EPF 150 mL/L + 4 mL/L), dan O5 (EPF 200 mL/L + BE 3 mL/L). The results showed that combination treatment of phosphate solvent extract and liquid organic fertilizer that can improve the growth and increase the production of corn QPM, is the treatment of O5 (EPF 200 mL/L + BE 3 mL/L) on all parameters.

Keywords: Keywords : Phosphate solvent extract, liquid organic fertilizer, corn quality protein maize.

Topic: Crop Production and Environments

[ABS-195]
SEBARAN POLA DAN INTENSITAS CURAH HUJAN DI INDONESIA

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Abstract

Iklim Indonesia dipengaruhi oleh berbagai aliran massa udara regional dan lokal sedemikian rupa mengakibatkan adanya beberapa pola curah hujan di Indonesia. Tulisan ini mempelajari berbagai pola curah hujan di Indonesia dan sifat-sifatnya. Pendekatan dilakukan dengan analisis pola urutan curah hujan Trojer (1978) serta kriteria kelas curah hujan tahunan dari Badan Standarisasi Nasional (2015) dan Balitklimat (2012). Hasil analisis menggambarkan bahwa paling tidak terdapat empat pola curah hujan di Indonesia, yaitu (1) pola monomodel yang disebut pola monsunal, sangat dipengaruhi sirkulasi angin monsum asia-australia, (2) pola bimodal yang disebut pola ekuatorial, banyak menyebar sekitar garis katulistiwa Indonesia, (3) pola monomodel yang disebut pola lokal atau antimonsunal, yaitu memiliki periode basah atau periode kering yang berlawanan dengan pola monsunal, serta (4) pola multimodel yang memiliki curah hujan hampir merata sepanjang tahun. Sebaran curah hujan tahunan di Indonesia dapat terbagi menjadi (C) Tinggi dengan curah hujan >2500 mm/tahun, (B) Sedang dengan curah hujan 1500-2500 mm/tahun, serta (A) Rendah dengan curah hujan <1500 mm/tahun. Kombinasi antara kedua menghasilkan kriteria (1A) pola monsunal dengan curah hujan tahunan rendah, menyebar di Pantura Jawa dan Nusa Tenggara, (1B) pola monsunal dengan curah hujan sedang menyebar di bagian selatan Sumatera, sebagian besar Jawa dan wilayah barat Sulsel, (1C) pola monsunal dengan curah hujan tahunan tinggi menyebar di wilayah dataran tinggi di Jawa dan Bali, (2C) pola ekuatorial dengan curah hujan tinggi menyebar di sekitar ekuator Sumatera, Kalimantan, Sulawesi, Maluku dan Papua, (3B) pola lokal dengan curah hujan sedang menyebar di pantai timur Sulsel, (4A) pola multimodel dengan curah hujan sedang terdapat di Palu Sulteng, serta (4C) pola multimodel dengan curah hujan tinggi terdapat di Maluku dan Papua Barat. Keriteria ini sangat membantu dalam penentuan pemilihan komoditas pertanian dan penentuan pola dan waktu tanam khususnya tanaman semusim.

Keywords: pola curah hujan, hujan tahunan

Topic: Crop Production and Environments

[ABS-196]

Towards Sustainable Agricultural Production: Shallot Growth and Production to Various Concentration of Nitrobacter as Bio-Organic Fertilizer

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Abstract

Organic vegetables production is not only important for health but also eliminates the risk of chemical residues from the environment. In terms to take part on sustainable agriculture production, this research was conducted in January to March 2017. Located in Palajau Village, Arungkeke District Jeneponto Regency, South Sulawesi, with altitude 120 m above sea level. This study aims to determine the growth and production of several varieties of shallot and the interaction of shallot varieties with Nitrobacter biological fertilizer. The study was conducted in the form of a two-factor factorial experiment using Randomized Block Design as its environmental design. The first factor was varieties with 3 types, namely Bima variety, Bangkok variety, Tajuk variety, and the second factor was the concentration of biological Nitrobacter fertilizer with 3 levels, namely control-without fertilizer, 30 ml of fertilizer/3000 ml of water, 60 ml of fertilizer/3000 ml of water. The results showed that the shallot varietal treatment of Tajuk gave a good response to the growth and shallot production on the observed parameters, and the Nitrobacter bio-fertilizer treatment, the 60 ml of fertilizer/3000 ml of water gave good results on the number of tuber parameters per hill, tuber weight wet per plot, weight of dried bulbs per plot and production of tons / ha-1 bulbs. Bangkok shallot variety combined with Nitrobacter bio-fertilizer concentration 60 of fertilizer/3000 ml per plot showed the highest yield of tuber that is 9,13 ton ha-1 compared with varieties of Bima and Tajuk.

Keywords: growth, production, shallot varieties, bio-organic ferilizer

Topic: Crop Production and Environments

[ABS-77]

STAKEHOLDER ANALYSIS IN THE MANAGEMENT OF IRRIGATION KAMPILI AREA

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Abstract

Irrigation has appreciable contribution in building food security, particularly rice crops. This study aims to analyze the role of stake holders involved in distributing of irrigation water. The study conducted in the Kampili Irrigation Area in South Sulawesi Province Indonesia, the data were obtained through observation and interviews with stakeholders involved, and analyzed by stakeholder analysis, based on the interests and power held by the actors. This analysis is intended to provide an optimal picture of the expected role of each stakeholder in the management of irrigation resources. The results shown that there were many stakeholders involved in irrigation management. In the arrangement of irrigation distribution there was overlapping of authority of stakeholders to its management, every stakeholder had different interests and power between each other. The existence have given positive and negative value in distributing irrigation water management, then in the stakeholder collaboration there was contestation between them. This contestation took place between the agriculture department, PSDA province, the Jeneberang River Region Hall, the Farmers Group and the P3A.

Keywords: Irrigation, stakeholder, interest, power, and food security

Topic: Food Security Institutions

[ABS-83]

INSIGHTS AND CHALLENGES OF INTEGRATING FOOD SECURITY AND FOOD SOVEREIGNTY IN INDONESIA

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Abstract

Food discourse has been increasingly developed since it first started, especially after the food crisis. Solution after solution comes out from the discourse. Different actors implies to different concept of solution to food problems. Two considerable concepts that often discussed are food security and food sovereignty. However, the two concepts emerged and supported by different actors. Therefore, it often seen as the opposite concept that placed another concept as the wrong or irrational concept to be implemented. This paper will not deepening the distance between the two concepts, instead it will examine the possibility of integrating the two concepts. Rather than competing the two concepts, this research suggest to take the other perspective to see each concept apart from the external intrusion such as political involvement and then contrive a model that complementing one concept with another. By using the food paradigm theory to understand each concept position in a policy based evidence, this research has selected particular country to be assessed which in Indonesia where recently the government has claimed to stressing food sovereignty in order to achieve food security. Overall, this paper argues that integrating food security and food sovereignty would not be possible if the policy framework has not shifted from a productionist paradigm.

Keywords: Food Security, Food Sovereignty, Integrating Food Security and Food Sovereignty, Indonesia

Topic: Food Security Institutions

[ABS-84]

Analyzes (Personal, Psychology, Culture, and Strategy of Marketing Mix) forward the consumer behavior on people Robusta coffee processed by using Structural Equation Model-Warp PLS 3,0.

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Abstract

Robusta coffee people has an area as large 50,362 Ha or 49,06 % from the total area 102,660 Ha in East Java. The attitude and the consumer behavior on the people product of robusta coffee processed, need to be known or reqognized to the consumer in order to be able to understand whether as personal consumer which extended the knowledge about the ways how to ifluence the attitude of consumpting this beverage. The purpose of the observation is to analyze any factors (personal, Psychology, culture, and strategy of marketing mix) that influence the consumer behavior in buying people processed of robusta coffee in East Java. The data using in this observation is a primary and secondary data. The primary data is a got through a deep interview by helping of quisioners prepared, while secondary data is got of the books, goverment institution, BPS and the credible source invloved in the observation. The observation is descriptive quantitative based on the survey by using quisioners. The amound of respondents gathered from three regencies, Jember, Lumajang, and Malang totaly 180, by using the methode of convienience sampling. The following data will be cultivated suitable with the need, the analyze in this observation using Structural Equation Model or SEM with the program of Warp PLS 3,0. The result of the observation shows the variable of personal, culture, psychology and strategy of marketing mix that having a real influence to the consumer behavior in buying and consumpting robusta coffee processed by the people.

Keywords: Robusta; Consumer behavior; SEM

Topic: Food Security Institutions

[ABS-93]

THE INSTITUTIONAL SUSTAINABILITY of ORGANIC FERTILIZER PROCESSING

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Abstract

The business of cattle livestock in Indonesia has utilized its livestock waste as raw material for composting fertilizer through independent livestock group and organic fertilizer processing unit of government aid. This study aims to map the sustainability and analyze the institutional performance of fecal processing of beef cattle into organic fertilizer. This research uses case study method with comparison technique. This research uses case study method with comparison technique, with independent group case unit and government-assisted group processing of organic fertilizer in Bulukumba Regency, South Sulawesi Province, Indonesia. The results showed that the strategy of procurement of raw materials for the processing of organic fertilizers in the form of livestock feces tend to be the same between independent groups and government-sponsored groups. The use of labor in the government-sponsored groups tend to alternate in accordance with the needs of its workforce and the sale of production is only awaiting request from the government of Bulukumba District only while in the self-employed group use the permanent labor and more actively seeks markets to various regions around Bulukumba district so that the production volume And the sale is bigger. This makes the independent group more capable of producing organic fertilizer in a sustainable manner so it can be concluded that the institutional processing of livestock feces into organic fertilizers independently institutional more sustainable compared with institutional built by the government.

Keywords: Institutional, organic fertilizer, Feces, Sustainability, waste treatment

Topic: Food Security Institutions

[ABS-94]

THE CHALLENGES OF SUSTAINABLE FOOD SECURITY FOR LIVESTOCK PRODUCTS IN INDONESIA

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Abstract

The study aimed to identified the challenges of sustainable food security for livestock products in Indonesia. Through a comprehensive literature and document review, this study found several challenges: 1) There is imbalance between supply and demand in terms of the food security for livestock products. It is estimated the population in Indonesia in 2020 will reach approximately 264 million people. It means that consumption of livestock product will also increase. However, the supply of livestock product tend to decline in particular meat production. 2) Lately, rural community tend to leave the livestock sector to industrial sector, 3) funding accessibility to formal institution is limited, 4) livestock activity doesn't obtain support from government especially at local level. Recommendations are provided.

Keywords: Challenges, Sustainability, Food security, Livestock products

Topic: Food Security Institutions

[ABS-99]

THE EMERGING ROLES OF AGRICULTURAL INSURANCE AND FARMERS COOPERATIVES ON SUSTAINABLE RICE PRODUCTIONS IN INDONESIA

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Abstract

Rice is the main staple food of most Asian countries including Indonesia. Most of the rice producers are constituted by small farmers individual which were has mostly landless, a less farming capitals and less access to pool resources and of course are confronted with various risk. Agriculture is faced with a lot of uncertainly most of which are not within the control of farmers. Global climatic change, climatic disasters, fluctuation of global economic and competitiveness of multi national company make difficulties of farmers to pursue his sustainable farming activity. The challenge and the role of government is to reduce uncertainty and to improve resiliency of the small farmer. Agriculture insurance shall focus on risk factors that are difficult to manage or cannot be managed by small farmers and it is should be viewed as just one aspect of the "holistic" risk management strategy. Technology, market, consumer behaviour, development will always moved forward and no individual farmers can adapt this change alone, so small farmers need to corporate with each others that can optimized the resources they have. Cooperative could create possibilities, value added, shortening the supplied chain and made a product, more effective and efficient and finally can compete in domestic and global markets. Therefore agriculture insurance as well a farmer cooperative may play an important role on sustainability of rice production in Indonesia. Nowadays and in the future agriculture sustainability is a not merely of technology problems but also a matter of economic-social-culture and politic issues within local, national, and international context.

Keywords: agricultural insurance, farmer cooperatives, sustainable agriculture, rice production

Topic: Food Security Institutions

[ABS-100]

FOOD EXPENDITURE SHARE ANALYSIS OF HOUSEHOLD : Case Study of Food Reserved Garden Area Program in Bone Bolango Regency of Gorontalo Province

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Abstract

The share of food expenditure is one of food security indicator in communities. It also can be used as an indicator of the success of rural development. The aim of this research was tofind the share of food expenditure of farm households before and after the program of Food Reserved Garden Area (KRPL/ FRGA) in Suwawa and Tilongkabila districtat Bone Bolango Regency of Gorontalo Province. Analysis method use share of food expenditure method. The method measure the ratio of food expenditure and total expenditure of household for a month. Statistical test use a non-parametric method, especially The Wilcoxon Test (two paired samples test). The results found that KRPL program in Ulanta Village of Suwawa districtdid not significantly affect to the share of food expenditure of farm household. While in the South Tunggulo village of Tilongkabila district, FRGA program significantly affects to the share of food expenditure.

Keywords: share of food expenditure, food reserved garden area (FRGA), food security

Topic: Food Security Institutions

[ABS-104]

Ecological Wisdom in Slash Burning Farming of Remote Indigenous Community in North Mamuju Regency

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Abstract

The slash and burning system is a farming system that most widely practiced in many places in the world. The System is generally sedentary from one place to others. Slash and burning community have developed ways to cultivate the fields so that it becomes an integral part of their cultural system. This paper aims to explain the socio-cultural of remote indigenous communities in practicing slash and burning farming in North Mamuju regency. This study was designed with a qualitative approach using ethnographic tradition. Data collected through interviews of informants selected snowbally and FGD (Focus Group Discussion). The informants include residents of the indigenous communities, indigenous elders, village heads and local government officials. The results of this study indicate that shifting is done by indigenous communities in North Mamuju regency for generations. Such systems are conducted in groups under the leadership of one of the traditional leaders called Totua Panggare / Bangunasa. Rice for people in the region understood as a manifestation of the ancestral spirits that must be respected or treated well like to treat humans. All the activities of farming filled with rituals as a manifestation of their culture.

Keywords: Socio-culture; Slash and Burning Farming; Indigenous People

Topic: Food Security Institutions

[ABS-134]
Bureaucratic power politics explaining polycentric and fragmented interests of watershed management in Indonesia

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Abstract

Keywords: watershed management; bureaucratic politics; bureaucratic power politics; actor centred power; Indonesia

Topic: Food Security Institutions

[ABS-136]
The Role of Farmers Group Institutional in Increasing Farm Production and Household Food Security

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Abstract

Keywords: Farmers Institutional, Farm Production, Food Security

Topic: Food Security Institutions

[ABS-161]

ADDITION OF BAY LEAF EXTRACT ON CASSAVA PEEL STARCH EDIBLE FILM AND ITS APPLICATION ON AVOCADO

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Abstract

Fresh-cut fruit continue to be developed to meet consumer demand, one of which comes from avocado. Edible film application is one of alternatives to maintain shelf life of avocado flesh. Cassava peel starch is potential to be used as raw material for edible film making. Addition of bay leaf extract containing antioxidants, can increase functional value of edible film. The purpose of this study is to know the shrinkage of weight, acid number, color change and texture of avocado flesh coated with edible film from cassava starch with addition of bay leaf extract. The study consisted of making cassava peel starch, bay leaf extraction, edible film making, edible film application on fresh avocado, and analysis of fresh-cut avocado characteristics during storage at cold and room temperature. The results showed that addition of bay leaf extract on cassava peel starch edibel film applied to avocado flesh, effect on characteristics of avocado flesh. Avocado flesh applied edible film and stored at cold temperatures has a weight loss value of 1.8408 grams, acid number 0.2531 mg NaOH / g and is able to maintain texture changes. Avocado applied edible film and stored at room temperature are likely to maintain their brightness.

Keywords: avocado; bay leaf; cassava peel; edible film

Topic: Food Security Institutions

[ABS-171]

APPLICATION OF IN OVO INJECTION OF L-GLUTAMINE FOR IMPROVING PRODUCTIVITY OF INDONESIAN NATIVE CHICKEN: Hatchability and Hatching Time

Djoni Prawira Rahardja, Abdul Rahman Hakim, Veronica Sri Lestari

Abstract

Keywords: : Indonesian Native Chicken, L-Glutamine, in ovo administration, Hatchability, Hatching time

Topic: Food Security Institutions

[ABS-173]
FOOD EXPENDITURE SHARE ANALYSIS OF HOUSEHOLD

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Abstract

ABSTRACT
The share of food expenditure is one of food security indicator in communities. It also can be used as an indicator of the success of rural development. The aim of this research was tofind the share of food expenditure of farm households before and after the program of Food Reserved Garden Area (KRPL/ FRGA) in Suwawa and Tilongkabila districtat Bone Bolango Regency of Gorontalo Province. Analysis method use share of food expenditure method. The method measure the ratio of food expenditure and total expenditure of household for a month. Statistical test use a non-parametric method, especially The Wilcoxon Test (two paired samples test). The results found that KRPL program in Ulanta Village of Suwawa districtdid not significantly affect to the share of food expenditure of farm household. While in the South Tunggulo village of Tilongkabila district, FRGA program significantly affects to the share of food expenditure.

Keywords: share of food expenditure, food reserved garden area (FRGA), food security

Topic: Food Security Institutions

[ABS-185]

Mapping of Land Tenure Institution Rotating Patterns in the Highlands (case study at Tombolopao sub-district, Gowa district)

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Abstract

Tenure of farmers in each community has institutional. In general, land tenure institutions regulate the utilization permanently, but there are also institutions that regulate land tenure in rotation. This study aims to map the pattern of land tenure institution in rotation. The study used case study method, with case unit of a District in Gowa District, South Sulawesi Province, Indonesia. The result of the research shows that the institution of land cultivation in rotation is not single pattern but consists of various patterns. There are four patterns of land tenure in rotation found in Tombolopao sub-district, namely inheritance system, cultivation ownership system, management rights purchasing system and cooperation system purchasing of land . Each institutional land tenure rotates, has its own pattern characteristics. Keywords: land tenure, institutional, land tenure in rotation,

Keywords: Keywords: land tenure, institutional, land tenure in rotation,

Topic: Food Security Institutions

[ABS-79]

BIOPHYSICAL AND ECONOMIC POTENTIAL ANALYSIS OF VERTISOLS FOR MAIZE PRODUCTION IN THE HUMID TROPICS OF INDONESIA

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Abstract

Currently, the Indonesian government is trying to increase national food production such as maize to achieve food self-sufficiency, but faced with the problem of land availability. One of the main effort is through the expansion of cultivated areas on soil which classified as Vertisols that have properties swelling and shrinking alternately which is covering of 2:12 million hectares in Indonesia. The main objective of this study was to establish the potential of Vertisols both biophysical and economic are found in the humid tropics relatively dry in the southern part of Sulawesi to the development of maize. This study uses a spatial approach for establishing research sites totaling 3 units observations soil profile and involves 30 farmers as respondents. Analysis of potential land uses parametric approach, and economic analysis using the benefit-cost (B-C) ratio. The results showed that the growing period of the study sites were in November to June, or 240 days and classified as climate type E3. The location potentially moderately suitable or S2s for maize with soil texture limiting factors in the growing season from November to June. In the growing season from July to October, the location are not suitable or Nc with limiting factors such as rainfall is very limited in the period of ripening crops. Land suitability Index of study site during the growing season from November to June ranged from 52 to 72 with an average productivity of maize were obtained by farmers ranges from 4.3 to 5.7 tons of dry seed per hectare. Analysis of B-C ratio showed the cultivation of maize in the period grew at locations such studies are feasible with the value of B-C ratio ranges from 1.8 to 2.5.

Keywords: land suitability, biophysics, Vertisols, maize

Topic: Geospatial Agriculture

[ABS-111]

Re-Assessing Land Suitability for Foodcrop Development at a Regional Scale: A Study Case of Buton Regency

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Abstract

Agriculture has long become a prime sector for regional development in Buton Regency, although local government has to date put considerable emphasis on perennial crops. Foodcrops have been developed in a limited land, concentrated mainly on transmigration areas, as parts of central government programs. Today, the central government has again launched a national strategic program on food self-sufficiency, and has given a lot of task to local government to optimize available land for cultivating foodcrops. Three commodities have been prepared for maximizing subsidy on seed, fertilizer, and mechanization. While land use planning should always be guided by a reliable tool to ensure effective decision making in the allocation of land use and activities, the primary aim of this study is to develop rapid assessment on a spatial basis using GIS for agricultural land suitability evaluation of two agriculture commodities, i.e., rice (irrigated paddy field, rainfed rice) and corn (Zea maize, L). The study undertaken uses the following procedures: (i) conducting reconnaissance soil survey based on generated land mapping units on a regional scale; (ii) constructing soil database in a GIS; and (iii) classifying land suitability using the FAO method. Spatial data were generated from satellite imagery, digital topographic map, soil survey at reconnaissance scale, soil characteristics, as well as climate data. The study is in progress to develop soil data base in a GIS and to classify land suitability, as well as detecting land availability for foodcrop development. A preliminary results have been found which indicate that quite large area available for foodcrop cultivation both in the context of land suitability (mostly in S2 and S3 classes) and land availability. As all data bases were managed in a GIS, then it amenable to various operations to accommodate possible additional assessment including socio-economic and policy assessment.

Keywords: Buton Regency, foodcrop, GIS, land suitability assessment, land availability, soil survey.

Topic: Geospatial Agriculture

[ABS-114]
The Use of Unmanned Aerial Vehicle (UAV) for Mapping Rice Condition

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Abstract

Rice plays an important role in food security. The intensive cultivation of rice with different treatment resulted in varies crop growth and potential yield. Early detection of the rice growth condition can help to manage the crop to gain its maximum potential yield. South Sulawesi province is one of the main producer of Indonesian rice produce around 5 million tons a year with an average productivity of 3 to 3.5 t/ha. Productivity of paddy fields are still relatively low largely due to the potential loss of production due to pests and diseases that occur at each planting season. In this research the use of the emerging technology of image acquisition using an unmanned aerial vehicle (UAV) and image analysis using Artificial Neural Network been applied to map and quantifying the rice field productivity (and potential loss) by analyzing the severity of the disease infestation. The result shows that the method can be applied to map the disease infestation severity from light infestation to severe as well as to map potential yield of the infested crops.

Keywords: unmanned aerial vehicle (UAV), mapping, image analysis

Topic: Geospatial Agriculture

[ABS-131]

Spatial Pattern of Rice Field Productivity based on Physical Characteristics of Landscape in Citarum Watershed, West Java

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Research division – Geospatial Information Agency (BIG)

Abstract

Citarum watershed is one of the largest and strategic watershed in West Java Province. The rice field area in the Citarum watershed is 13% of the rice field area in the whole province, which is the widest among other watersheds. It indicates the rice field in Citarum watershed has a lot of potential and contribution to agricultural production in West Java Province. However, the productivity value in the Citarum watershed varies between regions by physical typology character of the region. This research has revealed the pattern of rice field productivity that is identified from the characteristics of the land component based on physiographic condition through landscape perspective. Identification of producitvity pattern has been done partially based on each typology of land components into several segment of the basin area. Spatial analysis function through Geographic Information System is used as the method in this research. The result showed that the average of rice field productivity in the upstream area (6,39 ton/Ha) is lower than the average of rice field productivity in the middlestream area (6,52 ton/Ha), and also lower than downstream area (7,17 tons/Ha). The highest productivity is in the downstream area (9,83 ton/Ha) and the lowest is in the upstream area (4,55 ton/Ha). The dominant type of the soil in this whole area is Inceptisols and Andisols. The highest productivity (9,83 ton/ha) is in the rice field with the Inceptisols soil type, whereas the lowest productivity (4,55 ton/Ha) is found in the Andisols soil type. The average productivity of the rice field with Inceptisols soil type is higher than the Andisols soil type. The physiographic typology that has been identified shows that the rice field in the middlestream has more variation than the upstream or the downstream area. Based on the variation of rice field productivity, the highest of average rice field productivity is on alluvial plain. In particullar morphological type, the whole area has more variation of the productivity. The rice field productivity of the hills is higher than the mountains, while the structural formation is higher than the volcanic. The spatial pattern shows the distribution of rice field productivity tends to clustered on the similarity of physiographic type, and proved by Spatial Autocorrelation that shows p-value <0.01 and z-score >2,58 (239,26). Thus it can be concluded that the patern of rice field productivity has a very close relationship with the physical characteristics which associated of each typology of land components.

Keywords: Rice productivity; Spatial patern; Variation; Land component; Landform; Watershed

Topic: Geospatial Agriculture

[ABS-133]

CONTRIBUTION OF URBAN FARMS TO URBAN ECOLOGY OF A DEVELOPING CITY

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Abstract

Urban development in many contexts has resulted in the degradation of environmental quality despite the development of economy. Urban ecology has become a more popular concern as the awareness for mutual sharing between humans and other ecosystem members is increasing, stressing the fact that humans are not the only inhabitant of even an urban ecosystem. Among many field typologies, urban farms are the most fragile one for conversion for the sake of economic urban development. One parameter of ecology is the state of biodiversity. This study aimed at assessing the value of urban farms in the city of Makassar, a fast-developing Indonesian city which according to its city council classification covered significant area of the city. The research combined desk and field activities. The first stage was space classification based on definition and typology according to the Ministry of Home Affairs. All spaces classified as urban farms or agriculture field was then mapped and purposively selected for site visit based on their variation observed through aerial photographs. Fieldwork was performed to assess their vascular biodiversity with Rapid Biodiversity Assessment method, the vegetation structures, status of ownership and species preferences. Results showed the biodiversity of urban farms based on sampling on 11 locations in the city was classified high. Combining with the assessment of vegetation domin value and state of ownership, Urban farms in Makassar in general have medium potential for ecological spots. This status due to the fact that most urban farms are privately owned and hence might be difficult to impose management arrangement and preservation policies despite the high biodiversity score.

Keywords: Urban farm, urban ecology, urban biodiversity, ecological network

Topic: Geospatial Agriculture

[ABS-192]

LAND USE CONFLICTS WITH A PARTICULAR REFERENCE TO SPATIAL PLANNING REGULATIONS AND LAND SUITABILITY ASSESSMENT

Sumbangan Baja, Risma Neswati, Samsu Arif

Hasanuddin University

Abstract

The main purpose of this study is to assess land use change and conflicts in South Sulawesi region, and to examine spatial matching between present land uses and their changes and spatial planning regulations for Mamminasata region, one of the strategic regions in Indonesia. This study employs integrated techniques of ground surveys, remote sensing, and geographic information systems (GIS) technology. Spatial information used in this research includes SPOT XS images (resolution 20 meters), ALOS Prism (panchromatic) images (resolution 2.5 meters), and a set of vector data bases developed by local government. Time series land use/land cover layers were originated from the above images (year 2009 and 2012), where visual interpretation and image analysis were performed to classify land use/land cover for the two dates. The results show that some areas that should be protected according to the Mamminasata land use scheme, in fact, were converted to, or already been practiced for long as, the management functions, like dryland agriculture, paddyfield, and residential. At the same time, land use/land cover change analysis also indicates that residential area has increased substantially within the last three years, followed by a substantially decrease in agriculture land. Such land use change information set may give insights into the future anticipation of land use development on the region on a spatial basis, and thus useful for devising the future land resource management control.

Keywords: Mamminasata, land use change, GIS, remote sensing, spatial planning regulations

Topic: Geospatial Agriculture

[ABS-62]

EFFECT INOCULANT OF Lactobacillus plantarum AND Saccharomyces cerevisiae MIXED CULTURE ON THEOBROMINE COCOA POD SILAGE

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Abstract

The objective of this study was to identify the effect of L. plantarum and S. cerevisiae innoculated into cocoa pod silage on theobromine concentration. This experiment consist of four treatments of 1 kg freshly harvested cocoa pods without inoculant as control (K); innoculated with L. plantarum (KLp); innoculated with S. cerevisiae (KSc); and innoculated with L. plantarum and S. cerevisiae mixture (KLp+Sc) were added with cassava meal as additive. Each treatment was replicated in 3 replications, and then was fermented for 21 days. Variables observed were the Theobromine concentration. Collected data of Theobromine concentration by one-way analysis of variance and followed by Duncan's new multiple range test (DMRT) if there were any significant difference. Result showed the inoculum have affected ($P<0.05$). Content theobromine of cocoa pod freshly is 161.28 ppm. Cocoa pod silage was inoculated L.plantarum and S. cerevisiae mixed culture have lower (3.88 ppm vs 7.80 ppm respectively) than cocoa pod silage uninoculated. Based on result that can be concluded that incoulant L. plantarum and S. cerevisiae can reduce theobromine concentration on cocoa pod silage and safety to be cattle feed.

Keywords: Cocoa pod; Silage; Theobromine; Lactobacillus plantarum; Saccharomyces cerevisiae.

Topic: GMO Food, Food Safety and Product Development

[ABS-70]

Screening Assays of Termite Gut Microbes that Potentially as Probiotic for Human to Digest Cellulose as New Food Source

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Abstract

According to UN, earth population will increase approximately 7.3 billion people up to 11.2 billion from 2015 until 2100. On the other side, food needs are not balance with the availability of food on earth. People of the world need solution for a new food source. By cellulose digesting ability, people analyzed can consume the grasses and sawdust as the new food source to get glucose. The aims of research is obtaining termite gut cellulase bacteria selected which is potential as probiotic to split cellulose as new food source. Researcher use methodology as follows; isolation of termite gut microbes, microbial cellulase purification by screening method and probiotic test includes microbial phatogenicity test and human stomach acid and sodium chloride resistance test. The result shows, 3 pure isolates of termite gut microbes can break down cellulose in the medium 1% CMC (as cellulose) and 0.1% congo red (as an indicator of cellulose degradation activity to glucose) and life at pH 2-2.5 and sodium chloride condition. Two of them show the activity of gamma hemolysis (non-pathogenic). In conclusion, there are isolated termite gut microbes can be used as probiotic candidate for human to digest cellulose of the new food source for global food scarcity era.

Keywords: Cellulose; Global Food Scarcity; New Food Source; Probiotic;Termite Gut Microbes

Topic: GMO Food, Food Safety and Product Development

[ABS-80]

Enzymatic Production of Maltodextrins Derived from Sago Flour using Heat-Stable Alpha-Amylase and Pullulanase

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Abstract

Maltodextrins were produced by starch modification in a partial hydrolysis thus altered physical sago properties. Sago as one of starch resources has characteristic with high amylopectin that influences high viscosity during cooking. Partial hydrolysis or liquefaction will influences starch hydrolysis and the size of maltodextrin produced. The aim of this study was to analyze the degree of sago starch hydrolysis during the enzymatic process using single α-amylase and combination with pullulanase. The starting solids content was 20% (w/v), with adjusted pH to 6.5, and calcium (Ca2+ ions) addition as high as 50 ppm. The majority of starches used in the study contain 0.2 % (w/v), to combination of 0.2 % (w/w) and 0, 3 gram per kg of sago. The sago suspension temperatures were started from 105 °C lowered to 60 °C for 30 min, respectively. Optimum liquefied starch yields, which accounted for virtually all of the starch present, were obtained at temperatures of 80°C and above, for 120 minutes, with each sampling every 20 minutes. Observed parameters were levels of reducing sugars, degree of hydrolysis, and refined sago starch. The result showed that there was a significant increase in reducing sugars, degree of hydrolysis during 120 min until liquefaction process for both enzymatic treatments. The amount of reducing sugars was 95,76 g/L at 120 min for the single α-amylase and 98,84 g/L combination with pullulanase. The degree of hydrolysis was 37,93 % at 120 min for the single α-amylase and 37,32 % combination with pullulanase, whereas 0.035 % and 0,038 % for refined sago starch value respectively.

Keywords: Maltodextrins;Sago; Amylase and Pullulanase

Topic: GMO Food, Food Safety and Product Development

[ABS-88]

Expression of CYP2A6, KIF12, and SULT1C1 in Liver of Sheep with Divergent Sheepmeat Flavour and Odour

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Abstract

The aims of this study was to investigate the expression of some of the key enzymes involved in liver sample of sheeps with high and low sheepmeat odour and flavour. The study was conducted with Indonesian Javanese fat tailed sheeps. Sheep having a fat branched chain fatty acids 4-methylnonanoic (MNA) greater and less than 215 μg/g and 229 will be defined as low and sheepmeat odour, respectively. For the flavour, sheep having a fat skatole level less than 0.25 μg/g and greater than 0.25 μg/g will be defined as low and high flavour samples, respectively. The enzymes investigated were cytochrome P450 2A13 (CYP2A6), kinesin-like protein KIF12 (KIF12), and sulfotransferase 1C1 (SULT1C1). Expression of CYP2A6 in liver had differ between animals with high and low sheepmeat flavour. Expression of CYP2A6, which catalyzes the first stage of oxidation degradation, was increased in high- sheepmeat odour and flavour ($P < 0.01$). Similiar pattern, the expression of SULT1C1, which catalyze the second stage of conjugation steroid catabolism, was increase in high sheepmeat odour and flavour ($P < 0.01$). In contrast, the expression of KIF12 was decreased in high sheepmeat odour and flavour animals. It is suggested that accumulation sheepmeat odour and flavour in adipose tissue of Indonesian javanese fat tailed might be related to a high rate of oxydation in metabolic stage I and conjugation degradation in metabolic stage II.

Keywords: CYP2A6, KIF12, SULT1C1, Gene expression, fat tailed

Topic: GMO Food, Food Safety and Product Development

[ABS-89]

Variant Discovery in Sheepmeat Odour and Flavour in Javanese Fat Tailed Sheep using RNA Sequencing

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Abstract

High-throughput sequencing RNA (RNA-Seq)reveals new challenges for the detection of transcriptome variants (SNPs) in different tissues and species. The aims of this study was to characterize a SNP discovery analysis in the sheepmeat odour and flavour transcriptome using RNA-Seq. Six muscle samples from divergent sheepmeat odour and flavour were analyzed using the Illumina Genome Hiseq 2500 Analyzer.The SNP detection analysis revealed 142 SNPs in sheepmeat samples, and a large number of those corresponded to differences between high and low sheepmeat odour ovis genome assembly OAR v4.0.Among them, about 90.8% of genes had multiple polymorphismswithin 13 genes (JAML, ANGPTL8, LOC101103463, SEPW1, SCN5, LOC101113036, DOCK6, GTSE1, LOC101119620, KIF12, KCTD17, KANK2, CYP2A6). Several of the SNPs (JAML, CYP2A6, SEPW1, and KIF12) found in this study could be included as suitable markers in genotyping platforms to perform association analyses in commercial populations and apply genomic selection protocols in the sheepmeat production.

Keywords: Sheepmeat, Odour and flavour, RNA-Seq, Transcriptome Variants

Topic: GMO Food, Food Safety and Product Development

[ABS-92]

Extraction and Characterization of Polyphenol Oxidase from Langsat (Lansium domesticum)

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Abstract

Indonesia is known as one of the fruit-producing countries in the world. Based on statistical data of horticulture production, fruit production in Indonesia in 2013 is 18.288.279 tons. Langsat is in 13th place based on the order of fruit production contribution in Indonesia, which is 233.118 tons. Langsat is quiet perspective in the development of local food sources and has the potential to be developed as food product. Langsat is a seasonal fruit that rapidly damages, the skin will turn to brown after four days harvested. The browning that occurs on the skin of the fruit after harvesting is known as enzymatic browning. The most important type of enzyme in the process of browning horticultural products is polyphenol oxidase (PPO). Another important enzyme is peroxidase (POD). The PPO and POD play important roles in deterioration of color, flavor, and nutritional quality of the product. The purpose of this study was extracted the PPO of langsat using 80% ammonium sulfate and characterized the PPO and POD activities of the extracted enzyme. The results of the research are the characteristic of enzyme PPO and POD such as optimum pH and temperature, pH and temperature stability, and effect of various compounds.

Keywords: Langsat, polyphenol oxidase, peroxidase, characterization

Topic: GMO Food, Food Safety and Product Development

[ABS-110]

A Web-Based Traceability System for Tuna Fish Supply Chains In Indonesia

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Abstract

Indonesia is one of the largest producers of tuna, which is one of the leading exported marine products. A supply chain of tuna fish comprises a complex network involving many actors and processes that may introduce some risks of tuna contamination along the supply chain. Therefore, a supply chain traceability system of tuna fish is highly demanded to guarantee that the movement of tuna from fishing vessels up to retailers is monitorable, controllable and well secured. Some of the critical issues of tuna supply chain are content of histamine and bacterial pathogens, such as Salmonella, E.coli and Vibrio cholera in tuna products and the compliance of the distribution process with ISO 28000. This paper discusses the development and implementation issues of a web-based supply chain traceability for tuna fish in Indonesia. The proposed system is equipped with the ability of recording and documenting all pertinent information related to products, processes, and actors involved along the supply chain to support quick and accurate surveillance tasks.

Keywords: Food Surveillance ,Traceability System, Tuna Supply Chain

Topic: GMO Food, Food Safety and Product Development

[ABS-113]

Use of Color Indicator as Smart Packaging System for Evaluating Mangoes Arummanis (Mangifera indica L. Var Arummanis) Freshness

Andi Dirpan (a), Adiansyah Syarifuddin (a), Andi Nurfaidah Rahman (a), Rindam Latief (a), Reski Praja Putra (b) Serli Hatul Hidayat (a)*

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Abstract

The high demand and public sensitivity of packaging products need the emergence of various packaging for fresh fruit and vegetables. One of the packaging that can be applied is smart packaging. This study aimed to study and to make smart packaging indicator that can be applied to the mango. The benefits of this research were to facilitate the consumer in order to know the quality of the fruit and to facilitate in choosing the fruit according to freshness or desired maturity without damaging the packaging. The research was carried out in the following stages: Preparation of solution as bacterial growth medium Acetobacter xylinum, which then incubated for 14 days. After that, making color indicator and application to smart packaging. The results showed that long immersion of bacterial cellulose with bromophenol blue solution, which was 24 hours and temperature of 30 oc.The indicator color that has been applied to the packaging changed the color from blue to green for over-ripe indication, which can be visible to the naked eye. The color change of the indicators reflects the pH of headspace of the mango packaging. It was also in similar trends to the change of several parameters (total acid, and total soluble solids (TSS) that was normally used to characterize the freshness of mango. Moreover, the color organoleptic test was preferred at the storage of ten days. While taste, aroma, and texture tests are preferable to the storage treatment of six days. In general, this indicator can be used as smart packaging.

Keywords: Indicator; Smart packaging; Mango Arummanis fruit

Topic: GMO Food, Food Safety and Product Development

[ABS-123]

Effect of Various Treatments on the Properties of Emergency Food Products Originated from Denaturized Whey Protein Concentrate and Sweet Potato Flour

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Abstract

Denaturized whey proteins can be added into food products to increase protein content without changing the texture considerably. One food product that requires high protein content is emergency foods. In this work we report the process of production of ready-to-eat emergency foods originated from mixtures of denaturized whey protein concentrate and sweet potato flour. A controlled thermal process was conducted to extend the storage period and less affected the physical properties. At present we prepared the emergency foods containing 20-40% (dry weight basis) protein, placed in three packaging materials e.g glass jar, nylon bag, and metallized bag and treated with different thermal processes from 5 log cycles to 12 log cycles. The treatment from three variables which produced the smallest physical change will be further explored to investigate the storage period. The main result of this work is identification of a standard process to make emergency foods containing high protein content with having less physical change.

Keywords: Emergency foods, Less physical change, Thermal process

Topic: GMO Food, Food Safety and Product Development

[ABS-169]
Premix design for preparation of Indonesian otak-otak

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Abstract

Keywords: indonesian food, mackerel surimi, otak-otak, premix

Topic: GMO Food, Food Safety and Product Development

[ABS-174]

Potential hazards from Hygiene and sanitation on health safety of refill drinking water at barrang lompo island (Water and Food Safety Perspectif)

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Abstract

Drinking water is the main source of consumption for the family so it needs to be kept in quality to avoid Coliform bacteria. Coliform bacteria are suspected to come from feces, therefore their presence in various places ranging from drinking water, foodstuffs or other ingredients to human needs, is not expected. This research aims to describe bacterial contamination, depot sanitation, sanitation equipment, worker hygiene, raw water quality and refill drinking water at Barrang Lompo drinking water depth in Sangkarang sub-district Makassar Makassar 2017. This research type is observasional with descriptive approach. The sampling technique uses Grab sample by taking it directly from the drinking water depot tap. Water samples were examined using Most Probable Number (MPN) method. Data analysis in this research was done descriptively. The results show that 3 out of 6 depots have qualified drinking water quality. Raw water samples from all depots indicated that none were eligible. The samples examined contained gram-negative bacteria. The types of bacteria that grow on the sample are Klebsiella pneumonia and Pseudomonas aerogenosa. In the environmental sanitation depot and worker hygiene there is no eligible. Sanitary appliances are all eligible and there are depots that use reserve osmosis methods and use combined methods of reserve osmosis and ultraviolet light. The conclusion of this research is that almost all samples of drinking water are contaminated by bacteria. Owners and depot workers are advised to improve and implement better hygiene and sanitation.

Keywords: Hygiene, Sanitation, Coliform

Topic: GMO Food, Food Safety and Product Development

[ABS-176]

The Status Of Cppb Implementation Of Corn Chips Production In Ukm Mawar Merah, Luwu Utara

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Abstract

Appropriate method of food production (Cara Produksi Pangan yang Baik or CPPB) requires several requirements that must be fulfilled by all industries involved in the whole production chain from raw materials to the fonal product. This study aims to identify the application of CPPB in the production of corn chips, and assess the status of CPPB implementation which was conducted through observations, interwiews, and documentation of all activities related to the production process. The assessment used a reference adapted from the Decree of Indonesian Minister of Industry Affairs (Permenperin) number 75/M-Ind/Per/7/2010 and the regulation of Head of National Drug and Food Control Agency (KBPOM) number HK.03.1.23.04.12.22007 in 2012. The result showed several inappropriate conditios including : (1) absence of continuing maintanace of the wall and ceiling of the production room: (2) unstandardized ventilation in the production room; (3) absence of net weight and production labels on the packages; and (4) the absence of health label informing health claims and nutrition claims. The status of CPPB implementation in UKM Mawar Merah is at D (poor) level with a rate of IV.

Keywords: corn chops, CPPB, UKM

Topic: GMO Food, Food Safety and Product Development

[ABS-177]

OPTIMIZATION PROCESSES ON STARCH MODIFICATION OF PURPLE YAM TUBERS AS A FUNCTIONAL FOOD FROM LOCAL FOOD

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Abstract

Maltodekstrin merupakan salah satu turunan pati yang dihasilkan dari proses hidrolisis parsial dengan menggunakan enzim. Salah satu sumber pati yang bisa digunakan adalah umbi uwi. Permasalahannnya pati uwi mengandung amilopektin yang tinggi. Penelitian ini bertujuan pengaruh suhu liquifikasi terhadap kerja enzim pullulanase dan alfa amilase pada pembuatan maltodekstrin dari pati uwi. Perlakuan pada penelitian ini adalah variasi suhu liquifikasi pada pemberian pullulanase (45 oC, 60 oC, dan 75 oC) dan pemberian alfa amilase (60 oC, 75 oC, dan 90 oC). Parameter pengamatan adalah analisa kadar air, Dextrosa Equivalent (DE), dan gula pereduksi. Hasil penelitian menunjukkan perlakuan suhu likuifikasi 60 oC pada pemberian enzim pullulanase dengan kombinasi suhu liquifikasi 75 oC pada pemberian enzim alfa amilase memberikan hasil terbaik dari maltodekstrin yang dihasilkan memiliki kadar air 8,56%, dekstrosa ekivalen sebesar 42,98 %, dan maltosa sebesar 6621.17 μg/l.

Keywords: purple yam, maltodextrin, pullulanase, alfa amylase, liquification

Topic: GMO Food, Food Safety and Product Development

[ABS-197]
Modification of Dry Grain Processing for Rice Nutrition Produced

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Abstract

Rice is a staple food for Indonesia people that provides high energy and nutrients of up to 360 calories per 100 g. rice is a source of protein with a protein content that is reasonably of 6.8 g per 100 g. Based on the research, it was known that the protein content in rice will increased by soaking. That is the protein content increases 5.60% to 7.48%. This is suspected because the nutrient content in the aleuron layer adsorbed to the endosperm. The purpose of this research was to know the effect of dry grain immersion on the nutrition of rice produced. The method of this research was conducted through some stages: 1. Preparation of raw materials, 2. Grain immersion, 3. Grain drying, 4. Peeling chaff, 5. Testing the nutritional value of rice. The research was processed by using Factorial Randomized Complete Random Design (RAL) with three replications. The result showed, soaking the grain for 12 hours showed the highest nutritional value increases compared to the control, and based organoleptic test of flavors, aroma, texture and color, it was resulted that the best immersion treatment was 12 hour. Proximat test resulted from the best treatment were: ash content of 0.42%, protein content of 8.30% and thiamin content of 0,023%.

Keywords: Rice, Grain, Nutrition

Topic: GMO Food, Food Safety and Product Development

[ABS-67]

Morphology of Entomophthorales Fungi Infecting Capsicum Aphid (Hemiptera: Aphididae) as New Agent for Biological Control Aphid in Indonesia

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Abstract

Chili pepper, Capsicum spp. is one of the top horticultural commodities in Indonesia. Chili aphid has been considered as a serious pest problem in Chili productivity. Entomophthoralean fungi are found as natural enemies of chili aphid in Indonesia. From the results of the identification, Entomophthorales fungus infects Chili Aphid (Hemiptera: Aphididae) in several developmental stage. Entomophthoralean developmental stages found in aphid are hyphal bodies, primary conidia, conidia secondary, and saprophytic fungi. In the field, the hyphal bodies were commonly found in aphids. This result also showed that the entomophthoralean fungus infecting aphids on chili pepper was Neozygites, family Neozygitaceae.

Keywords: Entomophthorales, Chili Aphid, Neozygites

Topic: Integrated Pest Management

[ABS-108]

Time Domain Features in Combination with Support Vector Machine Classifier for Constructing the Termite Detection System

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Abstract

Over last decade, it is broadly reported that wooden buildings has been massively degraded due to the termite attacks. The termite detection system based on the acoustic signal have been proposed to overcome the termite attacks. In this study, we investigate the implementation of support vector machine (SVM) at the termite detection system. In this work, the pine wood as the medium for termite infestation was divided into two groups, i.e., the wood infested by termites Coptotermes curvignathus (infested wood) and the normal wood (uninfested wood). The acoustic signal from each group was analyzed to produce the acoustic features, i.e., energy (E) and entropy (H). Then the acoustic features were included to construct the SVM Classifier. According to the numerical results, the SVM classifier achieved an accuracy of 93.21 ± 2.58%.

Keywords: SVM classifier; time domain features; termite detection system

Topic: Integrated Pest Management

[ABS-147]

Detection of fungi from rice black bug Paraeucosmetus pallicornis Dallas (Hemiptera:Lygaeidae) and inhibition with crude extract Calatropisgigantea(Asclepiadaceae)

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Abstract

Rice black bug (P.palicornis) is one of the pests that attack the rice plants in the generative phase that causes the rice easily destroyed when milled and after cooking will taste bitter so as to reduce the quality and quantity of rice. The bitter taste in rice may be due to the fungus associated with rice black ladybugs. The aimed of this research to detection of associated fungi with rice black bugs P.pallicornis with some sterilization methods and inhibition with of leaf crude extract C.gigatea. Detection of fungi from P.palliicornis with three method sterilization and without sterilization: (1) . sterilization with Aquades + alcohol 70% (5,10,15 and 20 times dipping) + aquades, (2). Aquades + alcohol 70 % (10 and 20 times dipping), (3).Aquades + alcohol 90 %+ NaCl 0.5 % +alcohol 90 % + aquades .Inhibition of fungi from P. pallicornis with crude extract C.gigantea obtained by maceration method and then made some concentration to see the effect of its inhibition on the fungi associated with the P. pallicornis. The results showed that without sterilization obtained four microbe: Gliocladium sp., Aspergillus sp., black hyphae fungus and white hyphae fungus, sterilization Aquades + alcohol 70% with 5 times dipping in alcohol obtained Gliocladium sp., 10 and 20 times dipping which found Aspergillus sp. and Gliocladiumsp and 15 times dipping which found Aspergillus sp. Sterilization with 10 and 20 times dipping in alcohol 70% then washing 2 times with aquades found Gliogladium sp. and Aspergillussp . Sterilization withAquades + alcohol 90 %+ NaCl 0.5 % + alcohol 90 % + aquades found Gliogladium. The concentration of C. gigantea crude extract has the potential to inhibit Aspergillus sp.and Gliocladium sp.

Keywords: Aspergillus sp., Gliocladium sp., Calotropis gigantea

Topic: Integrated Pest Management

[ABS-155]
Infestation Development of Helopeltis spp in Various Cocoa Clones

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Abstract

Helopeltis spp is one of the most important cocoa pest in Southeast Asia. These pests contribute to the low yields of cocoa production about 50-60%. The Estimation of cocoa losses is complicated because the pest is the part of disease complex. This research aims to understand the development of Helopeltis spp infestation in five types of cocoa clone. Data were collected every week for six weeks on five types of clone cocoa which are clone GTB, clone M01, clone 45, clone S2 and clone BB. Every clone were chosen 15 pod sample with three different size of pod following 5-10cm, 11-13cm and ripe pod, 5 pods were chosen for each size. The research result shows that the development of Helopeltis spp infestation is highest at clone M01; 3.83% on pods size 5-10cm, 35.83% on pods size 11-13cm and in ripe pods 35.50%, with average infestation development was 34.06 % . The lowest of Helopeltis sp development was clone 45 with average infestation development 26.83% . The average infestation development on pod size 5-10cm was 25.83%, on pods size 11-13cm was 27.50% and ripe pods was 27.17%. Intensity of damage on clone 45 is lower than other clones on every size pods.

Keywords : Helopeltis spp, Cocoa Clone

Keywords: Helopeltis spp, Cocoa Clone

Topic: Integrated Pest Management

[ABS-166]

Evidence of Trichoderma asperellum ability to spread systemically and modulate co-occuring dominant fungal endophytes in cacao seedling

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Abstract

Cacao supports a complex endophytic fungal community that could possibly prevent access of introduced endophytes such as Trichoderma. In this study, we exposed leaves, cambiums, and roots of two, four, and five months old seedlings to Trichoderma asperellum by foliar spraying, stem infusion, and soil drenching respectively, and then observed its competitiveness with endophytic fungi occurring naturally in leaf, stem and root tissues. Following the three methods of application mentioned above, T. asperellum could be isolated from all tissues, although it was not detected in leaf tissues after stem infusion. The plant age influenced the occurence of fungal endophyte species, which were dominated by Fusarium 1 and 3 in seedlings used for foliar spraying, morphospecies 1 and 3, and Lasiodiplodia 1 in seedlings used for stem infusion, and Lasiodiplodia 2, 3 and 4, and Paecilomyces in seedlings used for soil drenching. In general, these dominant fungi were more numerous in tissues of the control than in those that had been inoculated with T. asperellum over three weeks post inoculation, but instead four weeks post inoculation. The pattern was changed in tissues following soil drenching where higher colonization in treated seedlings began earlier. These data showed that T. asperellum can spread to almost all parts of the cacao plant even in the presence of endogenous fungal endophytes and the endophytes their self can reach high colonization in the presence of T. asperellum, therefore this could potentially be used to develop a method to suppressing cacao pathogens.

Keywords: Fungal endophytes, foliar spraying, stem infusion, soil drenching, colonization

Topic: Integrated Pest Management

[ABS-178]

Induced resistance cacao seedling against Vascular Streak Dieback Disease through inoculation endophytic fungi associated with cacao branch

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Abstract

Endophytic fungi is one of the agents to control phytopathogen both bacterial or fungi including dieback disease on cacao such as Vascular Streak Dieback (VSD). Ten fungal isolates that associated with a healthy branch of VSD resistant clone was applied to cacao seedling, the fungi were a Curvularia-like colony, a Fusarium-like colony, a Geotrichum-like colony, an Aspergillus-like colony, a Gliocladium-like colony, a Colletotrichum-like colony and four isolates indicates as mycelia sterilia fungi. Those fungi applied at 2.5-old months cacao seedling with moderate to susceptible against VSD, and 30 days after inoculation of those fungi, the seedling was applied by a bunch of mycelia emerge from infected branch that mix with water wear mixer appliance and then the seedling exposed at open area surrounded by infested cacao tree and record of the disease incidence started at 30 and then 60, 90 and 120 days after inoculation of the pathogen and exposed. The result of study showed that appear increasing of the disease gradually and 120 days fungus Curvularia-like colony exhibited lower incidence followed by negative control (use fungicide), Mycelia sterilia 1, Gliocladium-like colony, Fusarium-like colony, Geotrichum-like colony, Mycelia sterilia 3, Colletotrichum-like colony, Aspergillus-like colony, positive control ,Mycelia sterilia 2, Mycelia sterilia 4 with percentage 3.0, 8.3, 9.5, 11.3, 15.8, 18.0, 19.0, 19.3 , 21.3, 26.5, 30.5, respectively. The result indicates that fungi associated with VSD resistant clone able to protect a tree from VSD invasion

Keywords: Endophytic fungi, Dieback, Induced resistance, cacao. resistant clone

Topic: Integrated Pest Management

[ABS-187]

First report: Vascular streak dieback (VSD) disease of cocoa associated with new spots in Sulawesi confirmed by PCR analysis

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Abstract

VSD disease is one of the most devastating diseases affecting the global cocoa industry, stimulating research investigating the disease. VSD is endemic in Indonesia and Sulawesi but its distribution is patchy. To investigate VSD distribution in Sulawesi, samples of infected leaves or twigs were collected hierarchically in South, Southeast and West Sulawesi Provinces. The most common VSD symptoms were necrotic lesions or green islands on leaves, darkened vascular traces, and sporulation in cracked leaves and petioles. Genomic extraction using modified CTAB buffer or commercial Kits (Sigma-aldrich, Bioline and Geneaid) was applied to obtain total DNA (plant and fungal) from the samples. For PCR analysis, internal transcribed spacer (ITS1, 5.8S, and ITS2 of rDNA gene) sequences were amplified using ITS 1 and 4 primers and Ceratobasidium theobromae ITS specific primers, Than_ITS1 (GAGTCTTGGCAGTTG CTG) and Than_ITS 2 (AGAAGCGGTTCATCTGTA). Using this PCR method, C. theobromae was detected in samples collected from areas with no previous reports of VSD. The presence of C. theobromae was confirmed in Barru (54 samples) and Bantaeng (3 samples) South Sulawesi, Mamuju (53 samples) and Central Mamuju (78 samples) West Sulawesi and Kolaka (13 samples) Southeast Sulawesi.

Keywords: molecular diagnosis, infected petiole, vascular streak dieback, Ceratobasidium theobromae, PCR probe.

Topic: Integrated Pest Management

[ABS-81]
MANAGEMENT MANGROVE EXPERIENCES FORM COASTAL PEOPLE

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Abstract

The mangrove area has an important meaning in beach ecosystem, both from ecological and economical aspects. For this, the rehabilitation of mangrove forest is done as one effort that aims to maintain and return the mangrove forest function as one of life system supporters, especially in beach area. The most respondent ages of coast people of Gending, Pajarakan, danKraksaan districts, Probolinggo Regency are between 30 to 59 years old, i.e. as 86 people or 95.55% indicates that coast people are productive ages so they can be hoped very potential for having role in supporting mangrove ecosystem management of Probolinggo Regency coast. The average respondent educational rates are mostly Elementary School to Senior High School, i.e. as 76 people. Generally, human resources of coast people have relatively good education level. Thereby, it can be hoped to have positive potencies for the role of coast people themselves toward the mangrove ecosystem management support of Probolinggo Regency coast. The average most respondents have family burdens two and three people as six people or 6.67 percents. But, there are still three respondents who have not have family burdens. Generally, more and more members help in respondent's jobs. The mangrove ecosystem management strategy of Probolinggo Regency coast is by involving people role (people and people figures) and governmental supports through the models of mangrove forest management strategy, the model of embankment cultivation management by entering mangrove as input resources of production facilities, and ecotourism management by the purpose of improving people income.

Keywords: Coastal, Management, Mangrove

Topic: Marine Biodiversity

[ABS-82]

THE ROAL OF COASTAL COMMUNITIES SUPPORT MANAGEMENT MANGROVE

Pawana Nur Indah and Mulyadi

Universitas Pembangunan "Veteran"Jawa Timur

Abstract

The mangrove area has an important meaning in beach ecosystem, both from ecological and economical aspects. For this, the rehabilitation of mangrove forest is done as one effort that aims to maintain and return the mangrove forest function as one of life system supporters, especially in beach area. The most respondent ages of coast people of Gending, Pajarakan, danKraksaan districts, Probolinggo Regency are between 30 to 59 years old, i.e. as 86 people or 95.55% indicates that coast people are productive ages so they can be hoped very potential for having role in supporting mangrove ecosystem management of Probolinggo Regency coast. The average respondent educational rates are mostly Elementary School to Senior High School, i.e. as 76 people. Generally, human resources of coast people have relatively good education level. Thereby, it can be hoped to have positive potencies for the role of coast people themselves toward the mangrove ecosystem management support of Probolinggo Regency coast. The average most respondents have family burdens two and three people as six people or 6.67 percents. But, there are still three respondents who have not have family burdens. Generally, more and more members help in respondent’s jobs. The mangrove ecosystem management strategy of Probolinggo Regency coast is by involving people role (people and people figures) and governmental supports through the models of mangrove forest management strategy, the model of embankment cultivation management by entering mangrove as input resources of production facilities, and ecotourism management by the purpose of improving people income.

Keywords: Coastal, Management, Mangrove

Topic: Marine Biodiversity

[ABS-109]

Prospect of Seaweed Development in South Sulawesi through A Mapping Study Approach

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Muhamamdiyah University of Parepare; Hasanuddin University; Muhammadiyah University of Parepare

Abstract

Abstract: Seaweed is one of fishery commodities which is extremely potential for foreign exchange income. Indonesia known as a nation which has many areas which are potential to develop seaweed, above all in Province South Sulawesi, encourages the researchers to know the prospect of seaweed production development. Therefore, this paper aims to present the potency of seaweed development in South Sulawesi in order to reduce poverty. The study was carried out in two regencies, namely Bantaeng and Luwu. The study identified the seared development potency by using mapping study approach with analysis method. The data was obtained by using structured interview. The research finding result showed that both regencies developed some species of seaweed, they were Eucheuma cottonii, Eucheuma spimosum and Gracilaria sp. However, the farmers in both areas still used traditional ways. In Bantaeng, the farmer cultivated Eucheuma cottonii and Eucheuma spimosum utilizing long line method. Meanwhile, in Luwu, the farmer cultivated Eucheuma cottonii and Gracilaria sp with different method. Eucheuma cottonii was cultivated by using long line method, whilst Gracilaria sp was by bottom method. Generally, Gracilaria sp was cultivated in earthen dam. Consequently, the amount of seaweed production was still low. In addition, in this research founded that some of farmers applied an Islamic-based system in cultivating seaweed but it still needs in-depth understanding.

Keywords: cultivation method; mapping approach; seaweed;

Topic: Marine Biodiversity

[ABS-148]
Impact of Social and Technological Dimensions on Seaweed Business Sustainability

Gilang Talha, Gunarto Latama, Muhammad Arsyad, Andi Niartiningsih, Muhammad Asdar, Didi Rukmana

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Abstract

Dimension of social and technology are still become serious issue in seaweed business sustainability. This paper analyzes the impact of social and technological dimensions on the sustainability of seaweed. The research was conducted in Tanete Riantang Sub-district of Bone District, Indonesia using path analysis. The population of the farmers is 650 and the sample of the study amounted to 65 respondents (10% of the population) by simple random sampling. Data were analyzed using path analysis. The variables consist of dimensions of ecology, technology and sustainability. The results showed that there is a direct impact of social and technological dimensions on seaweed business sustainability. This indicates that seaweed business may continue to take into consideration social dimensions including education level, number of family members, family participation, social conflict and business alternatives (non-seaweed) and technology. In addition to the direct impact, it was also found that indirect impact of social dimension on seaweed business through technology dimension. This indicates that seaweed business can continue when considering social aspects through technological improvements including the accuracy of harvest age, processing industry, warehousing facilities, drying facilities and information availability.

Keywords: Social dimension, Technology dimension, Seaweed (Kappaphycus sp), Sustainability

Topic: Marine Biodiversity

[ABS-189]

Oceanographic Conditions and Sediment Dynamic of the Barrang Caddi Island (Spermonde Archipelago, Indonesia)

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Abstract

Keywords: oceanographic, sediment, coastal, erosion, small island, barrang caddi

Topic: Marine Biodiversity

[ABS-112]

Green House Gases (CH4, N2O and CO2) Production and Soil Microbes Responds of Slow Release and Nitrification Inhibitor Urea Fertilizers in Saturated Soil.

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Abstract

The application of urea based fertilizers is a common practice in agriculture. The concentration of CH4, N2O and CO, emission, the change of ammonium and nitrate concentration and population of soil microbes in saturated soil condition were studied with the application of granulated urea fertilizer combine with slow release nitrogen and nitrification inhibitor in laboratory experiment. Five treatment including treatment control, granulated urea, zeolite+granulated urea, neem+zeolite+granulated urea and DCD+zeolite+granulated urea were designed and implemented in soil and incubated for 9 weeks. Granulated urea reduce the emission of CH4 and can be a sink for CH4 in laboratory condition. The cumulative emission of N2O were 0.005, 0.031, 0.037, 0.064 and 0.061 µg g-1 for control, granulated urea, zeolite+granulated urea, neem+zeolite+granulated urea and DCD+zeolite+granulated urea respectively. Neem+zeolite+granulated urea and DCD+zeolite+granulated urea increase the emission of N2O significantly, compared with control. Zeolite+granulated urea increase ammonium concentration while DCD+zeolite+granulated urea reduce nitrate concentration. All the ferltilizer comnination increase ammonia-oxydizing bacteria population, while granulated urea and DCD+zeolite+granulated urea reduce nitrite-oxidizing bacteria. Neem+zeolite+granulated urea reduce fungi population

Keywords: Methane, Nitrous oxide, Carbon dioxide, Saturated Soil, Nitrification Inhibitor, nitrifier population

Topic: Plant Biodiversity and Climate Change

[ABS-128]

KARAKTERISASI MORFOLOGI DAN PRODUKSI BEBERAPA KLON KAKAO UNGGULAN (Theobroma cacao L.) DI KABUPATEN LUWU

MS. Sasmono, Nursia, Kahar Mustari, Laode Asrul

Universitas Hasanuddin

Abstract

Kakao (Theobroma cacao L.) merupakan salah satu produk pertanian yang memiliki peranan penting dan dapat diandalkan dalam mewujudkan program pembangunan pertanian. Kakao sebagai salah satu komuditas hasil perkebunan yang bernilai ekonomis cukup tinggi, memiliki potensi untuk terus di kembangkan di Negara kita ini, khususnya di daerah Sulawesi Selatan yang merupakan salah satu sentra produksi kakao nasional. Tujuan dari penelitian ini adalah untuk mengetahui kriteria klon kakao unggul yang dapat dijadikan sebagai bahan tanam berdasarkan karakter morfologi dari setiap jenis klon. Sampel diambil di kebun kakao milik petani di Kabupaten Luwu. Karakterisasi dilakukan terhadap enam klon kakao yang berbeda yaitu klon M-01, 45, PBC 123 (Sulawesi 1), BB (Buntu Batu), BR 25 (Sulawesi 2) dan PANTHER. Karakterisasi morfologi kakao di lakukan untuk mengetahui bahan tanam unggul klon kakao yang baik untuk di budidayakan. Karakter bentuk tajuk, luas daun, bentuk buah, alur buah, tebal kulit buah, ketebalan sklerotik, rata-rata berat kering biji, indeks POD, rendemen, intensitas serangan hama dan penyakit yang dapat dijadikan karakter-karakter pembeda sehingga dapat jadikan dasar dalam menentukan bahan tanam unggul.

Keywords: Karakterisasi klon kakao, karakter bahan tanam unggul kakao

Topic: Plant Biodiversity and Climate Change

[ABS-66]

CAPABILITY OF ROT FUNGUS ISOLATES FROM OIL PALM EMPTY BUNCHES IN THE PRODUCTION OF INDOLE ACETIC ACID (IAA)

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Abstract

This study focused on the growth rate and production of the Indole Acetic Acid (IAA) hormone and the ability of rot fungus to dissolve phosphate. A total of 33 rot fungi isolated from oil palm empty fruit bunches (EFB) and oil palm trunks that have experienced weathering. The growth rate of isolates identified on Potato Dextrose Agar (PDA) which have been incubated for 7 days on a petri dish (ø 9 cm) with a temperature of 30 °C, measured by the diameter of the colony every day. Isolates TK-14 reaches maximum diameter on the 3rd day, while the other isolates achieve maximum growth in the 4th and 7th. Out of the 33 isolates of the fungus, 15 isolates were found to have the ability to produce hormones IAA. IAA production tested at Pikovskaya Broth media and measured using a spectrophotometer. Rot fungus has the ability to produce IAA with the concentration range of 0.444-3.111 mgl-1. Isolates BK-02, TK-08 and TK-14 has the highest concentration of IAA. Similarly, the ability to dissolve the phosphate also varies between 0.385 and 6.708 mgl-1. Three isolates were recommended to degrade the oil palm empty fruit bunches in future studies.

Keywords: phosphate, spectrophotometers, potato dextrose agar (PDA)

Topic: Plant Biotechnology and Genetic Engineering

[ABS-91]

Physical and mechanical properties of bamboo laminated with permethrin preservative and SC-CO2 as solvent

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Abstract

Permethrin as an environmentally friendly wood preservative and supercritical carbon dioxide (SC-CO2) as a carrier solvent is becoming an alternative and environmentally sound method in the preservative treatment of wood and wood-based products. The potential of this new method has never been explored for its suitability in manufacturing laminated bamboo products which are widely used as construction materials for either indoor or outdoor purposes. The current study was aimed at examining the effect of SC-CO2 as co solvent permethrin impregnation on the physical and mechanical properties of laminated bamboo Dendrocalamus asper. Samples of bamboo strips and their laminated products were impregnated in a vessel at the temperature of 35°C and the pressure of approximately 8 MPa for 30 min. Results showed that SC-CO2 impregnation resulted in no adverse effects on the physical and mechanical bamboo laminated. Dimensional stability and mechanical properties of laminated bamboo show preservation with permethrin preservative using SC-Co2 as solvent can be used as an alternative to laminated bamboo preservation.

Keywords: Bonding strength, carbon dioxide, Dendrocalamus asper, laminated bamboo, supercritical fluid

Topic: Plant Biotechnology and Genetic Engineering

[ABS-96]

VEGETATIVE CHARACTERIZATION TO IDENTIFY OIL PALM (Elaeis guineensis Jacq.) PLANTLET ABNORMALITIES

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Abstract

Propagation of oil palm using tissue culture or commonly called oil palm clones can increase the production about 30-40%. However, oil palm clone propagation is still hindered by flowering abnormality due to somaclonal variation. Characterization was done at each plantlet, ramet, and pre nursery phase. Completely Randomized Design (CRD) was used in this study and different type of plantlet was used as treatment with 10 replicates. The result show that there were 11 different abnormality observed from plantlet until pre nursery. Viability rate of normal plantlet can reach up to 80%, while viability rate of erect plantlet, rosette, curved plantlet, wide internodes plantlet were less than 50%, but plantlet with less than 4 leaves was 66.67%. Other abnormalities were fatal at acclimatization and ramet phase.

Keywords: oil palm clone, abnormality identification, plantlet

Topic: Plant Biotechnology and Genetic Engineering

[ABS-102]

ADAPTABILITY OF DENDROBIUM ORCHID RESULT OF TISSUE CULTURE WITH PLANT MEDIA AND LOCATION (POSITION) ON ACCLIMATIZATION PROCESS

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Abstract

Abstract
Dendrobium orchid is an orchid that has its own selling and aesthetic value with its diversity. Propagation by tissue culture will help orchid enthusiasts and entrepreneurs to develop large-scale seedlings and almost as physical. Acclimatization process is the crisis process of transfer of orchid seed cultivation of tissue culture results into In-Vivo conditions. This research was conducted in screen house using Completely Randomized Design with factorial and 5 replications. The treatment was made with 2 factors there are Plant Media (M) and Location / Position (O). Plant media consists of 5 levels, there are fern and wood charcoal (M0); Fern and coconut husk (M1); Ferns and brickbat (M2); Ferns, wood charcoal, and coconut husk (M3); and then ferns, wood charcoal, coconut husk, and brickbat (M4). Location / position consists of 2 levels are pot / not hanging (G0) and hanging model (G1). Parameters observed were percentage of plant growth, plant height, number of leaves, number of roots, and root length. The results showed that the percentage of good plant growth showing on ratio between media mixture and charcoal wood and fern and brickbat with location (position) of pot was not hanged.

Keywords: acclimatization, orchid, plant media, location (position)

Topic: Plant Biotechnology and Genetic Engineering

[ABS-115]

OPTIMALIZATION AND REGENERATION OF IN VITRO SEEDLING OF SHALLOT VARIETY LEMBAH PALU IN PROVIDING GOOD QUALITY SEEDLING

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University of Tadulako

Abstract

The purpose of this study is to develop seedling through multiplication of somatic embryos. This assessment is the second part of research stages regarding the development of shallot somatic embryo technology in Central Sulawesi. The first stage of the research is sterilization and callus induction of Lembah Palu shallot. This second stage is maturation and germination of somatic embryos. The experiment was arranged as factorial completely randomized design, comprising of two factors. The first factor was 2,4-D concentration; consisting of three levels. The second factor is kinetin concentration also consisting three levels. Each treatment combination was replicated three times, thus there were 27 experimental units. The result showed that addition of kinetin in MS basal media strongly affected the percentage of mature embryos and the percentage of mature embyos producing shoots.

Keywords: Kinetin, propagation, shallot, and 2,4-D

Topic: Plant Biotechnology and Genetic Engineering

[ABS-126]

Effect of Cocoa Pod Husk Compost Produced Using Rot Fungi on the Growth of Cocoa Seedlings

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Abstract

Rot fungi have the ability to decompose organic materials into simple compounds or elements as nutrients for plants. In the process, rot fungi produce secondary metabolites and absorb phosphate from their substrates so that the phosphate become available to plants. The purpose of this study was to determine the ability of rot fungi isolated from dead cocoa plants in solubilizing phosphate. The rot fungi were isolated and purified before they were grown on solid Pikovskaya's media amended with 0.5% tricalcium phosphate (Ca3PO4) as a phosphate source. In addition, the effects of compost addition to growth medium (soil:compost = 2:1) on cocoa seedling growth was also determined. The results showed that there were eight species of rot fungi isolated from dead cocoa trees: Mycena sp., Lycoperdon sp., Auricularia sp., Schizoshyllum sp., Coprinus sp., Tremetes sp., Pleurotus sp., and Tremella sp. All isolates were capable of solubilizing phosphate from substrates but amongst all isolates, Lycoperdon sp. and Pleurotus sp. were the most effective in solubilizing phosphate, 3,198 and 3,094 μgL-1, respectively. Effect of the compost produced using these two rot fungi on plant growth variables: the ratio of leaf area, plant dry weight, root canopy ratio, and net assimilation rate, were comparable to chemical fertilizers. Thus, Lycoperdon sp. and Pleurotus sp. are promising decomposing agents for producing high quality compost made from cocoa pod husks as an alternative to inorganic fertilizers.

Keywords: Pikovskaya's Media, Lycoperdon sp., Pleurotus sp., compost, cocoa pod husks

Topic: Plant Biotechnology and Genetic Engineering

[ABS-163]

Increasing Efficiency of Oil Palm (Elaeis guineensis Jacq.) Tissue Culture through Embryogenesis by Transcriptomics Analysis

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Abstract

Tissue culture has an advantage of producing vegetative seedlings, which contain all of the parental superior characteristics. In addition, the seeds produced are also uniform. In oil palm, the uniformity of oil palm trees derived from tissue culture has increased the production of fresh fruit bunches (FFB) up to 20% compared to plants derived from seeds. The problem with the oil palm tissue culture is low efficiency of somatic embryo formation at the callus stage (only 5%), thus making the seedlings produced from tissue culture become expensive. The efficiency can be improved if we can distinguish and identify the calluses that have the potential to regenerate into somatic embryos and the non-potential ones. Transcriptomics analysis is a powerful approach to distinguish the two types of calluses above, so that we can culture only the potential callus. Thus the waste of time, chemicals and electricity consumption can be minimized as much as possible. The purpose of this activity is to characterize and identify the potential callus forming somatic embryos with transcriptomics analysis, and identify active and expressed genes involved in the process of callus and somatic embryo formation. RNA has been isolated from the explants of callus, somatic embryo, old and young leaves of oil palm. The results revealed that the mixed samples of old and young leaves produced RNA with the best quality, compared with RNA from only old leaf or young leaves samples. RNA from callus and somatic embryo have also been obtained which qualified for sequencing. The results of transcript sequencing are in the process of bioinformatics analysis to assemble contigs into one whole sequence genome. The identification of genes contained in the sequence will be identified after comparing with the database in GenBank.

Keywords: Transcriptomics analysis, bioinformatics, tissue culture, somatic embryo, RNA

Topic: Plant Biotechnology and Genetic Engineering

[ABS-172]

MICROSATELLITE AND SNAP MARKER TO EVALUATE POLLEN DISPERSAL IN PATI TALL COCONUT AND EVALUATED OF XENIA EFEECT FOR KOPYOR FRUIT YIELD

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Abstract

Kopyor coconut is one of the many unique coconut type existed in Indonesia. Kopyor coconut was a naturally occuring coconut mutant. One of attempts to overcome the problem of low kopyor fruit yield is studying effect of xenia on kopyor fruit yield. Xenia is a genetic phenomenon in the form of a direct effect of pollen to the phenotype of fruits yielded by the female parents. The combination of kopyor coconut and normal coconut population were selected in the farmers coconut plantations consist of 33 normal coconut trees, and 9 kopyor coconut trees. All adults trees surrounding the 9 kopyor heterozygous (Kk) palms were evaluated as potential male candidate parents (pollen donors). All samples were genotyped using four SNAP marker and six microsatellite marker loci, Parentage analysis using CERVUS version 2.0 software. Results of the analysis indicated that xenia reduce kopyor fruit yields. Kopyor heterozygous (Kk) female parents produced low number of kopyor fruits when they were surrounded by many normal homozygous (KK) pollen donors. Out of 99 harvested progeny arrays from the kopyor heterozygous (Kk) female parents, none exhibited kopyor phenotype. The results also indicated the pollen dispersal from normal homozygous (KK) donor palms range from 0 m (self pollination) to 54 m (outcrossing). The highest frequency of pollens were dispersed from a distance of less than 20 m (30 pollination events). The occurence of outcrossing frequency was at least 95% and the selfing frequency is 5%. The coconut plantation in kopyor of Pati in Dukuh Seti Village, tend to negative effects xenia with the presence of coconut trees normal, with more around the tree kopyor.

Keywords: Kopyor, Pati Tall Coconut, Xenia Effect, Pollen Dispersal, SNAP marker, microsatellite marker

Topic: Plant Biotechnology and Genetic Engineering

[ABS-183]

Effect of selection agents to chrysanthemum (Chrysanthemum morifolium) callus growth after agrobacterium mediated genetic transformation

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Abstract

Genetic transformation mediated by Agrobacterium tumefaciens requires an efficient selection method for successful progress of transformation. This study aims to determine the concentration and kind of antibiotics and selection agents used during transformation to formulate standard protocol of chrysanthemum in the process of propagating disease resistant Chrysanthemum mediated by Agrobacterium tumefaciens EHA105 (pEKB-WD). The experiments were performed by planting chrysanthemum explants leaf cutting (5 mm diameter on NAA medium 2 mg L-1 BAP 2 mg L-1) with addition of Kanamycin (Km): 25, 50, 100, 150 and 200 (mg L-1); Hygromycin (Hy): 5, 10, 25, 50 and 75 (mg L-1); Paromomycin (Par): 10, 25, 50, 75 and 100 (mg L-1). Experiment was arranged in a Completely Randomized Design (CRD). Each treatment was repeated five times thus 75 bottles of culture were required; each bottle consists of 5 pieces of leaf cuttings, totaling 375 pieces. The results showed that selection agent had a critical value for Hygromycin 25 mg L-1 and Kanamycin 100 mg L-1 which can make explant experienced necrosis better than Paromomycin. Paromomycin at 100 mg L-1 was only able to kill explant periphery. Remained callus stayed fresh more than 50% so that when used as the selection agent could produce more escape cell. The optimum transformation with concentration of 10% Agrobacterium with 30 minutes co-cultivation can produce more efficient transformer callus. Considering the high price of Hygromycin, it was best to use kanamycin as selective agents.

Keywords: Chrysanthemum (Chrysanthemum morifolium); Hygromycin; Kanamycin; Paromomycin; Agrobacterium tumefaciens EHA105; Plasmid Wasabi Defensin Gen (pEKB-WD); Leaf Rust Disease.

Topic: Plant Biotechnology and Genetic Engineering

[ABS-184]
Sterilization technique of Toraja black rice embryo in in-vitro

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Abstract

Toraja black rice has a high anthocyanin content, which is water-soluble pigments, which has antioxidant activity. Toraja black rice has a variety of color seeds in one panicles such as full black (the outside and inside the rice), medium black (the outside and slightly inside rice) and a little black (only the outside of rice). Embryo culture in vitro is one way to grow plants in sterile conditions. The presence of contamination and the death of the embryo is one of the solutions in embryo culture in vitro. The sterilization technique is a very important first step to eliminate contamination and the death of embryos in in vitro cultures. This research aims to determine the right material composition for sterilization of black rice embryo. The experiment was done by growing black rice on 1/2 MS media with the treatment of three method of sterilization S1 (alcohol 70% for 5 minutes, Clorox 3% for 10 minutes, Clorox 2% for 10 minutes), S2 (alcohol 70% for 3 minutes, Clorox 2% for 10 minutes) and S3 (alcohol 70% for 3 minutes and Clorox 1% for 15 minutes). The materials used are rice seedlings that have been cut in two and opened the pericarp of paddy (grain), leaving a piece of rice that has a complete embryo. The best sterilization for Toraja black rice embryo culture using S3 composition. Best germination seen on the seeds with full and medium black color.

Keywords: Toraja black rice, embryo culture, sterilization, germination

Topic: Plant Biotechnology and Genetic Engineering

[ABS-101]

CHARACTERIZATION OF DAIRI LOCAL CORN, DAIRY REGENCY, NORTH SUMATERA PROVINCE

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Abstract

Maize is one of the carbohydrate-producing plants in addition to rice and wheat and contains nutrients that can be used for humans and animals. One of the regional income generators in Dairi Regency, North Sumatra Province is the local maize. Local plants have an important role for genetic resources and can be create new varieties. So it needs to be preserved and utilized. The purpose of this research is to characterize the local maize of Siarang Dairi. This research uses qualitative method is descriptive analysis. The data collected include the quantitative and qualitative character of agronomic and morphological characters using 5 plant samples. The results showed that the local Siarang Dairi maize has a percentage of root falling plant is 0% and the percentage of the stem fall is 3.07%. The high of the plant reaches 236 - 277 cm. The length of the cob ranged from 16 - 19 cm in diameter with an average of 4 cm. The uppermost form of cylindrical and cylindrical conical. Grain lengths range from 6 - 8 mm, with grain widths ranging from 5 - 9 mm, and grain thicknesses ranging from 3 - 5 mm. The top grain surface shape is jagged, round, and flat. Specific color grains are unique and varied from brown, orange, and red color.

Keywords: Characterization, local maize, Siarang Dairi, high, color

Topic: Plant Breeding

[ABS-105]

THE INTERACTION GENOTYPES ENVIRONMENT AND SEASON (GXEXS) OF ANTHYCIANINE MAIZE IN CENTRAL MAIZE OF INDONESIA

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ICERI (BALITSEREAL)

Abstract

The interaction genotypes(G), environment (L) and season (S) of purple maize has been studied under five environment in central maize in IND. The experiment were conducted by randomized complete block design with three replication in Maros experimental farm (e1), Bajeng (e2), Muneng (e3), Polman (e4), and Donggala (e5). There are ten populations as opv purple maize which is high content of anthycianine included check to evaluated in two season (dry and wet) on 2015/2016. The objective of experiment was to find of which is population was stable and high yield to promosing as candidate new opv varieties. Population were planted in four rows 5.0 m lenght, spacing 75x20 cm, one plant per hill, and applied fertilizer Urea, Ponska (300-200) kg/ha. The first analyzed was used of one factor (G) and continuing by interaction effect of GxExS. Population would be selected by t test in model $Yij=\mu+\beta iIj+\delta ij$, $i\neq j$ (Y:yield, μ:mean, β:regression coefficient, I:environmental index and $\Sigma Ij=0$, δ:deviation from regression), and stability parameter $bi=\Sigma YiIj/I2j$
The result shown that there are significant interaction GxExS and founded the population PMU(S1).Synth.F.C1 and PPU(S1).F.C1 could be founded average yield 6.85 t/ha and yield potential 9.5 t/ha would be founded in Maros, Bajeng and Donggala under dry season. The hypothesis of H0:β=1 was significant and coefficient effect shown that yiled be increasing if planted condition was high adapted.. The purple maize content of anthycianine were range 37.15-51.92 µg/100 g sample

Keywords: GxExS, Purple Maize, β Coefficient

Topic: Plant Breeding

[ABS-119]

Evaluation of some new plant type upland rice (Oryza sativa L.) lines derived from cross breeding for the growth and yield characteristics

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Abstract

Improving rice production through cross breeding is one of the efforts to overcome a major challenge in future due to the expanding population of rice consumers in the world. To evaluate different upland rice lines for their growth and yield characteristics, an experiment was conducted during 2016. Four rice lines including GS44-2 (V1), GS16-2 (V2), GS44-1 (V3), GS44-1 were evaluated in a randomized complete block design (RCBD) with four replications. All rice lines were planted at spacing of 25 x 25 cm using 3 seeds/hill. The variables observed were plant height, leaf area, number of tillers, number of productive tillers, flag leaf width, panicle length, number of grains per panicle, number of filled grain per panicle, percentage of unfilled grain, 1000 grain weight, grain dry weight , yield (t/ha), and plant biomass. Data on various growth and yield characteristics revealed there were growth and yield characteristics different among breeding lines of local upland rice. Plant height at age 84 DAP, GS16-2 line was the tallest (92.71 cm) and GS44-1 line the shortest one (70.07 cm). Breeding line of GS16-2 produced higher leaf area (61.0 cm2), panicle length (30.94 cm), grain number per panicle (230.60), and filled grain number (190.25). The lowest unfilled grain percentage (26.67 %) was also recorded form GS16-2 lines. The highest number of tillers, number of productive tillers, grain dry weight, and grain yield were obtained from GS44-2 lines. Further, grain yield component such as grain dry weight and 1000 grain weight recorded positive and significant correlation with number of productive tillers per hill.

Keywords: Cross breeding, lines, panicle, yield characteristic, upland rice.

Topic: Plant Breeding

[ABS-121]

GENETIC BY ENVIRONMENT INTERACTIONS AND STABILITY OF TROPICAL WHEAT LINES IN INDONESIA MEDIUM-PLAINS

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Balai Penelitian Tanaman Serealia

Abstract

Wheat in Indonesia has a very important economic value. The increasing consumption of wheat flour per capita caused the value of wheat seed and wheat flour import raise every year. Wheat can adapt well in Indonesia in altitude of 1000-3000 m asl with production ranging 3-5 t/ha. Recently, Indonesia has released several varieties of wheat, but only a few varieties have an adaptation zone under 1000 m asl, which competes with horticultural crops with higher economic value. Therefore, it is important to study the genetic x environment (GxE) interactions and the yield stability of tropical wheat genotypes in the low-medium plains. The study was arranged using Randomized Completed Block Design (RCBD) with 3 replications and 9 genotypes. The data was analyzed for variant, variant combined and yield stability using SAS 2.1 and STAR programs. The results showed that the environment, genotypes, and interaction of G X E had a highly significant effect on yield and yield components, except for seed weight/spike trait. Further analysis result showed the G4 genotypes has significantly greater than the control for trait of days to flower, days to harvest, plant height and a number of panicles/meter. The G1, G4 and G5 genotypes have significantly higher yields than controls. The G4 and G5 genotypes have wide adaptability and G1 genotype has specific adaptability.

Keywords: Genetic-Environment (GxE) Interactions, Stability, Tropical Wheat, Medium plains

Topic: Plant Breeding

[ABS-139]

Heritability and path coefficient analysis for important characters of yield component related to grain yield in M4 red rice mutant

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Abstract

The formation of new rice cultivars of red rice through mutation breeding is reported in this study. Mutant lines of fourth generation have been planted and analyzed. The purpose of the experiment was to determine the value of heritability, the direct and indirect effects of the key components of the yield component on the seed yield. The efficiency of a breeding program depends on the direct relationship between the different characters and the relative importance of each of the characters involved contributing to the seed yield. The experiments were prepared based on a randomized block design with three replications. Seven mutant strains of fourth generation red rice and one non-mutant origin as control were used as treatments. Important character data from yield components used were number of productive tillers, number of grains per panicle, panicle density and weight of grain per hill. Results show that the heritability character of productive tiller number, number of grains per panicle, panicle density and grain weight per clump gave all high heritability values 0.83, 0.83, 0.62 and 0.52, respectively. Based on the path coefficient analysis against these characters, three characters showed positive influence directly and significantly affected the grain yield per hectare, the number of productive tillers, number of grains per panicle and grain weight per clump with cross coefficient 0.73, 0.92 and 0.64, respectively. However, the character of the number of grains per panicle is negatively correlated with grain yield per hectare. This indicated that there are only two very important charactersand effective for screening in increasing grain yield per hectare of rice mutant strains of red rice, i.e.: the character of productive tiller number and grain weight per clump.

Key words: Heritability, path coefficient analysis, important characters, yield component, grain yield, M4 Red rice mutant.

Keywords: Heritability, path coefficient analysis, important characters, yield component, grain yield, M4 Red rice mutant.

Topic: Plant Breeding

[ABS-149]

Effect of heavy ion beam irradiation on germination of local Toraja rice seed (M1-M2) mutant generation

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Abstract

Keywords: Irradiation, Heavy Ion Beam, Toraja Local Rice, Germination, Mutants

Topic: Plant Breeding

[ABS-150]
Assessment and Selection of M3 Generation of Wheat Mutants adaptive in Lowland

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Abstract

Assessment and Selection of M3 Generation of Wheat Mutants adaptive in Lowland
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Wheat is a sub-tropical plant which adaptability in the tropics in areas with altitudes over 1000 m asl. Cultivation on the highlands is in competition with vegetables and fruits in terms of land use, therefore, it is essential to have wheat genotypes adaptive to the lowlands. This study aimed to test and select offspring of three adaptive mutant on lowland with high temperature. The benefit of the research is to obtain a potential strain of adaptive wheat mutants in the lowlands. The experiment was conducted at Experimental farm of Agriculture Faculty, Hasanuddin University Makassar at an altitude below 50 m from sea level. The study was conducted from March to June 2017. The experimental study applied a randomized block design with three replications. The treatments consisted of 20 mutants of wheat with 4 varieties used for comparison. They were Nias, Selayar, Dewata, and Muna. Results showed that the wheat mutant N.300 4.3.6 (1.92 t per hectare) gave highest growth and production and was significantly different from all other mutants and comparing varieties. The mutant genotypes that gave higher growth and production than all comparing varieties were N.350 3.1.4 (1.86 t per hectare), N.200 2.3.3 (1.67 t per hectare), N. 250 4.2.1 (1.48 t per hectare), N.200 2.4.B.6 (1.36 t per hectare), N.250 4.5.2 (1.26 t per hectare) , N.350 3.2.2 (1.26 t per hectare), and N.350 3.1.3 (1.22 t per hectare). Mutants that produce higher yields than the three comparing varieties (Dewata, Selayar and munal) with yields> 1 t per hectare, yet lower than Nias varieties (1.15 t per hectare) are N.200 2.5.2 (1.11 t per hectare), N.250 4.6.2 (1.14 t per hectare), and N.350 3.6.2 (1.07 t per hectare. In conclusion, there are 11 potential mutant genotypes for further experiment in order to develop adaptive wheat to lowlands

Keywords: Wheat, lowland adaptivity, Mutant Selection, adaptive genotype

Keywords: Wheat, lowland adaptivity, Mutant Selection, adaptive genotype

Topic: Plant Breeding

[ABS-153]
Phenotypic Performance of M3 Sinjai Red Rice Mutant (Oryza sativa L.)

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Abstract

Local rice genotype generally has colour, flavor and scent more preferred by consumers, yet unfortunately it has long-lived planting period and low production. Therefore, the plant breeding practices in rice needs to be implemented for better rice varieties which are superior in terms of both quality and quantity. Our findings describe the growth character performance and the production of red rice mutant from M3 Sinjai generation. This study was conducted in the Agriculture Faculty wetlands, Hasanuddin University, Makassar, by using Anova test with some red rice mutants genotype such as controls/parent-plants (not the mutant) and 7 genotypes mutants (G1, G2, G3, G4, G5, G6 and G7). Results showed that there were difference growth performance and production of red rice mutant. Each parameter observed on each genotype had different results. Mutants produced best response in tillers production were G4 mutant with the tillers grain weight at 99.25 g, whereas by the results of the analysis of rank, mutants showed the best overall response were found in G6 mutants.

Keywords: rice mutants, genotypes, growth performances

Topic: Plant Breeding

[ABS-194]

Field Performance of Several Potato (Solanum tuberosum) Clones using Different Planting Materials

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Center for Tropical Horticulture Studies. Bogor Agricultural University, Indonesia.

Abstract

Potato is one of the most cultivated horticultural crops in the world. The consumption of potato has been rapidly increasing along with the development of knowledge regarding the benefit of potato as carbohydrate source. The production of potato in Indonesia is facing big issue regarding the avaibility of adapted varieties and the avaibility of high quality tuber seeds. The objectives of our study were to evaluate the field performance of several accessions and to determine the best planting material to produce potato tuber for human consumption and for seed. The field test was done at the Tambakbaya village, Cisurupan (1050 above sea level) and Margamulya village, Cikajang Garut (1300 above sea level). Eight advanced genotypes of potato from previous breeding program of Bogor Agricultural University, supplemented with two CIP collections and two commercial varieties were used during this evaluation. The results showed that the field performance of potato, both for consumption and seed, were affected significantly by genotype, plant materials as well as their interaction. We also identified one genotype that was very superior in its performance in the field that might be very suitable to be developed into commercial variety.

Keywords: tuber seeds, potato breeding, single node cutting, mini tuber

Topic: Plant Breeding

[ABS-64]

Asset Based Community Driven Development Method for Agrotourism Development on Integrated Farming

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Islamic College of Al-Mawaddah Warrahmah Kolaka

Abstract

This community based research aim to determined effect asset based community driven development (ABCD) method for agrotourism development on integrated farming system were done in Mowewe district, East Kolaka Regency. Qualitative method were used participant observation developed. Approach stage of ABCD method for agrotourism development on integrated farming system are: discovering strengths, organizing and mapping, lingking and mobilizing, community driven initiatives and sustaining the process. Simulation model agrotourism development were tested during one week, with Student group from Islamic Boarding School and Integrated Islamic School Al Mawaddah Warrahmah to done Rihlah Ilmiah (Programs to support agrotourism development). Concluded that ABCD method can accelerate agrotourism development on integrated farming system.

Keywords: Asset based community driven development; Agrotourism; Integrated farming system; Mowewe district.

Topic: Rural Development

[ABS-65]

Application of Capital Social of Bali Cattle Farmers that Participate in the Partnership System in Barru Regency, South Sulawesi Province

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Abstract

Abstract

There are four models of partnership that is centralized models, multipartite models, intermediary models and informal model application in all livestock commodities, including beef cattle. Partnership in the beef cattle business has been done in Barru ie the program showroom cattle (SRS). This study aimed to known application the social capital of beef cattle breeders who followed the partnership system (program showroom cattle) in Barru. This research was conducted in April 2017 in the district Tanete Riaja. The population is all the farmers in Barru Regency who joined the partnership system (showroom program) and the sample is beef cattle breeders who followed the partnership system in Tanete Riaja district, Barru regency. This type of research is quantitative descriptive. This type of data is quantitative and qualitative. The resource data are primary data and secondary data. Data analysis uses descriptive statistical analysis with Likert scale. The results research show that social capital (trust, linkage, norm) of beef cattle breeders who joined the partnership system (cattle showroom program) at high scale

Keywords: partnership, social capital,breeder,cattle

Topic: Rural Development

[ABS-68]
Social Capital on Poultry Farms in South Sulawesi - Indonesia

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Abstract

SOCIAL CAPITAL ON POULTRY FARMS IN SOUTH SULAWESI - INDONESIA
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Social capital plays an important role in the development of poultry farms in South Sulawesi. Poultry farms consisted of laying hen farms and broiler farms. Most of laying hen farms were located in Sidrap Regency, while Broiler Farms were located in Maros Regency. The aim of this research was to know the social capital on poultry farms in South Sulawesi. Population of this research was 120 poultry farmers which consisted of 6o were laying hen farmers and 60 were broiler farmers. Variable of social capital was trust, norms and linkage. The data were collected from observation and depth interview by using questionnaire. There were 10 questions. The answer was scored by using Likert scale ranging from 1 refer to strongly agree; 2 refer to agree; 3 refer to not sure; 4 refer to disagree and 5 refer to strongly disagree. The data were analyzed descriptively using frequency distribution. The research revealed that trust and norms members of the group in broiler farms have higher level than that on laying hen farms, on the other hand, linkage or net working members of the group among laying hen farmers has higher level than that on broiler farms.

Keywords: Farms, poultry, social capital.

Keywords: Farms, poultry, social capital

Topic: Rural Development

[ABS-71]

FACTORS AFFECTING SUSTAIBALE DARIY PRODUCTION: A CASE STUDY FROM UVA PROVINCE OF SRI LANKA

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4Dept. of Agricultural Economics & Business Management, University of Peradeniya

Abstract

Keywords: Dairy production, UVA Province of Sri Lanka, technical efficiency, self-sufficiency

Topic: Rural Development

[ABS-74]
The Role of Gender on Beef Cattle Smallholder Farms

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Abstract

Beef cattle has an important role to fulfill demand for meat. Meat consumption increased relating to the increasing of income percapita and population growth. The development of beef cattle farms depend not only on natural resources but also depend on the availabity of human resources. The purpose of this research was to know the role of gender on beef cattle farms. This research was conducted in Luwu regency, South Sulawesi. Total sample was 31 beef cattle farmers which were choosed by random sampling. Data were collected through observation and depth interview by using questionnaire. There were 4 variables relating to gender analysis namely: role, access, control and benefit. The data were analyzed descriptively using frequency distribution. The research revealed that in general, man play a dominant role than women on beef cattle farms. Providing extention, access to information and financial institution will increase the role of women on beef cattle farms.

Keywords: Beef cattle, farms, gender, role, smallholder

Topic: Rural Development

[ABS-95]

Factors affecting performance of livestock extension agent increase in the adoption of feed technology beef cattle

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Abstract

The existence of extension agent is needed to increase effectiveness of extension activities. A good performance is the main thing in extension agent. This only allows when the socialization program is hosted by the institutional system extension that clear and its implementation supported by competent of extension agent . The research aims to analyze the factors that affected performance of livestock extension agent increase in the adoption of feed technology beef cattle. The research was conducted using a survey method with the total sample was 160 respondents. Data was analysed using descriptive equation and structural model analysis. The results showed that factors affected performance of livestock extension agent increase in the adoption of feed technology beef cattle were socio economic, socio psychological characteristics the performance of extension agent, and perceptions of farmers on the performance extension agent.

Keywords: extension agent, adoption of technology,beef cattle

Topic: Rural Development

[ABS-116]
ICT for Rural Development

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Abstract

Rural development should be based on people-center development; it means that there is an active role and participation of villagers in determining the direction of village development. The resources of the village should be maximally utilized. Infrastructure can be built and used by villagers; one of which is information communication technology (ICT), especially the internet. Villagers should get equal opportunities in internet access for both men and women. This can encourage productive economic activities that ultimately can build a village. Community empowerment based on ICT utilization should be mobilized. This paper discusses how ICTs for rural development and in particular how women can be empowered in utilizing ICT. So women can participate in rural development.

Keywords: Rural development, ICT, community, women, empowerment

Topic: Rural Development

[ABS-124]

FORESTRY DEVOLUTION MODEL FOR RESILIENCY OF SMALL FARMERS LIVELIHOOD SYSTEM IN THE FOREST AREA OF EASTERN INDONESIA.

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Abstract

There are 14,62 million small farmers and land conflict around the forest caused by the policy of forest centralization in Indonesia. In the forestry decentralization era, Indonesia was targeting 29,14 million ha of forest management rights schemes in the form of Forest Management Unit (KPH), Community Forests (HKM), Village Forests (HD), and Community-based forest plantation (HTR), but most of them stagnated and not reach the target. This paper discussed the result of devolution policy and type, that had a positive impact on accelerating the development of forest management rights and increasing livelihood of small farmers. The result illustrates (a) The policy of politic decentralization from the provincial government to the rights stakeholders to ensure the implementation of administrative and functional decentralization, signed by distribution and redistribution authority from bureaucracy to the lowest level causing high participation of small farmers, (b) The policy of administration decentralization creates spatial of forest area management by farmers and ensure security of tenure rights between land-based social relations in various small farmers group, (c) The policy of functional decentralization provides management rights to small farmers to develop Agroforestry patterns that enhance livelihood resilience while maintaining the quality of forest ecosystems.

Keywords: livelihood, forestry devolution model, resiliency, small farmers.

Topic: Rural Development

[ABS-130]
Access to Information and Farmers Welfare

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b. Universitas Hasanuddin
c. Universitas Tadulako

Abstract

will be constructed

Keywords: Access to Information, welfare, farmer

Topic: Rural Development

[ABS-137]

Impact of Life Expectancy, Literacy Rate, Opened Unemployment Rate and Gross Domestic Regional Income Per Capita on Poverty In the Districts/City in Central Sulawesi Province

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a) Muhammadiyah University
b) Tadulako University
c) Statistic Central Agency of Palu

Abstract

Research was conducted in several districts/city in Central Sulawesi Province in order to determine the effect of life expectancy, literacy rate, opened unemployment rate, and gross domestic regional income per capita on poverty at the districts/city in the province. The analysis used is Panel Data Regression. The results show that first, life expectancy and gross domestic regional income have a negative and significant impact on the poverty level in the districts/city in the Province. Second, the opened unemployment rate has a positive and significant effect on the poverty level in the districts/city in the province. Third, literacy rates show a positive effect and insignificant effect on the poverty level in the districts/city in the Province of Central Sulawesi. Fourth, these four variables simultaneously affect the poverty in the districts/city in Central Sulawesi

Keywords: life expectancy, literacy rate, opened unemployment rate, gross domestic regional income per capita, poverty

Topic: Rural Development

[ABS-143]

Analysis of Income Contribution and Efficiency on Labor Allocation in Household Industry using Raw Material of Agricultural Commodity in South Sulawesi.

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Department of Agriculture Socio Economic, Faculty of Agriculture, Hasanuddin University

Abstract

In South Sulawesi, various home industry businesses have grown, such as the business of making brown sugar, food processing industries and others scattered in several areas. This industry is actually the basis of community livelihoods that need to be developed and nurtured by the government because through the household industry, family income can increase and the absorption of workers which generally will improve the regional economy. The purpose of this study is to analyze the contribution of income, and efficiency of labor allocation in household industries made from raw agricultural commodities. The method of determining the respondents is done by direct appointment (purposive) on the industry players made from raw agricultural commodities. The type of research is quantitative descriptive and data are analyzed using income analysis, cost analysis, income contribution analysis, Working Day (HOK) analysis and efficiency analysis of labor allocation. The results showed that the average income earned per year ranged from Rp. 16.866.867, - up to Rp. 125,271,500 There are 2 industries that have high contribution to family income such as banana chips industry and rice milling industry with value of 96.3% and 68.7% respectively. In the meantime, there are 5 industries with high average labor allocation efficiency of Rp.218.135, - / HOK per day and above the efficiency standard of labor allocation based on UMR in South Sulawesi Province.

Keywords: Home Industry, Contribution of Income, Efficiency of Labor Allocation.

Topic: Rural Development

[ABS-144]

The Role of Farmers Group as Economic Enterprises Unit in Enhancing Production and Farmers Income

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Abstract

The research objectives are: (1) analyzing the role of farmer groups (Poktan) as an economic enterprises unit in enhancing production and farmers income in rural area; (2) identifying existing problems in Poktan development; (3) mapping the programs and activities needed by the farmers group to enhance their role as enterprises unit. The data were collected with FGD, indepth interview and survey methods. The research was conducted in Camba Sub-District of Maros Regency, South Sulawesi, Indonesia. The research employed qualitative approach with samples size are 2 Poktan consists of 50 members (farmers). The results showed that (1) the role of poktan as an economic enterprises unit is still low (score <1.5), (2) the existing problems are faced by poktan in an effort to enhanc production and farmers income includes (a) Poktan have not a function as a group yet (learning unit, cooperation and production) and have not saving, (b) more than 75% of farmers are doing horticulture farming traditionally (not using suitable technology), (3) Programs/Activities needed to enhance the role as economic enterprises unit: (a) Extension on land utilization, (b) plot demonstration of horticulture planting, (c) Post harvest extension and agricultural products (processing) marketing.

Keywords: Farners Group Role, Farmer Institutional, Economic Enterprises Unit

Topic: Rural Development

[ABS-145]

The Innovative Characteristics And the Obstruction of Technology Adoption for The Management of Integreted Plants (PTT) of Corn In Gowa Regency

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c) Balitsereal (Ministry Agricultural Indonesia), Maros Regency.

Abstract

This research aimed to analyze the effects of the farmers characteristic, innovation characteristics, and the obstruction faced in the technology adoption for the management of the integrated plants corn in Gowa Regency. The method used was explanative in character. Respondents comprised 80 corn farmers chosen randomly. the data were collected using the interviews method which were then quantified using likers scale. The data were then analyzed using the logistic binary regression analysis in order to test the hypothesis.The research results indicated that the farmers characteristics which consisted of the age, education, experience, and the land area had no significant effect on the technology adoption of maize integrated crops management (PTT). The innovative characteristics which consisted of the relative advantage, compatibility, complexity, triability, and observability had no significant effect on the technology adoption of maize integrated crops management. The obstruction of the adoption, which consisted of the limited capital, availability of inputs, and intensity of counseling had a significant effect on the adoption of maize integrated crops management. while the farmers knowledge had no significant effect on the adoption of maize integrated crops management. The variable of the limited capital had a positive coefficient, the more available the farmers capital the higher was the chance of farmers to adopt technology integrated crops management. The higher of the extension intensity, the higher of farmers chance to adopt the technology of the maize integrated corps management.

Keywords: Farmers characteristics, characteristics of innovation, obstruction of adoption, technology adoption, integreted crops management

Topic: Rural Development

[ABS-156]

Forestry Devolution Model for Resiliency of Small Farmers Livelihood System in the Forest Area of Eastern Indonesia

Dassir, M; Sadapotto, A; Paembonan, SAP.

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Abstract

There are 14,62 million small farmers and land conflict around the forest caused by the policy of forest centralization in Indonesia. In the forestry decentralization era, Indonesia was targeting 29,14 million ha of forest management rights schemes in the form of Forest Management Unit (KPH), Community Forests (HKM), Village Forests (HD), and Community-based forest plantation (HTR), but most of them stagnated and not reach the target. This paper discussed the result of devolution policy and type, that had a positive impact on accelerating the development of forest management rights and increasing livelihood of small farmers. The result illustrates (a) The policy of politic decentralization from the provincial government to the rights stakeholders to ensure the implementation of administrative and functional decentralization, signed by distribution and redistribution authority from bureaucracy to the lowest level causing high participation of small farmers, (b) The policy of administration decentralization creates spatial of forest area management by farmers and ensure security of tenure rights between land-based social relations in various small farmers group, (c) The policy of functional decentralization provides management rights to small farmers to develop Agroforestry patterns that enhance livelihood resilience while maintaining the quality of forest ecosystems.

Keywords: livelihood, forestry devolution model, resiliency, small farmers

Topic: Rural Development

[ABS-167]

TRIPLE METHODS IN DETERMINING PRIME AGRICULTURE COMMODITIES

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Abstract

Local governments should be able to take pay attention to plan action in efficient way in developing economy of the regency, in order to optimise the economic advantages in the region and to encourage local economic growth. For this purpose, it should be considered to design development planning through selecting sub-sectors and prime products in further design plan of action for the region. This research aims to determine selective prime commodities and sub sector potential through three methods which ares: 1) Location Quotient Analysis, 2) Analytical Hierarchy Procces (AHP) 3) Exponential Comparation Method /MPE. The resulst show that the plantation sub-sector is selected as sector basisof the economy with the value of LQ=1,3694 or LQ>1. In line with the plantation subsector which is nominated as the prime subsector in Tolitoli regency with weight priority value of 0.2927, then the cloves product is selected as prime commodity in the Region with the MPE total weight of 13.1416, and this commodity is nominated as commodity basis with the LQ value of 13.5754.

Keywords: Agriculture sector,Sector basis,Prime commodities.

Topic: Rural Development

[ABS-175]

THE EMERGING ROLES OF AGRICULTURAL INSURANCE AND FARMERS COOPERATIVES ON SUSTAINABLE RICE PRODUCTIONS IN INDONESIA

Christianto Lopulisa, Risma Neswati, Andi Ramlan

Hasanuddin University

Abstract

Keywords: agricultural insurance, farmer cooperatives, sustainable agriculture, rice production

Topic: Rural Development

[ABS-190]

Transdisciplinary Research on Local Community Based Sago Forest Development Model for Food Security and Marginal Land Utilization in the Coastal Area

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Abstract

The most important issue in food security in Indonesia is limited land area which is suitable for food crops. The rice production itself already reached its highest potency. It is urgent to search for a breakthrough both in available land and alternative food to strengthen the food security for the increasing population in Indonesia and in the world. Eastern part of Indonesia seems to have hidden answer for the food security issues. Sago plant is origin from Indonesia, and still conserved in form of sago forest in Papua and Maluku but developed as plantation for Industrial use in Sumatra but Sulawesi has its unique semi-cultivated system for food production while still maintaining the forest ecology of Sago plant. This paper will describe the transdisciplinary approach in developing a model of sago plant development based on local community. The model is derived based on the research findings related to characteristic of semi-cultivation of sago plant. The model will be utilized as a framework in sago cultivation development to maintain the existing sago forest which is now less than 5000 ha in Tana Luwu of South Sulawesi and in future will increase the forest area. Some scientific research in estimating the sago forest area in Tana Luwu and estimation of production capacity of semi cultivated sago forest will be also introduced in this paper in order to describe the merit of developing semi cultivation system of sago forest.

Keywords: : transdisciplinary research, community based, sago plant, marginal land, wetland, coastal area, Sulawesi

Topic: Rural Development

[ABS-191]

Analysis of Income Contribution and Efficiency on Labor Allocation in Household Industry using Raw Material of Agricultural Commodity in South Sulawesi.

A.Nixia Tenriawaru1.1, Mahyuddin1.2, St. Nurbaya2.1 Akhsan1.3, M. Arsyad1.4, Saadah1.5, Letty Fudjaja1.6, Hatta Jamil1.7, Rahim Darma1.8

Department of Agriculture Socio Economic, Faculty of Agriculture, Hasanuddin University

Abstract

. In South Sulawesi, various home industry businesses have grown, such as the business of making brown sugar, food processing industries and others scattered in several areas. This industry is actually the basis of community livelihoods that need to be developed and nurtured by the government because through the household industry, family income can increase and the absorption of workers which generally will improve the regional economy. The purpose of this study is to analyze the contribution of income, and efficiency of labor allocation in household industries made from raw agricultural commodities. The method of determining the respondents is done by direct appointment (purposive) on the industry players made from raw agricultural commodities. The type of research is quantitative descriptive and data are analyzed using income analysis, cost analysis, income contribution analysis, Working Day (HOK) analysis and efficiency analysis of labor allocation. The results showed that the average income earned per year ranged from Rp.16.866.86,- up to Rp.125,271,500,-. There are 2 industries that have high contribution to family income such as banana chips industry and rice milling industry with value of 96.3% and 68.7% respectively. In the meantime, there are 5 industries with high average labor allocation efficiency of Rp.218.135, - / HOK per day and above the efficiency standard of labor allocation based on UMR in South Sulawesi Province.

Keywords: : Home Industry, Contribution of Income, Efficiency of Labor Allocation.

Topic: Rural Development

[ABS-124]

Response and Strategy of Women Farmers in Land Conflict to Secure Family and Community Food Security

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Abstract

Land conflict regarding to agricultural and plantation programs in the village are experienced in high numbers in Indonesia that could affect the efforts and production of farmers in food security reminds unsolved. This paper deals with conflict of women farmer community in plantation. The research was conducted using qualitative method. The results show that the destruction of paddy fields and other commodities that have been cultivated by farmers are often the costs due to disputes that occur. The response of farmer communities to defend their land rights varies greatly from peaceful or violent attempts. The strategy to resolve land conflicts by women farmer communities to face the sugarcane plantations owned by PTPN XIV in Takalar Regency, South Sulawesi, Indonesia demonstrates the efforts of women farmer to anticipate the impact of land conflict on family and community food security. This implies that women farmers should take a role in solving and resoluting the conflict in plantation in order to keep food security in the country.

Keywords: Women Farmer, Land Conflict, Food Security

Topic: Rural Development

[ABS-122]

Economy and Political Ecology Perspective of Indonesian Food Security at South Sulawesi

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Abstract

The purposes of this study are: firstly, to demonstrate the relations of agro-ecological function, agricultural innovation system, social-ecological system and political ecology to encourage production for Indonesian Food Security Program (PKP) in South Sulawesi. Secondly, to identify the most influential and interested stakeholders in the success of PKP program. The study conducted by applying an interdisciplinary analysis of triangulation method. The result showed the success of PKP in South Sulawesi with the achievement of 2 million rice overstock mainly impacted by the application of agro-ecological concept, agricultural innovation system, and political ecology while disregarding the concept of social agroecology.

Keywords: Food Security, Political Economy, Political Ecology, Stakeholders.

Topic: Food Security Institutions

[ABS-121]

Competitiveness, Production, and Productivity of Cocoa in Indonesia

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Abstract

Cocoa is one of Indonesia's important export commodities, thus it must stay competitive for the export market. The aims of this study are analysing the cost structure; the level of competitiveness; and the governments map policies that affect the competitiveness of coca plants. The method used is descriptive qualitative and quantitative. Data analysis is done by using Policy Analysis Matrix (PAM) which resulted that almost 50% of cocoa' production cost is allocated for wages; and 31.6% for renting the land. In conclusion, productivity, output prices, and exchange rates should be raised, meanwhile, input prices should be lowered; so that, cocoa farming can provide higher net transfer values for the farmers.

Keywords: Cocoa, Competitiveness, Productivity, Cost Structure, PAM

Topic: Rural Development

[ABS-123]

Indonesian Jellyfish as Potential for Raw Materials of Food and Drug

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Abstract

Jellyfish used to be considered as a pest of fish and a nuisance to fishing operations. Yet, forty years ago this jellyfish was found to be materials of food, medicine and cosmetics and the utilization of jellyfish is now familiar in Indonesia after being imported by China and Japan industry. This study aims to determine the potential development of jellyfish commodities as food and drugs from Indonesia with the target to improve the welfare of fishermen. This research used methods of rapid observation, limited interview, processing with immersion experiment and desiccation. In addition, various literatures were also used to enrich the knowledge about jellyfish business. Observation showed that the appearance of jellyfish in Indonesian waters varies based on the fertility of the waters affected by oceanographic conditions. Jellyfish contains low calorie and fat content, high protein and minerals as well as total collagen. Thus, jellyfish is a nutritious food source to be developed into food supplements, nutricosmetics and functional foods. Due to its large size, the jellyfish from Bunyu Island is more viable than jellyfish from Suppa Pinrang to be exported as raw material. Therefore, the manufacture of food and medicines from jellyfish materials is possible to be done in Indonesia.

Keywords: Jellyfish, Food and Drug, Indonesia

Topic: GMO Food, Food Security and Product Development