



# PROCEEDINGS of the International Seminar

The Council of Rector of Indonesian State University (CRISU)  
and The Council of University President of Thailand (CUPT)

“EXPLORING RESEARCH POTENTIALS”

Editors:

A. Muslim (Indonesia); Siti Herlinda (Indonesia); Nurly Gofar (Malaysia);  
Melanie Bournsell (Australia); K.T. Tantrakarnapa (Thailand);  
Judhiastuty Februhartanty (Indonesia); Misnaniarti (Indonesia);  
Najmah (Indonesia); Suci Destriatania (Indonesia)

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PALEMBANG, INDONESIA, 20-22 OCTOBER 2011

Proceedings of the International Seminar on Exploring  
Research Potentials, Palembang, 20-22 October 2011

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## FOREWORD

Dear special guests:

Minister for National Education, Ambassadors of Thailand for Indonesia, Ambassadors of Indonesia for Thailand, all delegates from The Council of Rector of Indonesian State University (CRISU) and The Council of University President of Thailand (CUPT), Government of South Sumatra and Palembang City, and all The 6<sup>th</sup> CRISU-CUPT Conference, International Seminar and Exhibition participants

On behalf of the Sriwijaya University as Host University, I would like to extend my warmest welcome to all of the participant of The 6<sup>th</sup> CRISU-CUPT Conference, International Seminar and Exhibition, held on 20<sup>th</sup>-22<sup>nd</sup> October 2011 at Sriwijaya University Palembang with the join theme "Exploring Research Potentials".

There will be many challenges and opportunities in higher education in the Asean Community in the next decade. This is, therefore, considerable significant will arise from the The 6<sup>th</sup> CRISU-CUPT Conference, International Seminar and Exhibition. The previous five CRISU-CUPT conferences have been sigificantly deepening the relationships and come up with very fruitfull discussion in various subjects of collaboration and cooperation, for example, global warming, global mobility, academic interaction and cross-fertilization. The 5th conference was held in Chiang Mai, Thailand on July 7<sup>th</sup>-9<sup>th</sup> 2010 and appointed Sriwijaya University as a host for the 6th conference.

The 6th CRISO-CUPT conference will include many agenda, with not only include the meeting of the President Forum, the Dean Forum, and the Student Forum, but also will include international Seminar and Exhibition. This conference, therefore, might come up with more fruitfull conclusion and deepest commitment among participants.

With regard to considerable conference agenda, we greatly appreciate any support and sponshorship derived from any govermental as well as private institutions for the success of the conference. Great appreciation is also handed to organizing committe of the conference for any voluntarily effort that bring to the succes of the conference.

The 6<sup>th</sup> CRISU-CUPT Conference, International Seminar and Exhibition is being attended by about 600 participants. I hope you enjoy the beauty of Palembang City as one of the oldest city in Indonesia which is 1318 years old, established during the glory of the vast Sriwijaya Kingdom. The city also have variety of interesting culture and places.

Palembang, October 2011  
Chairperson,



Prof. Dr. Badia Perizade, M.B.A  
Rector of Sriwijaya University

## TABLE OF CONTENTS

Foreword	iii
Table of Contents	iv
Papers of Keynote Speakers:	
1. Mental Illness In Australia ( <b>Dr. Melanie Bournell</b> , University of Newcastle Australia)	xvi
2. Chemical Toxicology towards humans health and EHIA (Environmental Health Impact Assessment) in Thailand ( <b>Prof.Kraichat Tantrakarnapa</b> , Faculty of Public Health, Mahidol University, Thailand)	xxvi
3. Nutrition transition in Indonesia ( <b>DR. Ir. Judhiastuty Februhartanty</b> , M.Sc, SEAMEO RECFON Indonesia, Indonesia University)	xxxvii
4. Cancer : Genetic And Environmental Causes And Risk Factors ( <b>Prof Dato' Dr. M.S. Lye</b> , University Putra Malaysia)	vi
5. Accelerating Diversification In Food Consumption Based on Indigenous Resources as An Alternative Action To Support Food Security In Indonesia ( <b>Prof. Dr.Rindit Pambayun, M.P</b> , Sriwijaya University, Indonesia)	vi
Papers of Presenters:	
<b>A. Food Security</b>	
1. Diversity, Domination, and Distribution Of Rice Stem Borer Species and it Interaction with Egg Parasitoids in Various Land Typology in Jambi ( <b>Wilyus<sup>1</sup>, Siti Herlinda<sup>2</sup>, Chandra Irsan<sup>2</sup>, Yulia Pujiastuti<sup>2</sup></b> : <i>Agriculture Faculty of Jambi University, Faculty of Agriculture, Sriwijaya Universi y</i> )	1
2. Land Suitability for <i>Elaeis Guineensis</i> Jacq Plantation in South Sumatra, Indonesia ( <b>M. Edi Armanto<sup>*1,2</sup>, M.A. Adzemi<sup>2</sup>, Elisa Wildayana<sup>1</sup>, M.S. Imanudin<sup>1</sup>, S.J. Priatna<sup>1</sup> and Gianto<sup>3</sup></b> : <i><sup>1</sup>Faculty of Agriculture, Sriwijaya University, South Sumatra, Indonesia, <sup>2</sup>Faculty of Agrotechnology and Food Science (FASM), UMT Terengganu, Malaysia, <sup>3</sup>Forestry Delineation Agency, Department of Forestry, Indonesia</i> ).	10
3. From Economic Valuation to Policy Making in Forest Conversion for <i>Elaeis Guineensis</i> Jacq Plantation ( <b>Elisa Wildayana<sup>*1</sup>, M. Edi Armanto<sup>1</sup> and M.A. Adzemi<sup>2</sup></b> : <i><sup>1</sup>Faculty of Agriculture, Sriwijaya University, Indonesia, <sup>2</sup>Faculty of Agrotechnology and Food Science (FASM), UMT Terengganu, Malaysia</i> )	19
4. Floating Agriculture Model from Bamboo for Rice Cultivation on Swamp Land At South Sumatra ( <b>Siti Masreah Bernas, Siti Nurul A.F. and Agung Maulana</b> : <i>Soil Science Program Study and Low Land Management Field, Agricultural Faculty, Sriwijaya University</i> )	27
5. The Responsiveness of Jambi Rice Acreage to Price and Production Costs ( <b>Edison</b> : <i>Faculty of Agriculture, Jambi University, Indonesia</i> )	34

6. Wage Rigidity Analysis as an Indicator of Agricultural and Non Agricultural Labor Market Distortions In Indonesia: Error Correction Model (ECM) Approach (Dessy Adriani<sup>2</sup>, Andy Mulyana<sup>3</sup>, Amruzi Minha<sup>3</sup>, Nurlina Tarmizi<sup>3</sup>: Faculty of Agriculture, Sriwijaya University, Indonesia) 40
7. Predator *Aphis gossypii* on Vegetable at Low Land areas in South Sumatera (Khodijah, Haperidah Nunilahwati, Dewi Medalima : Faculty of Agriculture, Sriwijaya University, Indonesia) 49
8. Population and Attack of *Liriomyza Sativae* (Diptera : Agromyzidae) and Its Interaction with Parasitoid on Tomato Cropping in Lowland of South Sumatra (Siti Herlinda, M. Yunus Umar, Yulia Pujiastuti, and Rosdah Thalib, Chandra Irsan : Plant Pest and Disease Department, Faculty of Agriculture, Sriwijaya University) 56
9. Integration of Palm Fruit Plantation And Cattle; Potential System to Improve Cattle Production (Armina Fariani, Arfan Abrar and Gatot Muslim : Animal Science Department, Faculty of Agriculture, Sriwijaya University) 66
10. Application of *Penicillium* spp. Produced in Waste Materials to Control Neck Root Rot Diseases Caused by *Sclerotium rolfsii* Sacc. on Chili (A. Muslim; Sari Eka Permata; Harman Hamidson : Program Study Agroecotechnology, Faculty of Agriculture, Sriwijaya University) 70
11. Purification and Characterization Collagenase from *Bacillus licheniformis* F11.4 (Ace Baehaki<sup>1</sup>, Maggy T.Suhartono<sup>2</sup>, Sukarno<sup>2</sup>, Dahrul Syah<sup>2</sup>, Azis B.Sitanggang<sup>2</sup>, Siswa Setyahadi<sup>3</sup> and Friedhelm Meinhardt<sup>4</sup> : <sup>1</sup>Departement of Fisheries Product Technology, Faculty of Agriculture Sriwijaya University, <sup>2</sup>Faculty of Agricultural Technology Bogor Agricultural University, <sup>3</sup>Agency for the Assessment and Application of Technology, Republic of Indonesia, <sup>4</sup>Institute for Molecular Microbiology and Biotechnology, University of Munster Germany) 75
12. Biological Reproduction *Menochilus Sexmaculatus* (F.) Predator Chili (*Aphis Gossypii* Glover) From Central Vegetable At Low Land Areas In South Sumatera (Haperidah Nunilahwati, Dewi Meidalima, dan Khodijah : Agriculture Faculty of Sriwijaya University, Indonesia) 84
13. Competitiveness and Minimum Regional Price of Arenga Palm Sugar ; Case Study of Small Palm Sugar Industries in Rejang Lebong Regency, Bengkulu Province (Ketut Sukiyono, Bambang Sumantri, Nusril And Evanila Silvia : Department of agricultural socio – economics, Faculty of Agriculture, Bengkulu University) 91
14. Plant Clinic: Driving Farmers Profit Partners (Chandra Irsan, Suwandi, A. Muslim, Siti Herlinda : Department of Plant Pests and Diseases, Faculty of Agriculture, Sriwijaya University) 98
15. The Role of Biotechnology In Overcoming the World Food Crisis (Suranto : Department of Biology, Faculty of Natural Sciences and Mathematic-UNS-Solo) 104
16. The Impact of Innovation Acceleration of Paddy Commodities at Irrigation Agroecosystem In Musi Rawas Regency (Yanter Hutapea and Tumarlan Thamrin : South Sumatra Assessment Institute for Agricultural Technology, Indonesia) 110

17. Performance of Several High Lines of Tolerant Rice to Iron Toxicity in Tidal Swamp Area in South Sumatra 116  
(**Tumarlan Thamrin, Rudy Soehendi, Waluyo dan Syahri** : *South Sumatra Assessment Institute for Agricultural Technology, Indonesia*)
18. Performance of Submergence Tolerant Rice in South Sumatra to Anticipate the Impact of Climate Change 122  
(**Tumarlan Thamrin, Imelda SM, Waluyo dan Syahri** : *South Sumatra Assessment Institute for Agricultural Technology, Indonesia*)
19. The Dynamics of Iron (Fe) Solubility As a Result of Sulphate Acid Soil Reclamation and the Way to Control 128  
(**NP. Sri Ratmini<sup>1</sup>, dan Arifin Fahmi** : *South Sumatera Assessment Institute for Agricultural Technology, Indonesia*)
20. Increasing Income Through Implementation of Integrated Farming System in Tidal Swamp Area 137  
(**NP. Sri Ratmini dan Herwenita** : *South Sumatera Assessment Institute for Agricultural Technology, Indonesia*)
21. Study of Erosion on Different Types of Land Use in the Region Upstream Watershed Area (Das) Komerling South Sumatra 144  
(**Satria Jaya Priatna<sup>1</sup>, M.Edi Armanto<sup>1</sup>, Dinar DA. Putranto<sup>2</sup>, Edward Saleh<sup>1</sup>, Robiyanto HS<sup>1</sup>, Niken Suhesti<sup>1</sup> and S.N Aidil Fitri<sup>1</sup>** : *<sup>1</sup>Faculty of Agriculture, Sriwijaya University, South Sumatra, <sup>2</sup>Faculty of Engineering, Sriwijaya University, South Sumatra, Indonesia Indonesia*)

## B. Environmental and Climate Change

22. Study of Palm Empty Fruit Bunches Processing Technology As Saccharide Source For Friendly Environment Surfactant (**Joni Karman** : *Assessment Institute for Agricultural Technology in South Sumatera*) 151
23. Assessment of Pb Content of Motor Vehicle Emissions of Origin On Soil And Plant In Island Village Semambu Km 22 Highways Indralaya – Palembang 161  
(**A. Napoleon, Dwi Probowati S, Marji Putranto** : *Faculty of Agriculture Sriwijaya University*)
24. Using The Forest Zone Through The Low Carbon Development for The Welfare of the Orround Forest Society (Using the Forest Zone through the Low Carbon Development for the Welfare of the Orround Forest Society) 168  
(**Najib Asmani** : *Agriculture Faculty and Graduate Post Program Sriwijaya University, Palembang, Indonesia*)
25. Run off, Erosion, and Yield of the Sweet Corn (*Zea mays* var. *saccharata*) as result of Sheep Manure Application and Terracing 174  
(**Ruarita Ramadhalina Kawaty** : *Faculty Agriculture Tridinanti University, Indonesia*)
26. Stilbenes from The Heartwood of *Morus Nigra* and their Cytotoxicity 179  
(**Ferlinahayati<sup>1</sup>, Euis H. Hakim<sup>2</sup>, Yana M. Syah<sup>2</sup>, Lia D. Juliawaty<sup>2</sup>, Jalifah Latip** ; *<sup>1</sup>Department of Chemistry, Faculty of Mathematics and Natural Sciences, Sriwijaya University, <sup>2</sup>Natural Product Research Group, Department of Chemistry, Institut Teknologi Bandung, <sup>3</sup>School of Chemical Science & Food Technology,*

36. Social Benefit of Coal Mining Activity (**Syaifudin Zakir<sup>1</sup> and Restu Juniah<sup>2</sup>**) 242  
*<sup>1</sup>Dept. Public Administration Faculty Social and Political Sciences, Sriwijaya University, <sup>2</sup>Environmental Science Program University of Indonesia*
37. Behavior of Connection Rotations Composite Steel Beam with Partial Strength Using Trapezoid Web Profiled 250  
**(Anis Saggaff<sup>1</sup>, Mahmood Md. Tahir<sup>2</sup>, And Arizu Sulaiman<sup>3</sup>** : *Civil Engineering Department, Faculty of Engineering, Sriwijaya University, <sup>2</sup>Steel Technology Centre, Faculty of Civil Engineering, University Teknologi Malaysia, <sup>3</sup> Faculty Of Civil Engineering, Universiti Teknologi Malaysia.*
38. Chemical Compound from Endophytic Fungi of Medicinal Plant Used in Treatment Of Gout (**Elfita<sup>1\*</sup>, Muharni<sup>1</sup>, Munawar** : *Faculty of Mathematics and Natural Sciences , Sriwijaya University*) 259
39. 3-OXO Friedelin Compound from the Stem Bark of Manggu Leuweung (*Garcinia cornea*) 265  
**(Muharni<sup>\*</sup>, Elfita, Handi** : *Department of Chemistry, Faculty of Mathematics and Natural Science, Sriwijaya University, Indralaya., South Sumatera, Indonesia*)
40. Antioxidant Flavonoids from Tunjuk Langit (*Helminthostacys Zaylanica*) 271  
**(Fitrya<sup>1\*</sup>, Muharni<sup>1</sup> dan Eliza** : *Department of Chemistry, University of Sriwijaya*)
41. The Industry Characteristic and Managers View: their Influence On Employment Relations In The Indonesian Hospitality Industry (Explorations From Three Case Studies) 276  
**(Hendragunawan S<sup>1</sup>. Thayf, John Lewer** : *Hasanuddin University, Indonesia*)
42. Competitiveness of Management State-Owned Enterprises (Soes) Telecommunications 289  
**(Kesi Widjajanti** : *Faculty of Economic Semarang University, Semarang, Indonesia*)
43. Prospects and Challenges of The Introduction of Open Educational Resources in Indonesia (**Daryono, Udan Kusmawan, Olivia Idrus**) 299
44. Research Collaboration on Quality Assurance for Open and Distance Learning in Asia (**Endang Nugraheni, Aminudin Zuhairi** : *Universitas Terbuka, Indonesia*) 306
45. Fast Ship Serving Makassar, South Sulawesi to Majene, West Sulawesi 313  
**(Muhammad Alham Djabbar and Andi Haris Muhammad** : *Ocean Engineering Study program, Department of Naval Architecture, Faculty of Engineering, Hasanuddin University, Makassar, Indonesia*)
- D. Public Health and Medical Science**
46. Pesticides Exposure and Liver Dysfunction on Childbearing-Age Women in Kersana Sub District, Brebes Regency 316  
**(Arum Siwiendrayanti** , *Public Health Department, Sport Science Faculty, Semarang State University*)



47. Factors Related to The Occurrence of Low Back Pain Complaints On Employee Section of Corporate Customer Care Center (C4), PT Telekomunikasi Indonesia, Tbk Year 2010 325  
(**Yuli Amran, M. Farid Hamzens, Juniar Tri Syafitri**, *State Islamic University Syarif Hidayatullah Jakarta*)
48. Relation of Work Risk Factors with Musculoskeletal Disorders (MSDs) Complaints of Gold Miner Workers In Subdistrict Ciligrang-Banten on 2010 334  
(**Yuli Amran, Raihana Nadra Alkaff, Endang Bukhori**, *State Islamic University Syarif Hidayatullah Jakarta*)
49. Effect of Rehydration Solutions on Fatigue Among Women Workers 343  
(**Mardiana**, *Public Health Departement, Sport Science Faculty, Semarang State University*)
50. The Association between Risk Factors, RULA Score, and Musculoskeletal Symptom among Workers in a Printing Manufacturing Company, Malaysia 349  
(**MC Foong, <sup>2</sup>A Mohd Yusof, <sup>1</sup>B Mohd Rafee, and <sup>1</sup>AA Ahmad**  
<sup>1</sup>*Department of Community Health, Faculty Medicine and Health Sciences, University Putra Malaysia, )*
51. Productive Work Time Lost Because Of Employee Smoking Behaviour in Wood Industry in Jepara District Central Java 356  
(**Nurjanah<sup>1</sup>, Zahroh Shaluhiah<sup>2</sup>, Bagoes Widjanarko<sup>2</sup>** : <sup>1</sup>*Master Student of Health Promotion Program of Diponegoro University, lecturer of Health Faculty of Dian Nuswantoro University, Semarang.* <sup>2</sup>*Lecturer of Health Promotion Program of Diponegoro University, Semarang*)
52. Water Quality and Water Borne Disease at The Lowland Ecosystem in Banyuasin 366  
(**Dianita Ekawati<sup>1</sup>, Tan Malaka<sup>2</sup>, Robiyanto<sup>3</sup>, M.T. Kamaluddin<sup>2</sup>, Dwi Setiawan<sup>3</sup>, Amar Muntaha<sup>1</sup>**  
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<sup>2</sup>*Medicine Faculty of Sriwijaya University*  
<sup>3</sup>*Agriculture Faculty of Sriwijaya University*
53. Measuring *Escherichia Coli* in Foods And Beverages Towards Certification of Cafeteria In Campus 381  
(**Dewi Susanna<sup>1</sup>, Yvonne M. Indrawan<sup>1</sup>, Zakianis<sup>1</sup>, Tris Eryando<sup>1</sup>, Lassie Fitria<sup>1</sup>, Kartika A Dimarsetio<sup>1</sup>, Aria Kusuma<sup>2</sup>**  
<sup>1</sup>*Faculty of Puclic Health, Indonesia University,* <sup>2</sup>*Doctoral Student of Public Health Science, Indonesia University, Indonesia*)
54. Pesticide, Adverse, and Safe Handling to Woman of Child Bearing Age (WCA) in Agriculture Area (**Imelda Gernauli Purba** : *Faculty of Public Health, Sriwijaya University, Indonesia*) 385
55. Comparative Analysis of Occupational Safety and Helath Risk Management Program at University of Indonesia and National University of Singapore 396  
(**Anita Camelia**, *Faculty of Public Health, University of Sriwijaya, Indonesia*)
56. Analysis of levels of lead (Pb) in semen and sperm motility at the Laboratory of Medical Biology Faculty of Medicine, University of Sriwijaya Palembang 406  
(**Nani Sari Murni<sup>1</sup>, Tan Malaka<sup>2</sup>, dan M. Zulkarnain<sup>2</sup>** : *STIK Bina Husada,* <sup>2</sup>*Faculty Medicine Of Sriwijaya University*)

57. The Correlation of the Use of PPE(Personal Protective Equipment With Respiratory Disorders of Wood Furniture Workers In Kecamatan Indralaya and Kecamatan Indralaya Utara 2011 432  
(**Herliawati, Christine Sihaloho** : *Nursing Science Study Program, Faculty Medicine, Sriwijaya University, Indonesia*)
58. Value of Children as Determinants Parenting Nutrition on The Environment Vulnerable Sociocultural Nutrition (Village Pecuk, District Mijen, Demak Regency, Central Java) 438  
(**Okta Woro Kasmini H**, *Department of Public Health Sciences FIK UNNES Semarang*)
59. Analysis of Rhodamine B in Cookie of Traditional Food Type (Study at Pasar Tanjung of Jember Regency) 445  
(**Khoiron, Astri Rizky Vitantina, Rahayu Sri Pujiati**, *Departement of Environmental Health and Occupational Health & Safety Faculty of Public Health, University of Jember*)
60. Determinant Factor of Anemia Status Among Vegetarian Female Adolescent In Badung District of Bali Province 453  
(**Putu Widarini**, *School of Public Health Udayana University*)
61. Diet, nutrition and the prevention of cervical cancer 459  
(**Ciptaningtyas, R**, *State Islamic University Syarif Hidayatullah Jakarta*)
62. The Correlation Between Macro Nutrient Consumption and Physical Activities With Overweight Among Children In Elementary School 472  
(Study at Al-Furqan Elementary School, Jember Regency)  
(**Leersia Yusi Ratnawati, Sulistiyani, Dwindia Prianton**, *Public Health Faculty, Jember University*)
63. Correlation of family participant with nutrition status of children under five years old in peguyangan village work area puskesmas iii of north denpasar 477  
(**Ni Ketut Sutiari, Ni Luh Sudiasih, I Gusti Agung Ayu Mahayuningsih**, *School of Public Health, Faculty of Medicine, Udayana University*)
64. Does Birthweight Related With Chronic Diseases In Adult Life? 488  
(**Suci Destriatania** : *Faculty of Public Health, University of Sriwijaya, Indonesia*)
65. Experience Breastfeeding Mother On Teens At Work Area Health Center Payaraman Year 2011 492  
(**Bina Melvia Girsang**, *Faculty of Medicine, Nursing Science Study Program UNSRI*)
66. The Effect of Maternal Nutrition Anemia towards Low Birth Weight 502  
(**Rini Mutahar, Misnaniarti, Fatmalina Febry** : *Faculty of Public Health, Sriwijaya University, Indonesia*)
67. Relationship Unhealthy Snack Habits with Diarrhea Incidence In Elementary School Children 508  
(**Fatmalina Febry, Najmah, Indah Purnama Sari** : *Faculty of Public Health, Sriwijaya University, Indonesia*)

68. Relationship Between Age and Lifestyle with prevalence Hypertension in Poly medicine Moehammad Hoesin Hospital Palembang of the Year 2011 513  
(**Nikson Sitorus, Desti Widiastuti**, *Health Polytechnic of Palembang Nursing Program*)
69. Determinants Pulmonary Tuberculosis Incident in District Banyuasin Multilevel Modelling Approach 519  
(**Rismala Kesuma, Kamaluddin, Ngudiantoro, Ibrahim Eddy, Tjek Yan Suryadi**, *Departement of Public Health, STIKES Darul Ma'arif Al Insan Baturaja, Indonesia*)
70. Enabling Factors of Doing Pap Smear/Iva Test among Women at Age  $\geq 35$  Years in Denpasar Who Diagnosed Cervical Cancer At Sanglah Hospital 2011 524  
(**Ni Luh Putu Suariyani, Regina Chrysantie Weking** : *School of Public Health, Faculty of Medicine, Udayana University*)
71. The Difference of Urinary Excretion Iodine (UEI) Increase between Primary School Children With and Without Ascariasis After Administration of Oral Iodized Capsule 531  
(**Galuh Nita Prameswari**, *Public Health Departement, Sport Science Faculty, Semarang State University*)
72. Analysis of Determinants of Tuberculosis In The Workers at PT. Perkebunan Nusantara XII (Persero) of Jember Regency 541  
(**Anita Dewi Prahastuti Sujoso, Ria Nuri Estu Karisma, Irma Prasetyowati**, *Departement of Environmental Health and Occupational Safety Health, Faculty of Public Health, University of Jember*)
73. Risk Factors of Lymphoma at dr. Soebandi Hospital of Jember District- East 549  
(**Ni'mal Baroya, Pudjo Wahjudi, Annisa Reykaningrum**, *Public Health Faculty, Jember University, Jember*)
74. Hip Structure Associated with Hip Fracture in Women: Data From the Geelong Osteoporosis Study (GOS) Data Analysis- Geelong, Australia 560  
(**Margaret Henry<sup>1</sup>, Najmah<sup>2</sup>, L. Gurrin<sup>3</sup>, J.Pasco<sup>1</sup>**  
<sup>1</sup> *Department of Clinical and Biomedical Sciences, The University of Melbourne, Australia,* <sup>2</sup> *Faculty of Public Health, Sriwijaya University, Kampus Unsri Indralaya, Ogan Ilir, Sumatera Selatan, Indonesia.* <sup>3</sup> *School of Population Health, The University of Melbourne, Australia*)
75. The Study of Diabetes Mellitus Risk Factors in Bangka Belitung 569  
(**Titi Sari Renowati, Anisyah, Amar Muntaha, Dianita Ekawati, Vera Susanti**, *Environmental Health Laboratory Agency and Disease Control, Palembang, Indonesia*)
76. Association of Knowledge, Perception, and Source of Information about Hiv Aids With Attitudes From Indonesian People To People Living With Hiv Aids (PLHA) (Analysis Of SDKI 2007), Indonesia, 2010 580  
(**Yeni, Najmah, Rini Mutahar** : *Faculty of Public Health, Sriwijaya University, Indonesia*)
77. Identification of Covert Patients With Filariasis and Epidemiologic Study of Filariasis in Sub-District of Tangkuno, Muna Regency, Province of Southeastern Sulawesi in 2009 593  
(**Ramadhan Tosepu , Devi Savitri Effendy** : *Public Health Department of*

- Mathematics and Natural Sciences Faculty of Haluoleo University, Kendari*
78. Characteristics among Injecting Drug Users Accessing and Not Accessing Needle And Syringe Program In Palembang, South Sumatera 599  
(**Najmah** Faculty of Public Health, Sriwijaya University, Indonesia)
79. The Use of Salivary A-Amylase And Stress-Related Symptoms Questionnaires as Indicator For Psychological Distress Among Breast Cancer Survivors 605  
(**Yong, H.W., Zubaidah, J.O., Saidi. M., Zalilah, M.S., Yong, H.Y. and Zailina. H** : *Universiti Putra Malaysia, Selangor, Malaysia*)
80. Self-Concept in Sexual Behavior of Campus Chicken's (*Ayam Kampus*) In Semarang 619  
(**Eti Rimawati**, *Health Faculty Universitas Dian Nuswantoro*)
81. The Sexual Relation Scripts of Premarital Sexual Intercourse among University Students In Bandar Lampung 626  
(**Roro Rukmi Windi Perdani** : *Faculty of Medicine, University of Lampung, Lampung Province, Indonesia* )
82. Development of Posyandu Information System for Supporting Surveillance of Maternal and Child Health (Case Study at Manisrejo Urban Village Taman District in Madiun City, East Java Province) 635  
(**Abu Khoiri**, *Public Health Faculty, University of Jember*)
83. Health Financing Reform as a Result of Decentralization Policy in Bali 641  
(**Putu Ayu Indrayathi**, Pande Putu Januraga, *School of Public Health Medicine Faculty of Udayana University*)
84. The Relationship between Marketing Mix and University Student Interest in Choosing Public Health Science Study Program Faculty of Medicine Andalas University 2011 647  
(**Isniati, Syahrial, Vonicha Regia**, *Faculty of Medicine, Andalas University*)
85. Healthy Behavior-Based Development Model to a Free Larvae Aedes Aegypti by Environmental Health Education In The Eastern District Padang 658  
(**Nizwardi Azkha, Rizanda Machmud** : *Faculty of Medicine, Universitas Andalas, Padang, Indonesia*)
86. Health Care Seeking Behaviour of Community and Tb Patients, And Capability of Nonformal Health Services Provider In Tanjung Bintang Subdistrict, Indonesia 670  
(**Nurul Islamy<sup>1</sup>, Agus Setyo Widodo<sup>2</sup>, Darman Zayadan<sup>2</sup>, Ferizal Masra<sup>3</sup>, Haris Kadarusman<sup>3</sup>, Bacht Alisjahbana<sup>4</sup>**  
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<sup>3</sup>*Health Institute Umitra Lampung,* <sup>4</sup>*Faculty of Medicine Padjajaran University*)
87. Influence of Life Skills on Sexual Behavior in Adolescent at Seberang Ulu Area of Palembang 677  
(**Iche Andriyani Liberty, Nur Alam Fajar, Elvi Sunarsih** : *Faculty of Public Health, Sriwijaya University, Indonesia*)

88.	Policy Review: Implementation Of The Development 'Desa Siaga' (Kepmenkes No 564/MENKES/SK/VIII/2006) ( <b>Iwan Stia Budi</b> Faculty of Public Health, Sriwijaya University, Indonesia)	684
89.	The Development Study of 'Desa Siaga' In Ogan Ilir District ( <b>Misnaniarti, Asmaripa Ainy, Nur Alam Fajar</b> : Faculty of Public Health, Sriwijaya University, Indonesia)	690
90.	Injection Drug Users (IDU) Behavior Toward Methadone Maintenance Therapy Program At Ernaldi Bahar Hospital 2010 ( <b>Tri Novia Kumalasari</b> Faculty of Public Health, Sriwijaya University, Indonesia)	697
91.	The Experience of Parents Who Have Temper Tantrums Toddler ( <b>Arie Kusumaningrum, Chodijah Abdul Qudus, Eka Yulia Fitri</b> : School of Nursing Science, Faculty of Medicine, Sriwijaya University, Indonesia)	705
92.	Factors that Influence the Behavior of Male Adolescence Smokers at Junior High School Kramat Jakarta ( <b>Cicilia Nony, Budi Sulistyowati, Wuryastuti</b> : School of Health Science, Sint Carolus)	714
93.	Stratification of Public Health Services For Elderly at Urban and Rural Areas in Indonesia ( <b>Ari Istiany, Rusilanti and Sachriani</b> : Home Economics Department, Jakarta State University, Indonesia)	718
	Summary Seminar	723
	Name and Adress of Presenter International Seminar	726

- Faculty of Science and Technology, Malaysia)*
27. Responses of Several Tropical Plant Species to Polluted Air Condition in the City 184  
(**E.S. Halimi and Dian Agustina** : *Department of Agroecotechnology Faculty of Agriculture Sriwijaya University*)
28. Freshwater Fish Diversity in Pulokerto Musi River, Palembang-South Sumatra: A Preliminary Results 189  
(**Hilda Zulkifli, Doni Setiawan and Indra Yustian** : *Department of Biology, Faculty of Science, Sriwijaya University*)
29. Vegetational Structure and Composition in Pulokerto Island, Musi River-Palembang, South Sumatra 195  
(**Indra Yustian dan Hilda Zulkifli** : *Department of Biology, Faculty of Science, Sriwijaya University*)
30. Climate Change, Environment and Plant Diseases Development 200  
(**Nurhayati** : *Department of Plant Pest and Disease, Agriculture Faculty, Sriwijaya University*)
31. Biophysical Characteristics of Tailings Deposition Area and Its Contribution to Vegetation Growth 206  
(**Yuanita Windusari<sup>1</sup>, Robiyanto Hendro Susanto<sup>2</sup>, Zulkifli Dahlan<sup>2</sup>, Wisnu Susetyo<sup>3</sup>, And Indra Yustian<sup>2</sup>** : *Doctoral student of Environmental Science and Lecture of Mathematic and Sciences Faculty of Sriwijaya University, <sup>2</sup> Lecture of Environmental Sciences Programme, Sriwijaya University and Supervisor commission, <sup>3</sup>Senior Advisor PT Freeport Indonesia and Supervisor commission*)
32. Biodegradation of Petroleum Hydrocarbon by Single and Consortium of Hydrocarbonoclastic Bacteria From Petroleum Polluted Mangrove Areas 212  
(**Hary Widjajanti<sup>1</sup>, Iswandi Anas<sup>2</sup>, Nuni Gofar<sup>3</sup>, Moh.Rasyid Ridho** : *<sup>1</sup>Agricultural Science of the Graduate Program of Sriwijaya University*)

### C. Energy, Education and Others

33. Temperature and Relative Humidity Gains of “Teko Bersayap” Model Solar Dryer (a Research Note) 221  
(**Yuwana, Bosman Sidebang and Evanila Silvia** : *Department of Agricultural Technology, Faculty of Agriculture, University of Bengkulu*)
34. Proposes of Implementation of Sustainable Subgrade on Highway Construction in South Sumatera By Using Coal Combustion Products (CCPs) as Stabilizer 228  
(**Achmad Fauzi<sup>1\*</sup>, Usama Juniansyah Fauzi<sup>2</sup>, Wan Mohd Nazmi<sup>3</sup>** : *<sup>1\*,3</sup> The Faculty of Civil Engineering and Earth Resources, University Malaysia Pahang, Malaysia. <sup>2</sup>Faculty of Civil and Environmental Engineering, Institut Teknologi Bandung, Indonesia*)
35. Green Pavement by Using High Density Polyethylene Modified Asphalt as Aggregate Replacement by, Faculty of Civil Engineering and Earth Resources, University Malaysia Pahang 236  
(**Wan Mohd Nazmi and Wan Abdul Rahman Wan Rohaya Wan Idris, and Achmad Fauzi Abdul Wahab** : *Faculty of Civil Engineering and Earth Resources, Universiti Malaysia Pahang, Lebuhraya Tun Razak, Gambang, Kuantan, Pahang, Malaysia*)

**COMPETITIVENESS AND MINIMUM REGIONAL PRICE OF ARENGA PALM SUGAR**  
**(Case Study Of Small Palm Sugar Industries In Rejang Lebong Regency, Bengkulu Province)**

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**ABSTRACT**

*This Research is aimed to determine the competitiveness and estimate the minimum regional price of palm sugar in Rejang Lebong Regency. This research is conducted in Agust 2011 at Air Meles Atas in Subdistrict of Selupu Rejang and Sindang Jaya in Subdistrict Sindang Kelingi in Rejang Lebong Regency. Respondents in this research are 86 palm sugar producers selected using simple random sampling and who are interviewed to collect primary data. Analysis method used are cost unit approach to measure competitiveness level as proposed by Coocburn and Siggel (1998) and Minimum Regional Price as suggested by Darwis (2011) to detemine minimum regional price of palm sugar. The research shows the average of unit cost ratio of palm sugar is less than 1, that is, 0.41. This indicates that palm sugar in Rejang Lebong has high competitiveness degree. The research also find that with current price, the palm sugarproducers still get profits even if their production decrease 10 %, or the production cost increase 20 %. With the current production, their businesses are still profitable. Even if these three simulations accour simultaneously, the palm sugar industries are still profitable. With these conditions, governments are unnecessary to intervene. The MRP of palm sugar in Rejang lebong is Rp. 8,176.87 with assumption of 30 % profit level. Since the MRP is far below the current amrket price, It is unnecessary government to intervene. It is better that price is formed under market mechanism.*

**Key Words:** *Arenga, Palm Sugar, Competitiveness, Minimum regional Price.*

## INTRODUCTION

Arenga palm sugar (gula aren) has been known for long time and has a good prospect as an export commodity. The development of this commodity is potential not only in domestic market but also in foreign markets due to increasing food manufacturing industries. Arenga palm sugar (gula aren) is one of the main commodities in Rejang Lebong. The existance of this commodity not only can be seen the area under arenga palm trees, but also from the numbers of households involve in this smaal industries. Recognizing this commodity significances, the local government has been implemented various policies to improve palm sugar productivity and quality. However, this commodity is stiiil unable to exploit its open marked opportunity and tend to experience decelerate growth. This problem could be detemined by many factors, one of which is its competitiveness degree.

For this reason, study on measuring the competitiveness level of palm sugar is significant. In line with this study, determining minimum regional price is also important to conduct in order to supply information to local government for better policy design. Departing from this discussion, this study is intended to measure commpotitiveness level of palm sugar and determine minimum regional price of palm sugar.

## RESEARCH METHOD

This research use survey approach intended to collect as much as possible information related to small palm sugar industries management including their cost, benefit and marketing. Research area is determined using two-stage cluster area sampling. First stage is selecting two subdistricts purposively based on the numbers of small palm sugar enterprises. Two subdistricts selected are Sindang Kelingi and Selupu Rejang. From each subdistrict, then, one vilage is selected purposively based on similar criteria. Two villages sected are Sindang Jaya and Air Meles atas in Sidang Keling and Selupu Rejang subdistricts repectively. Population of this research are small palm sugar industries, and using Simple Random Sampling, 86 small palm sugar enterprises are selected as respondents. Interview is conducted in August 2011.

Cost Unit approach proposed by Cockburn and Sieggel (1998) is applied to quantify Palm sugar Competitiveness. Cost Unit formula can be written as follows:

$$UC_d = \frac{TC_d}{VO_d} = \frac{TC_d}{Q \times P_d}$$

where  $TC_d$  is total production cost at domestic price,  $P_d$  is domestic price of palm sugar (price received by small industries),  $Q$  total palm sugar produced and sold. If  $UC < 1$  ( $UC < 1$ ), production cost is less than production value, this implies that palm sugar has a high competitiveness degree.

Determining minimum regional price (MRP) of palm sugar begin with calculating production cost per unit of production following closely to Darwis (2011).

$$PC = \frac{\sum(X_i P_i) + FC}{Q}$$

where  $PC$  is production cost per unit of production,  $X_i$  is  $i^{\text{th}}$  input production,  $P_i$  is price of input  $i^{\text{th}}$  and  $FC$  is fixed cost.

After calculating production cost per unit production, MRP is determined by conducting sensitivity analysis. This sensitivity analysis include (a) decreasing in production 10 percent, (b) palm sugar price decrease 20 percent, and (c) production cost increase 10 percent. If with this simulation, the small industries still get profit, MRP price is not necessary to set. Conversely, if with this simualtions, small palm sugar industries experinceshortfall, then MRP has to set up. To set up MRP, selling price of palm sugaris assumed to be particular percents above its production cost per unit, for instance, 20 percent. Therefore, MRP is calculated by  $MRP = 1.20 \times PC$ . This is the minimu price receive by small palm sugar industries.

## RESULT AND DISCUSSION

### *Respondent Characteristics*

From survey, it is found that palm sugar producers' age is 44.74 years on average with rang of 27 – 80 years old. With this average, it is suprisingly that they have long experinces in producing palm sugar, that is, 18.81 years. However, looking at educational background, more than 95 percent of palm sugar producers have low formal education background. This condition could become an obstacle in introducing a new technology to them. This is indicated by processing technology



applied by majority of palm sugar producers that is un change for long time. Marsigit (2005) also found that palm sugar producers still used simple processing technology to produce palm sugar reflected by the use of firewood to cook sugar. Looking at the numbers of palm trees, 13 palm trees are harvested for their Nira.

**Table 1. Respondent Characteristics**

No	Item	Frequency	Percentage	Mean	Range
1	Age (years)			44.74	27 - 80
	>56	12	13.95		
	35 – 55	61	70.93		
	< = 34	13	15.12		
2	Formal Education (years)			6.63	0 - 12
	>12	0	0.00		
	10 – 12	3	3.49		
	7 – 9	24	27.91		
	<=6	59	68.60		
3	Bisnis Experience (years)			18.81	6 - 41
	>=27	13	15.12		
	12 – 26	57	66.28		
	<=11	16	18.60		
7	Number of trees harvested (trees/hari)			12.38	4 - 30
	>=18	15	17.44		
	7 – 17	58	67.44		
	<= 6	13	15.12		

Source : Primary data (August 2011)

### **Competitiveness Analysis**

Cost of palm sugar production can be categorized into variable and fixed costs. Variable cost consist of expenses for Nira, ingredient, firewood, and labor while fixed cost includes depreciation. Average variable cost paid by palm sugar is Rp. 64,306.60 per production process (10.35 kg palm sugar on average) or Rp.6,968.05 per kg palm sugar. Palm sugar producers spend their cost of production mostly on labor and firewood which is approximately 84 percent of total production cost. Meanwhile, the fixed cost have to be paid by producer per production process is only Rp. 793.88 or Rp. 90.06,- per kg of palm sugar production. Hence, total cost of production paid to produce 10.35 kg (per production process) of palm sugar is Rp. 65,100.48,- or the total unit production cost is Rp. 7,058.11 per kg of palm sugar (See Table 2 for detail).

From research also found that average production per production process is 10.35 kg and price received by palm sugar Rp. 11,894.19,- This informs that total revenue of palm sugar producer earned is Rp 122,718.14 per process of production. With this revenue, palm sugar producers get a profit of Rp. 57,617.66. This means that firm efficiency denoted by revenue and cost ratio is 1.69. Thus, it can be conclude that palm sugar production conducted by producers in Rejang Lebong is efficient. This ratio also informs that every Rp. 1,- spent by producers to produce palm sugar will create Rp. 1.69,- revenue.

**Table 2** *Cost, Revenue, Profit And Competitiveness Level Of Small Palm Sugar Enterprises In Rejang Lebong Regency, 2011*

No	Item	Per Process	Per kg
1	Production (kg)	10,35	1
2	Price		11.894,19
3	Revenue	122.718,14	
4	Variable Cost		
	Nira	9.793,26	1.007,48
	Ingredient	114,46	12,23
	Firewood	30.277,96	3.220,83
	Labour	24.120,93	2.727,52
	Total Variable Cost	64.306,60	6.968,05
5	Fixed Cost (depreciation)	793,88	90,06
6	Total Cost	65.100,48	7.058,11
7	Profits	57.617,66	4.836,07
8	Efficiency		
	R/C ratio		1,69
	B/C ratio		0,69
9	Competitiveness		0,41

*Source: Primary data (2011)*

As mentioned above, economic cost unit is used as an incator of competitiveness of small palm sugar entreprises in Rejang Lebong regency. Economic cost unit is defined as ratio between total production cost divided by total production. As presented by Table 2, the cost unit ratio is 0.41. This ratio indicates that palm sugar competitiveness level is relative high. Siegel, et al (1998) said that if production cost per unit is more than one, it implies that this product has a high competitiveness degree. The reason is that palm sugar producer is able to produce a kg of palm sugar with cost spent less than its revenue per unit of production. This finding is relatif high compare to Asri (2009) finding. Asri (2009) found that competitiveness degree of palm sugar in Rejang Lebong is 0,54 in average. Argument that can be proposed to explain these dissimilarity findings is that the palm sugar price in 2011 increase twice those of in 2009, meanwhile price of inputs is relatively stable.

### ***Minimum Regional Price Assessment***

Price is one of the main incentive for palm sugar producers to maintain its business or to alter to other businesses. If the price is low, producer will not motivate to sustain his business, and conversely. Generally, price can be formed when the supply and demand are in equilibrium condition. This pice is formed in competitive market. However, palm sugar market is unlikely in competitive manners. Limited number of buyers at village level and upper level tend to create oligopsony market. This type of market can cause price distortion due to lack of competition among buyers as a result of limited buyers at village level and upper level. Price distortion can also be caused by asymeric information given by wholebuyers. That is why the establishing MRP is important to give palm sugar information the minimum level of palm sugar price with the intention that they are able to get profits.

As discussed in research method, the estimating MRP is began with the calculation of production cost per unit. Table 3 show the cost unit of production which is calculated from total production cost divided by total production per process. Total production cost required to produce 10.35 kg palm sugar is Rp. 65,100.48. This means that cost unit of production is Rp. 6,289.90 per

kg of palm sugar. Cost unit of production itself informs that selling price of palm sugar is in break even point. It means that if the price is in the unit cost level, producers do not gain profits but they also do not experience lossess. This price level, actually, can be used as an indicator for government to intervene or not. If the market price is similar or below cost unit of production, government should intervene so the palm sugar producers still have incentives to produce, *conversely*.

**Table 3 Total Production Cost, Totap Production per Process and Cost unit of Production of Palm sugar inRejang Lebong Regency, 2011**

No	Item	Production Cost (Rp)	
		per process	per kg
1	Variable Cost		
	Nira	9,793.26	1,007.48
	Ingredient	114.46	12.23
	Firewood	30,277.96	3,220.83
	Labour	24,120.93	2,727.52
	Total Variable Cost	64,306.60	6,968.05
2	Fixed Cost (depreciation)	793.88	90.06
3	Total Cost (Rp.)	65,100.48	7,058.11
4	Production (kg/process)		10.35
5	Production Cost Unit (Rp./kg)		6,289.90

Source: Primary data (August 2011)

After estimating cost unit of production, followed stage is measuring MRP by conducted several simulations. In this research, 3 simulations are performed, namely, production decrease 10 percent, palm sugar price decrease 20 percent, and production cost increase 10 percent. The simulation results are showed by Table 4 as follows.

**Table 4 Sensitivity Analysis**

No	Simulation	Production Value	Production Cost	Profit	
				Rp.	percentage
1	Existing Condition	122,718.14	65,100.48	57,617.66	88.51
2	Production decrease 10 %	110,794.34	65,100.48	45,693.86	70.19
3	Price decreases 20 %	98,483.86	65,100.48	33,383.38	51.28
4	Cost of Production increase 10 %	122,718.14	71,610.53	51,107.61	71.37
5	Combination of 2 ,3 and 4	88,635.47	71,610.53	17,024.95	23.77

Source: Primary Data (2011)

From Table 4, it can be concluded that even the palm sugar production decrease 10 percent palm sugar price decrease 20 percent, and production cost increase 10 percent as well as combination of those three simulations, palm sugar producers still get profits or their businesses are still profitable. For this reason and as long as profits are positive, it is unnecessary for government to intervene in order to stabilize palm sugar price. It is reasonable to let palm sugar price formed under market mechanism. The question is that when the government should intervene palm sugar market?. This question can be responded by conducting other simulations. For instance, the price of palm sugar decrease 50 % or palm sugar production decreases 50 %. This problem will cause palm sugar producer experiencing lossess. If the palm sugar price decreases 50 percent, producers

will lossess as much as Rp. 3,548.07. if this happen, the MRP should be set up. Then if producers want to get 30 percent profits, the MRP should be:

$$\begin{aligned} MRP &= 1.30 \times PC \\ &= 1.30 \times 6289.90 \\ &= \text{Rp. } 8,176.87 \text{ per kg} \end{aligned}$$

This MRP is far below actual market price of palm sugar. This implies that as far as market price is above MRP, it is needless for government to intervene even if the market price is similar to MRP. With this method, several simulation can be conducted to determine MRP based on level of profits wished by producers as follows.

**Table 4 Profit Simulation and MRP**

No	Simulation	MRP	Production Value	Production Cost	Profit
1	Profit 30 %	8,176.87	84,630.62	65,100.48	19,530.14
2	Profit 20 %	7,547.88	78,120.58	65,100.48	13,020.10
3	Profit 10 %	6,918.89	71,610.53	65,100.48	6,510.05

Source: Primary data (2011)

With this information, governments know when they have to intervene to stabilize plam sugar price. Darwis (2011) noted that this method is simple and easy to apply for determining minimum price at regional level. She also said that this method can be applied for any commodity, especially agricultural commodities and MRP can be applied for several crop seasons as long as the production cost per unit canges insignificant.

## CONCLUSION AND RECOMENDATION

Two conclusions can be drawn from this study as follows:

1. Palm sugar competititvness measured by unit production cost is 0.41. This competitiveness degree is quite high. To produce a kg of palm sugar, it is only required 41 percent of price received by palm sugar producers.
2. With current price of palm sugar, palm sugar producer still get profits even their production decrease 10 %, production cost increases 20 % and palm sugar price decrease 10 %. The minimum regional price is Rp. 8,176.87 per kg. This MRP is far below current market price so, it is unnecessary for government to intervene.

Departing from these findings, it is recommended that the government intervention should be directed to providing price information to palm sugar producers. This is intended to eliminate asymeric information due to oligosopnitic market of palm sugar. Government should also supported producers in improving quality continously so that they will get maximum price.

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