

**PROCEEDING  
OF ISAE INTERNATIONAL SEMINAR  
BANDAR LAMPUNG  
AUGUST 10-12, 2017**

**“Strengthening Food and Feed  
Security and Energy Sustainability to  
Enhance Competitiveness”**

**DEPARTEMENT OF AGRICULTURAL ENGINEERING  
FACULTY OF AGRICULTURE  
UNIVERSITY OF LAMPUNG**

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## **PREFACE**

Alhamdulillahirabbil'alamin, I would like to express how grateful we are to finished "Proceeding of ISAE International Seminar 2017, Bandar Lampung, August 10-12, 2017 with theme "Strengthening Food and Feed Security and Energy Sustainability to Enhance Competitiveness". We are here to communicate and gather dissemination of information and research results in the field of agriculture as part of planning the development of agriculture in the future towards food and biomass-based energy self-sufficiency. Through this proceeding, we shared the problem, ideas, knowledge and technology to arrange solutions that communicated and discussed at ISAE International Seminar, Bandar Lampung, August 10-12, 2017. This proceeding contains 118 papers that divided by 8 categories namely Agricultural Engineering, Agribusiness, Agricultural Technology, Agricultural Science, Energy, Food, Natural Resources, and Sistem and Agricultural Management from many universities and many institutes in Indonesia.

I would like to extend gratitude for all authors of the proceeding who communicate and share their research results, editorial team who work together to execute this proceeding, Agricultural Engineering Departement of University of Lampung, Faculty of Agriculture of University of Lampung, University of Lampung, PERTETA and committee members. Salutations to Dr. Ir. Sam Herodian, M.S. as Professional Staff of The Minister of Agriculture of Republic of Indonesia; Ir. Sutono, MM as Regional Secretary of Lampung Province ; Prof. Dr. Ir. Hasriadi Mat Akin, M.P. as Rector University of Lampung; Prof Dr. Ir. Irwan Sukri Banuwa, M.Si. as Dean of Agricultural Faculty of University of Lampung; Prof. Mikio Umeda from Kyoto University, Japan; Prof. Dr. Ir. Irwandi Jaswir, M.Sc. from International Islamic University, Malaysia; Dr. S. D. Filip To, PHD. PE from Mississippi State University, USA; Dr. Rosanna Marie C. Amongo from University of the Philippines Los Baños, The Philippines; Prof. Dr. Ir. Lilik Sutiarto, M.Eng. from Universitas Gadjah Mada, Indonesia; and Prof. Raden Achmad Bustomi Rosadi, M.S. from University of Lampung.

Last, we hope that you will have a great memories about the experience in Bandar Lampung and the relationship that have managed at Seminar can become better in the future.

Best Regard,

Dr. Ir. Sandi Asmara, M.Si  
Chairman of ISAE IS 2017

## LIST OF PAPER CODES

### A

Abadi Jading	: A.1
Agus Haryanto	: E.3
Agus Margiwiayatno	: C.14
Agus Sutejo	: A.9
Ana Rochana	: D.19
Andreas Wahyu Krisdiarto	: E.4
Anjar Suprpto	: A.2
Anne Charina	: H.9
Anne Nuraini	: D.1
Anri Kurniawan	: A.3
Aprilianti	: B.3
Ardiyanto W Nugroho	: H.11
Ari Ganjar Herdiansah	: H.12
Asep Sapei	: G.1
Azmi Asyidda Mushoffa	: A.4

### B

Bambang Susilo	: A.17
----------------	--------

### C

Cicih Sugianti	: C.17
Cipta Ginting	: D.10

### D

Desrial	: A.5
Devi Maulida Rahmah	: H.10
Devianti	: C.13
Dewi Rumbaina Mustikawati	: D.20
Dewi Sartika	: F.1
Dewi Sartika	: F.5
Dewi Sri Jayanti	: G.10
Dhanang Eka Putra	: D.11
Diding Suhandy	: C.1
Diding Suhandy	: C.4
Dika Supyandi	: B.11
Dwi Cahyani	: E.5
Dwi Dian Novita	: C.15

### E

Eko Pramono	: D.12
Elen Selviana	: G.3

Elly Rasmikayati	: F.9
Endriani	: D.2
Erlisa Yuniasih	: B.12
Etik Puji Handayani	: G.4

### F

Fitriani	: B.5
----------	-------

### G

Gatot Pramuhadi	: A.10
Gatot Tri Mulyadi Rekso	: D.13

### H

Hasbi	: D.3
Hepi Hapsari	: H.1

### I

I Made Anom Sutrisna Wijaya	: D.14
I Made Supartha Utama	: F.3
I Wayan Budiastara	: C.2
Ichwana	: G.5
Ifmalinda	: A.12
Iin Susilawati	: D.4
Indah Nurmayasari	: B.10
Indah Widanarti	: A.13
Indriyani	: E.2
Iskandar Zulkarnain	: G.11
Iwan Setiawan	: H.2

### J

Junaedi Prasetyo	: D.5
Junita Barus	: G.6

### K

K. Dewi T. Pasaribu	: F.7
Kiman Siregar	: E.7
Kordiyana K. Ranga	: H.15
Kusumiyati	: C.3
Kuswanta Futas Hidayat	: D.21

### L

Lies Sulistyowati	: H.3
-------------------	-------

Lisa Praharani : F.10  
Lucyana Trimo : B.4

## M

Machmud Achmad Iqbal : A.18  
Mahra Arari Heryanto : B.1  
Maman Setiawan : C.6  
Mamat Kandar : D.15  
Mardhiah Hayati : C.7  
Meinilwita Yulia : C.8  
Mohamad Amin : G.2  
Muhammad Arief Budiman : B.6  
Muhammad Arief Budiman : B.14  
Muhtarudin : D.18  
Murad : C.18

## N

Neni Rostini : F.8  
Nila Wardani : D.22  
Nila Wardani : D.23  
Novia Dewi : H.14  
Nuraeni Dwi Dharmawati : E.8  
Nyang Vania Ayuningtyas H. : D.16  
Nyimas Popi Indriani : D.6

## O

Omil Charmyn Chatib : A.11

## P

Pandi Pardian : B.7  
Prakoso Bhairawa Putera : G.7  
Putu Sudira : H.4

## R

R. Mislaini : A.16  
Ramayanti Bulan : A.15  
Rani Andriani Budi Kusumo : B.13  
Redika Ardi Kusuma : A.6  
Rengga Arnalis Renjani : A.14  
Renny Eka Putri : C.9  
Risvan Kuswurjanto : C.10  
Ridwan Zahab : G.12  
Rosyid Ridho : A.7  
Rusdi Evizal : H.5

## S

Saiful Hikam : D.7  
Sakti Hutabarat : E.9  
Sandi Asmara : H.16  
Sapto Kuncoro : C.16  
Sari Virgawati : C.11  
Sienny Muliaty : F.4  
Sitti Nur Faridah : G.8  
Sri Endah Agustina : E.6  
Sugeng Triyono : C.12  
Sumiyati : D.8  
Suprihatin : G.9  
Suryani : H.13  
Syarif Hidayat : H.6

## T

Tamrin : A.8  
Teguh Endaryanto : B.2  
Tumiar Katarina Manik : H.7  
Tuti Karyani : B.8

## U

U. Hidayat Tanuwiria : F.2

## W

Wiludjeng Trisasiwi : E.1

## Y

Yayat Sukayat : H.8  
Yohanes Setiyo : D.9  
Yosefina Mangera : D.17  
Yudithia Maxiselly : F.6  
Yulia Pujiharti : B.9  
Yusmanizar : C.5

## TABLE OF CONTENTS

<b>Preface</b>	V
<b>Opening Speechers of Seminar</b>	vi
<b>Keynote Speakers of Seminar</b>	vii
<b>List of Paper Codes</b>	x
<b>Table of Contents</b>	xii
<b><i>A : Agricultural Engineering</i></b>	
<b>A.1 EVALUATION OF THE PERFORMANCE OF PNEUMATIC CONVEYING RECIRCULATED DRYER FOR DRYING OF FLOURS MATERIALS</b> Abadi Jading, Nursigit Bintoro, Lilik Sutiarso, Joko Nugroho Wahyu Karyadi	1
<b>A.2 FIELD PERFORMANCE OF RICE COMBINE HARVESTER PROTOTYPE FOR TIDAL SWAMP LAND</b> Anjar Suprpto, Sulha Pangaribuan, Dony Anggit, Titin Nuryawati	9
<b>A.3 DESIGN AND MODELLING OF TEA PICKER MACHINE (<i>Camellia Sinensis</i> (L). Kuntze) TYPE RECIPROCATING SINGLE CUTTER WITH A BATTERY POWER SOURCE</b> Anri Kurniawan, Bambang Purwantana, Lilik Sutiarso	15
<b>A.4 A DRAFT FORCE CALCULATION FOR DITCHER IMPLEMENT ON SOYBEAN CULTIVATION UNDER SATURATED SOIL CULTURE</b> Azmi Asyidda Mushoffa, Wawan Hermawan, Radite Praeko Agus Setiawan	23
<b>A.5 DESIGN AND PERFORMANCE EVALUATION OF PRIME MOVER FOR OIL PALM FERTILIZER APPLICATOR</b> Desrial, Tineke Mandang, Dwi Budi Aswin, Taufik Nugraha	31
<b>A.6 STUDY OF HIGH ELECTROSTATIC FIELD PRETREATMENT TO MAINTAIN POSTHARVEST QUALITY OF CHERRY TOMATO</b> Redika Ardi Kusuma, Lilik Pujantoro, Dyah Wulandani	37
<b>A.7 DESIGN AND PERFORMANCE ANALYSIS OF SEPARATION MECHANISMS OF PULP AND MANGOSTEEN SEEDS</b> Rosyid Ridho, Wawan Hermawan, Usman Ahmad	43
<b>A.8 DESIGN OF MACHINE FOR SHELL REMOVAL OF OIL PALM SEED</b> Tamrin, Kukuh Setiawan, Hanang Agung Prasetyo, Ardian M.	49
<b>A.9 DESIGN AND PERFORMANCE OF TEA SHOOTS CHOPPER: THE FISRT STEP TO OBTAIN OPTIMUM TEA STALKS AND TEA LEAVES SEPARATION</b> Agus Sutejo, Sutrisno, Wawan Hermawan, Desrial	57
<b>A.10 FERTILIZING PERFORMANCE BY USING HAND GRANULE SPREADER TASCO GS-10</b> Gatot Pramuhadi, M. Ali Imran S, Henry Haryanto Yap	63
<b>A.11 MODIFICATION OF CORN (<i>Zea mays</i> L.) SHELLER BY ELECTRIC MOTOR POWER SOURCE</b> Omil Charmyn Chatib, Santosa, Oggi Alif Riyanda	71

<b>A.12</b>	<b>ANALYSIS OF WORKING CAPACITY AND FUEL CONSUMPTION OF HAND TRACTOR ON DRY LAND IN NAGARI TANJUNG BONAI LINTAU BUO UTARA TANAH DATAR</b> Ifmalinda	77
<b>A.13</b>	<b>CURING TOOL DESIGN OF MEAT AND FISH</b> Indah Widanarti , Acep Ponadi Muchlis Alahudin	81
<b>A.14</b>	<b>PERFORMANCE AND ERGONOMIC ANALYSIS OF CHILI (<i>Capsicum annuum</i> L.) PLANTING TOOLS USING TUGAL MECHANISM</b> Rengga Arnalis Renjani, Putri Chandra Ayu, Rizki Aidil P. Putra, and Desrial	85
<b>A.15</b>	<b>ANALYSIS OF BLADE FROM PORTABLE CHOPPER MACHINE FOR PALM OIL FROND USING FINITE ELEMENT METHOD</b> Ramayanty Bulan, Safrizal, T. Saiful Bahri	91
<b>A.16</b>	<b>DEVELOPMENT OF HOLER TOOL FOR PLASTIC MULCH WITH ELECTRIC HEATER</b> R. Mislaini and Omil Charmyn Chatib	97
<b>A.17</b>	<b>STUDY OF LOW TEMPERATURE PROCESSING WITH DOUBLE JACKET VACUUM EVAPORATOR FOR IMPROVING QUALITY OF DRAGON FRUIT-MILK CANDY</b> Bambang Susilo	107
<b>A.18</b>	<b>PERFORMANCE TES OF COMPOST APPLICATOR</b> Mahmud Achmad Iqbal, Muhammad Tahir Sapsal	113
<b><i>B : Agribusiness</i></b>		
<b>B.1</b>	<b>CONCEPTION-ADOPTION MODEL OF CRYSTAL GUAVA (A CASE STUDY OF BANDUNG REGENCY, WEST JAVA)</b> Mahra Arari Heryanto, Pandi Pardian, Adi Nugraha	117
<b>B.2</b>	<b>AGRICULTURAL SECTOR AND AGROINDUSTRY LINKAGE IN CREATING REGIONAL ECONOMIC MULTIPLIER IN NEW REGIONAL AUTONOMY</b> Teguh Endaryanto, Lina Marlina	125
<b>B.3</b>	<b>STRATEGY BUSINESS CILEMBU SWEET POTATOES CHIPS MAUTIK (CASE STUDY OF SWEET POTATOES CHIPS MAUTIK, CILEMBU VILLAGE, PAMULIHAN, SUMEDANG, WEST JAVA)</b> Aprilianti, Gema Wibawa Mukti	133
<b>B.4</b>	<b>STUDY ON IMPLEMENTATION OF GOOD AGRICULTURAL PRACTICE (GAP) IN IMPROVING PRODUCTIVITY AND COCOA FARMERS INCOME (CASE STUDY OF NATURAL AULIA FARMERS GROUP, KORONG AMBUNG KAPUA, NAGARI SUNGAI SARIAK, VII KOTO SUBDISTRICT, PADANG PARIAMAN DISTRICT, WEST SUMATERA PROVINCE)</b> Lucyana Trimo, Syarif Hidayat, Yosini Deliana, Endah Djuendah	141
<b>B.5</b>	<b>LOCAL PROCESSED FOOD INDUSTRY BASED CASSAVA IN IMPROVING RURAL ECONOMY</b> Fitriani, Bina Unteawati, Cholid Fatih	147
<b>B.6</b>	<b>COSTUMER SATISFACTION ON COFFEE OF CAFE'S MARKETING</b> Muhammad Arief Budiman, Endah Djuwendah, Eti Suminartika	151
<b>B.7</b>	<b>SUPPLY CHAIN ANALYSIS OF CRYSTAL GUAVA IN THE DISTRICT OF CIMAUNG, REGENCY OF BANDUNG</b> Pandi Pardian, Mahra Arari Heryanto, and Dhany Esperanza	161



<b>B.8</b>	<b>RISK MANAGEMENT IN THE SUPPLY CHAIN OF MANGO EXPORT- ORIENTED IN SEDONG, CIREBON</b>	163
	Tuti Karyani, Agriani Hermita, Hesty Nurul Utami, Hepi Hapsari, Elly Rasmikayati	
<b>B.9</b>	<b>FINANCIAL ANALYSIS OF TWO VARIETIES INPARI IN RICE FARM ENVIRONMENTLY FRIENDLY</b>	177
	Yulia Pujiharti and Zahara	
<b>B.10</b>	<b>MOTIVATION AND PARTICIPATION OF FOOD BARN MEMBERS IN LAMPUNG PROVINCE</b>	181
	Indah Nurmayasari, Fembriarti Erry Prasmatiw, Yuliana Saleh	
<b>B.11</b>	<b>FARMER READINESS FOR ADOPTING STEVIA CULTIVATION (A CASE STUDY AT DISTRICT OF PASIR JAMBU, REGENCY OF BANDUNG)</b>	185
	Dika Supyandi, Yayat Sukayat, Hepi Hapsari	
<b>B.12</b>	<b>ANALYSIS OF BUSINESS MODEL FOR POPULACE TEA PRODUCTION ENTERPRISE ON CAP DUA PETANI GREEN TEA BAG PRODUCTS (CASE STUDY GAPOKTAN KARYA MANDIRI SEJAHTERA, CIBODAS VILLAGE, PASIR JAMBU SUBDISTRICT, BANDUNG REGENCY, WEST JAVA PROVINCE)</b>	191
	Erlisa Yuniasih and Gema Wibawa Mukti	
<b>B.13</b>	<b>THE ROLE OF EXTENSION WORKER IN DEVELOPING URBAN FARMING IN CISARANTEN KIDUL BANDUNG CITY</b>	197
	Rani Andriani Budi Kusumo, Anne Charina, Yossini Deliana, Nurul Fazri	
<b>B.14</b>	<b>ANALYSIS OF THE INFLUENCE OF INDEPENDENT VARIABLES FOR INDONESIAN ROBUSTA COFFEE BEANS</b>	203
	Muhammad Arief Budiman, Sulistyodewi Nur Wiyono, Eti Suminartika	

### ***C : Agricultural Technology***

<b>C.1</b>	<b>SIMULTANEOUS DETERMINATION OF L-ASCORBIC ACID AND GLUCOSE IN MIXTURE SOLUTION USING FTIR-ATR TERAHERTZ SPECTROSCOPY COMBINED WITH PLS2 REGRESSION</b>	211
	Diding Suhandy, Meinilwita Yulia	
<b>C.2</b>	<b>NIR SPECTROSCOPY APPLICATION FOR DETERMINATION OF TRIGONELLINE AND CHLOROGENIC ACID (CGA) CONCENTRATION IN COFFEE BEANS</b>	219
	I Wayan Budiastara, Sutrisno, Sukrisno Widyotomo, Putri Chandra Ayu	
<b>C.3</b>	<b>DETECTION OF RIDGE GOURD (<i>Luffa acutangula</i>) FRUIT QUALITY DURING STORAGE USING NEAR-INFRARED SPECTROMETER</b>	225
	Kusumiyati, Syariful Mubarak, Jajang Sauman Hamdani, Farida, Wawan Sutari, Yuda Hadiwijaya, Ine Elisa Putri	
<b>C.4</b>	<b>RIGHT-ANGLE FLUORESCENCE SPECTROSCOPY COUPLED WITH PLS-DA FOR DISCRIMINATION OF INDONESIAN PALM CIVET COFFEE</b>	239
	Diding Suhandy, Meinilwita Yulia, Tetsuhito Suzuki, Yuichi Ogawa, Naoshi Kondo	
<b>C.5</b>	<b>RAPID AND NON-DESTRUCTIVE QUANTIFICATION OF CHLOROGENIC ACID IN INTACT COFFEE BEANS BY DIFFUSE REFLECTANCE SPECTROSCOPY</b>	245
	Yusmanizar, Imas Siti Setiasih, Sarifah Nurjanah, Mimin Muhaeimin	
<b>C.6</b>	<b>NON-DESTRUCTIVE DETERMINATION OF SWEETNESS AND FIRMNESS LEVEL FOR PAPAYA CALINA (<i>Carica papaya L.</i>) USING ULTRASONIC METHOD</b>	249
	Maman Setiawan, I Wayan Budiastara	

<b>C.7</b>	<b>A STUDY OF PHYSICAL AND CHEMICAL CHARACTERISTICS OF VARIOUS SWEET POTATO CLONES (<i>Ipomoea batatas</i> L.)</b>	<b>255</b>
	Mardhiah Hayati, Sabaruddin, Efendi, Ashabul Anhar, Rita Hayati, Ari Sandi	
<b>C.8</b>	<b>L-ASCORBIC ACID DETERMINATION USING FTIR-ATR TERAHERTZ SPECTROSCOPY COMBINED WITH PLS2 REGRESSION</b>	<b>261</b>
	Meinilwita Yulia, Diding Suhandy, Tetsuhito Suzuki, Yuichi Ogawa, Naoshi Kondo	
<b>C.9</b>	<b>ON-LINE MEASURING GRAIN MOISTURE CONTENT USING MICROWAVE PRINCIPLES</b>	<b>267</b>
	Renny Eka Putri, Azmi Yahya, Nor Maria Adam, Samsuzana Abd Aziz	
<b>C.10</b>	<b>EFFECTS OF ANALYSIS METHOD IN PREDICTION CANE QUALITY USING NIR SPECTROSCOPY</b>	<b>273</b>
	Risvan Kuswurdanto, Linda Mustikaningrum	
<b>C.11</b>	<b>VIS-NIR PROXIMAL SENSING TO ESTIMATE SOIL TEXTURE</b>	<b>279</b>
	S.Virgawati, M. Mawardi, L. Sutiarso, S. Shibusawa, H. Segah, M. Kodaira	
<b>C.12</b>	<b>APPLICATION OF MICROCONTROLLER TO CONTROL ROOM ENVIRONMENT OF A MUSHROOM HOUSE</b>	<b>289</b>
	Sugeng Triyono, Dermiyati, Jamalam Lumbanraja, Hanung Pramono, Aditya H. Probowo	
<b>C.13</b>	<b>NEAR INFRARED REFLECTANCE SPECTROSCOPY : FAST AND SIMULTANEOUS PREDICTION OF AGRICULTURAL SOIL NUTRIENTS CONTENT</b>	<b>295</b>
	Devianti, Zulfahrizal, Sufardi, Agus Arip Munawar	
<b>C.14</b>	<b>CLEAN TECHNOLOGY IN COPRA AND COCONUT SHELL PROCESSING INDUSTRY</b>	<b>299</b>
	Agus Margiwiyatno, Wiludjeng Trisasiwi, Anisur Rosyad	
<b>C.15</b>	<b>THE QUALITY OF FERMENTED CACAO BEANS IN SMALL-SCALE</b>	<b>305</b>
	Dwi Dian Novita, Cicih Sugianti, Kartinia Sari	
<b>C.16</b>	<b>THE TASTE OF ROBUSTA COFFEE POWDER FROM CLOSED STEAMING SYSTEM PROCESS IN HIGH TEMPERATURE</b>	<b>311</b>
	Sapto Kuncoro, Lilik Sutiarso, Joko Nugroho, Rudiati Evi Masithoh	
<b>C.17</b>	<b>THE STUDY OF <i>HOT WATER TREATMENT</i> (HWT) AND ANTIMICROBIAL COATING TO EXTEND SHELF-LIFE OF RED CHILI (<i>Capsicum annuum</i> L.)</b>	<b>317</b>
	Cicih Sugianti, Dwi Dian Novita, Diana Mustika	
<b>C.18</b>	<b>EVALUATION OF QUALITY AND LIFE STORED THE WHITE COPRA FROM DRYING PROCESS USING SOLAR TRAY DRYER TYPE</b>	<b>323</b>
	Murad, Rahmat Sabani, Guyup Mahardhian Dwi Putra	

#### ***D : Agricultural Science***

<b>D.1</b>	<b>THE RESPONSES OF POTATO (<i>Solanum tuberosum</i> L.) CULTIVAR GRANOLA TO DIFFERENT MEDIA AND ORGANIC COMPOUNDS IN IN VITRO CULTURE AND ACCLIMATIZATION IN MEDIUM LAND</b>	<b>327</b>
	Anne Nuraini, Erni Suminar, Neni Rostini, Dewi Susanti	
<b>D.2</b>	<b>POTENCY OF BIOFERTILIZER FOR INCREASING YIELD OF SOYBEAN ON THE DRYLAND ACID</b>	<b>333</b>
	Endriani	
<b>D.3</b>	<b>INCREASING OF PRODUCTIVITY AND PRODUCTION OF LOWLAND BY ENHANCING PLANTING INDEX (IP 200)</b>	<b>339</b>
	Hasbi, Daniel Saputra, Tri Tunggal	

<b>D.4</b>	<b>EFFECT OF MIXED CROPPING BETWEEN <i>Brachiaria Humidicola</i> GRASS WITH LEGUME ON DRY MATTER YIELD OF FORAGE, CRUDE PROTEIN CONTENT AND CRUDE FIBER CONTENT OF GRASS</b>	343
	Iin Susilawati, U. Hidayat Tanuwiria, M. Fauzi Al Irsyad, Kania Ayu Puspadewi	
<b>D.5</b>	<b>RESPONSE OF SEVERAL SOYBEAN VARIETIES ON ACID DRY LAND IN GUNUNG GEULIS BOGOR</b>	347
	Junaedi Prasetyo, Prihanti Kamukten, Reza Y Purwoko, M. Muchlish Adie	
<b>D.6</b>	<b>NITROGEN, PHOSPHOR AND CALCIUM UPTAKE ON PADJADJARAN CORN HYBRID AS FEED FORAGE INTERCROPPED WITH SOY BEAN</b>	351
	Nyimas Popi Indriani, Yuyun Yuwariah, Sudarjat, Dedi Ruswandi, Anne Nuraini, Hepi Hapsari, Muhamad Kadapi	
<b>D.7</b>	<b>THE SELECTION OF LOCAL GENETIC SOURCE RICE POPULATION DIFFERENTIATED BY THEIR GENETIC MARKERS IN LOWLAND AND UPLAND ORGANIC ENVIRONMENT</b>	355
	Saiful Hikam, Paul B. Timotiwiu, Denny Sudrajat	
<b>D.8</b>	<b>COMPOSTING OF RICE STRAW</b>	363
	Sumiyati, I Wayan Tika, Yohanes Setiyo, I Putu Gede Budisanjaya	
<b>D.9</b>	<b>QUALITY OF POTATO SEEDS FROM SOME MODELS OF CULTIVATION AFTER STORAGE</b>	367
	Yohanes Setiyo, Dewa Gde mayun Permana, IGA Iani Triani, IBP Gunadnya	
<b>D.10</b>	<b>PRELIMINARY RESEARCH ON THE EFFICACY OF BIOLOGICAL AGENTS INDUCING RESISTANCE IN MAIZE PLANTS TO CONTROL DOWNY MILDEW AND LEAF BLIGHT</b>	373
	Cipta Ginting, Joko Prasetyo, Tri Maryono, Mila Safitri, Ika Ayuningsih	
<b>D.11</b>	<b>STRUCTURE, BEHAVIOR, AND PERFORMANCE OF RUBBER MARKETING IN SINTANG DISTRICT ON WEST KALIMANTAN</b>	379
	Dhanang Eka Putra, Slamet Hartono, Masyhuri, Lestari Rahayu Waluyati	
<b>D.12</b>	<b>A STUDY OF VIGOR OF STORABILITY OF SEEDS OF SOME SORGHUM (<i>Sorghum bicolor</i> L. Moench.) GENOTYPES WITH ACCELERATED AGEING</b>	389
	Eko Pramono, Muhammad Kamal, F. X. Susilo, Paul B. Timotiwiu	
<b>D.13</b>	<b>CHEMICAL AND PHYSICAL PROPERTIES OF CASSAVA STARCH CM-CHITOSAN-ACRYLIC ACID HYDROGEL PREPARED FROM RADIATION-INDUCED CROSSLINKING</b>	395
	Gatot Trimulyadi Rekso	
<b>D.14</b>	<b>APPLICATION OF ONE CYCLE RED-BLUE ARTIFICIAL LIGHT IMPROVED THE PRODUCTIVITY OF CHRYSANTHEMUM</b>	401
	I Made Anom Sutrisna Wijaya, Ni Wayan Anik Wahyuni, I Made Nada	
<b>D.15</b>	<b>ENDOPHYTE FUNGAL EXPLORATION FROM GRAMINAE ROOT WITH PLANT GROWTH PROMOTER POTENTIAL</b>	409
	Mamat Kandar, I. Nyoman P. Aryantha, Sony Suhandono	
<b>D.16</b>	<b>ACTIVITY OF SOIL MICROORGANISMS DURING THE GROWTH OF SWEET CORN (<i>Zea mays saccharata</i> Sturt) IN SECOND PLANTING TIME WITH THE APPLICATION OF COMBINATION ORGANONITROFOS, INORGANIC FERTILIZERS, AND BIOCHAR</b>	415
	Nyang Vania Ayuningtyas Harini, Dermiyati, Agus Karyanto, Ainin Niswati	
<b>D.17</b>	<b>THE SHIFTING OF WEED COMPOSITION AT SOME PLANT SPACING SETTINGS AND THE PROPORTION OF INORGANIC NITROGEN AND COMPOST NITROGEN OF WHEAT CROP</b>	423
	Yosefina Mangera	
<b>D.18</b>	<b>THE EFFECT OF RATION BASED OF THE FERMENTED PALM OIL BY PRODUCT AND ZN-LYSINATE ON THE PERFORMANCE AND DIGESTIBILITY GOAT</b>	431
	Muhtarudin, K. Adhianto, A. Haryanto, Liman, S. Tantalo. A. Ramadhani, M. T. Aldhi	

<b>D.19</b>	<b>CORN CROP WASTE PRODUCT ABSORPTION of N, P, and Ca at VARIOUS ALTITUDES IN THE WEST JAVA</b>	435
	Ana Rochana, Nyimas Popi Indriani, Rachmat Wiradimadja, Budi Ayuningsih, Dedi Rahmat, Tidi Dhalika, Heryawan Kemal Mustafa, Iin Susilawati	
<b>D.20</b>	<b>POTENTIAL OF LIQUID SMOKE FROM AGRICULTURAL WASTE MATERIAL AS NATURAL PESTICIDE</b>	439
	Dewi Rumbaina Mustikawati	
<b>D.21</b>	<b>PADDY YIELDS INCREASING EFFORTS BY FERTILIZER DOSING TECHNOLOGY IN THREE SUB-DISTRICT PADDY PRODUCER CENTRE IN TULANG BAWANG BARAT DISTRICT</b>	445
	Kuswanta Futas Hidayat, Irwan Sukri Banuwa, Purba Sanjaya	
<b>D.22</b>	<b>THE USE OF BACTERIA <i>Coryne bacterium</i> ANTAGONISTS AS PREVENTIVE ACTIONS TO REDUCE MAIN DISEASES IN RICE</b>	451
	Nila Wardani and Yulia Pujiharti	
<b>D.23</b>	<b>PERFORMANCE OF GROWTH,DISEASE, AND PRODUCTION OF HOT CHILI BY APPLYING SUSTAINABLE AQUACULTURE</b>	457
	Nila Wardani and Nina Mulyanti	

### ***E : Energy***

<b>E.1</b>	<b>ISOLATION OF CELLULASE ENZYME FROM COW RUMEN TO HYDROLYZE NYPA MIDRIB IN PRODUCING BIO-ETHANOL</b>	463
	Wiludjeng Trisasiwi, Agus Margiwiyatno, Gunawan Wijonarko, Erni Astutiningsih, Nova Damayanti	
<b>E.2</b>	<b>ENERGY EFFICIENCY ESTIMATION IN RICE STORAGING WITH VARIATIONS' TECHNOLOGY AND GETTING THE BEST QUALITY RICE IN PLASTIC SACKS</b>	469
	Indriyani, Nur'aeni, Ria Delta, Lies Kumaradewi	
<b>E.3</b>	<b>KINETICS OF BIODIESEL PRODUCTION FROM WASTE COOKING OIL THROUGH MICROWAVE-ASSISTED TRANSESTRIFICATION REACTION</b>	473
	Agus Haryanto, Melauren Oktavina Renata, Sugeng Triyono	
<b>E.4</b>	<b>PHYSICAL DIMENSION OF OIL PALM FRESH FRUIT BUNCH AT MINERAL AND PEAT LAND</b>	479
	Andreas Wahyu Krisdiarto, Daru Tri Hidayat	
<b>E.5</b>	<b>FEASIBILITY STUDY OF PLANT MICROBIAL FUEL CELL TECHNOLOGY IN INDONESIA'S RURAL AREA</b>	483
	Dwi Cahyani, Agus Haryanto	
<b>E.6</b>	<b>ENERGY AUDITING IN CPO (CRUDE PALM OIL) PRODUCTION PROCESS</b>	489
	S. Endah Agustina	
<b>E.7</b>	<b>LIFE CYCLE ENERGY ANALYSIS OF OIL PALM PLANTATION SYSTEM FOR BIODIESEL PRODUCTION IN ACEH PROVINCE</b>	495
	Kiman Siregar, Agus Arif Munawar, Syafriandi, Edi Iswanto Wiloso, Saminuddin B.Tou	
<b>E.8</b>	<b>PROCESS ANALYSIS OF RAW PALM OIL MILL EFFLUENT USING SINGLE FEEDING SYSTEM</b>	503
	Nuraeni Dwi Dharmawati, Gading Yulta Farida, Wahyono, Rengga Arnalis Renjani	
<b>E.9</b>	<b>INDONESIAN PALM OIL: FROM GLOBAL MARKET TO DOMESTIC MARKET FOR BIOFUEL</b>	511
	Sakti Hutabarat	

## **F : Food**

<b>F.1</b>	<b>STUDY CONTROL OF Salmonella Sp. CONTAMINATION ON WHITE SHRIMP (<i>Litopenaeus vannamei</i>) USING NATURAL ANTIMICROBIAL FROM EXTRACT OF CHERRY TOMATOES FRUITS (<i>Lycopersicum cerasiformae</i> Mill.)</b>	<b>521</b>
	Dewi Sartika, Suharyono A. S, Febry Darma Putri	
<b>F.2</b>	<b>PROTECTION OF FISHMEAL PROTEIN WITH TAMMARIND SEED TANNIN ON FERMENTABILITY, DRY MATTER AND ORGANIC MATTER DIGESTIBLE, AND UNDEGRADED DIETARY PROTEIN <i>IN VITRO</i></b>	<b>529</b>
	U. Hidayat Tanuwiria, A Budiman, Iin Susilawati, Thomas Julian	
<b>F.3</b>	<b>THE EFFECTIVENESS OF VEGETABLE OILS AS COATING MATERIALS TO REDUCE DETERIORATION OF TOMATO FRUIT DURING STORAGE</b>	<b>537</b>
	I Made Supartha Utama, Made Arya Nugeraha Inggas, Nirma Yopita Sari Tarigan, N. L. Yulianti, Pande Ketut Diah Kencana, Gede Arda, G. Luther	
<b>F.4</b>	<b>EFFECT OF SOYBEAN DIET TO IMPROVE FAT ACCUMULATION: A REVIEW</b>	<b>545</b>
	Sienny Muliaty, Prihanti P. Kamukten, Reza Y. Purwoko, Lili Indrawati, Erliana Ginting	
<b>F.5</b>	<b>THE PROFILE OF RED DRAGON FRUIT PEEL EXTRACT AS A NATURAL ANTIMICROBIALS IN REDUCING <i>E. Coli</i></b>	<b>555</b>
	Dewi Sartika, Sutikno, Syarifah R.M	
<b>F.6</b>	<b>RESPONSE OF COCOA (<i>Theobroma cacao</i> L.) SEEDLING TOWARDS WATERING INTERVAL AND SHELTER DENSITY</b>	<b>559</b>
	Yudithia Maxiselly, Jessica Amanda Claudia, Cucu Suherman	
<b>F.7</b>	<b>SHELF LIFE STUDY OF WHEY PROTEIN CONCENTRATE (WPC) AT VARIOUS PACKAGING MATERIALS WITH ACCELERATED SHELF LIFE TESTING (ASLT) APPROACH</b>	<b>563</b>
	K. Dewi T. Pasaribu, Robi Andoyo, Efri Mardawati	
<b>F.8</b>	<b>STABILITY AND ADAPTABILITY ANALYSIS ON YIELD AND YIELD COMPONENTS OF SEVEN RED PEPPER (<i>Capsicum</i> sp.) GENOTYPES</b>	<b>573</b>
	Neni Rostini, Nolandhi Wicaksana, Sudarjat, Anas, Anne Nuraini, Endjang Sujitno, Taemi Fahmi, Liferdi, Yati Haryati, Triasfitriya, Masayu	
<b>F.9</b>	<b>STUDY OF CONSUMER BEHAVIOR : TREND PURCHASE OF COFFEE AND THEIR OPINION TO VARIETY OF PRODUCTS AND POTENTIAL OF THE COFFEE SHOP</b>	<b>579</b>
	Elly Rasmikayati, Pandi Pardian, Hepi Hapsari, Risyad M. Ikhsan, Bobby Rachmat Saefudin	
<b>F.10</b>	<b>EFFECT OF PARITY ON MILK YIELD AND LACTATION LENGTH OF ANGLO NUBIAN GOATS</b>	<b>587</b>
	Lisa Praharani, Rantan Krisnan, Rahmat Quanta Supryati	

## **G : Natural Resources**

<b>G.1</b>	<b>THE APPLICATION OF TERRACE AND GABION ON SLOPE STABILIZATION</b>	<b>591</b>
	Asep Sapei, Eko Santoso Pajuhi	
<b>G.2</b>	<b>CLIMATE CHANGE ON MAXIMUM RAINFALL DAN FLOOD AT BANDAR LAMPUNG</b>	<b>597</b>
	Mohamad Amin, Ridwan, Ahmad Tusi	
<b>G.3</b>	<b>GROWTH PATTERNS AND CONDITION FACTORS OF SNAKEHEAD FISH (<i>Channa sriata</i> (Bloch, 1793)) IN THE FLOOD PLAIN AREA OF SEBANGAU PALANGKA RAYA</b>	<b>605</b>
	Elen Selviana, Ridwan Affandi, M. Mukhlis Kamal	

<b>G.4</b>	<b>APPLICATION METHOD OF BIOCHAR ON THE SOIL AMELIORATION TO INCREASE PRODUCTION OF RICE (<i>Oryza sativa</i> L.)</b> Etik Puji Handayani	611
<b>G.5</b>	<b>FLOOD HANDLING SOLUTION BASED ON FLOOD RATE REVIEW AND EFFECTIVE CAPACITY OF RIVER (CASE STUDY OF KRUENG PEUSANGAN WATERSHED)</b> Ichwana, Dewi Sri Jayanti	617
<b>G.6</b>	<b>UTILIZATION OF PADDY WASTE AS A SOIL AMENDMENTS AND IT IS EFFECT ON SOIL PROPERTIES OF ULTISOLS UPLAND EAST LAMPUNG</b> Junita Barus, and Soraya	623
<b>G.7</b>	<b>UTILIZATION OF SCIENCE AND TECHNOLOGY FOR EMPOWERMENT OF CLIMATE CHANGE-TRIGGERED DISASTER VICTIMS</b> Prakoso Bhairawa Putera, Rita Nur Suhaeti, Akmadi Abbas	627
<b>G.8</b>	<b>THE LAND CONSERVATION EFFORTS FOR WATERSHED'S HYDROLOGICAL FUNCTION</b> Sitti Nur Faridah, Mahmud Achmad, Elsa Hasak Almunawwarah	633
<b>G.9</b>	<b>OPTIMIZATION OF BIOFILTRATION PROCESS FOR PRE-TREATMENT OF RAW WATER FROM POLLUTED RIVER WATER</b> Suprihatin, Mohamad Yani, Endah Purwa Ari Puspitaningrum	639
<b>G.10</b>	<b>LAND MANAGEMENT FOR FULFILLING REQUIREMENT AND AVAILABILITY OF GRAIN FOOD</b> Dewi Sri Jayanti, Mustafri, Ichwana, Fitriani	645
<b>G.11</b>	<b>AGROTECHNOLOGY APPROACH OF LABORATORIUM LAPANG TERPADU FACULTY OF AGRICULTURE UNIVERSITY OF LAMPUNG BY LAND UNITS</b> Iskandar Zulkarnain, Irwan Sukri Banuwa, Tamaluddin Syam, Henrie Buchari	655
<b>G.12</b>	<b>INTEGRATION OF OPERATION SYSTEM BETWEEN DAM AND WEIR WITH DIFFERENT TIME BASE FOR IRRIGATION</b> Ridwan Zahab, Putu Sudira, Sahid Susanto, Lilik Sutiarto	665

### ***H : System and Agricultural Management***

<b>H.1</b>	<b>FARMERS RESPOND TO SCHOOL FIELD MANAGEMENT INTEGRATED PLANT CORN (SLPTT-JAGUNG) (CASE IN MEKAR LAKSANA FARMER GROUP, ARJASARI SUB-DISTRICT, BANDUNG DISTRICT)</b> Hepi Hapsari, Anne Nuraini, Nyi Mas Popi Indriani, Tuti Karyani, Yuyun Yuwariah	675
<b>H.2</b>	<b>THREATS OF SOCIAL PROBLEMS IN SUSTAINABLE AGRICULTURE DEVELOPMENT IN RURAL AREAS OF WEST JAVA, INDONESIA</b> Iwan Setiawan, Siska Rasiska, Adi Nugraha	681
<b>H.3</b>	<b>STUDY ON FOOD SECURITY IN RICE PRODUCTION CENTER (SURVEY IN BUAHDUA DISTRICT, SUMEDANG-WEST JAVA)</b> Lies Sulistyowati, Ananda Putri Sari, Trisna Insan Noor, Iwan Setiawan, Hepi Hapsari	687
<b>H.4</b>	<b>SEDIMENT YIELD CALCULATION ON A RESERVOIR USING SWAT MODEL</b> Putu Sudira, Bayu Dwi Apri N, Abdul Holik	695
<b>H.5</b>	<b>COMPETITIVE AND SUSTAINABLE PRODUCTION OF COCOA IN TANGGAMUS, LAMPUNG PROVINCE, INDONESIA</b> Rusdi Evizal, Fembriarti Erry Prasmatiwi, Maria Christina Pasaribu, Ivayani, Lestari Wibowo, Winda Rahmawati, Agus Karyanto	705

<b>H.6</b>	<b>FARMER'S UNDERSTANDING ON ECOFRIENDLY FARMING SYSTEM (CASE STUDY ON VEGETABLE'S FARMER IN SUKAMANAH VILLAGE, SUBDISTRICT OF PANGALENGAN, DISTRICT OF BANDUNG, WEST JAVA)</b> Syarif Hidayat, Taupik, Lucyana Trimo	713
<b>H.7</b>	<b>ENGAGING FARMERS' COMMUNITY IN CLIMATE CHANGE RESPONSE AND ADAPTATION PLANS: CASE STUDY SEDAYU, TANGGAMUS REGENCY, LAMPUNG PROVINCE, INDONESIA</b> Tumiar Kataruna Manik, Bustomi Rosadi, Onny Krisna Pandu Perdana	719
<b>H.8</b>	<b>FARMER GROUP: AN ACCELERATOR TO DEVELOP UNPAD CHILLI SEED (PERSPECTIVE OF SUSTAINABLE DIFFUSION OF INNOVATION)</b> Yayat Sukayat, Hepi Hapsari, Neni Rostini, Yosini Deliana, Iwan Setiawan, Dika Supyandi	729
<b>H.9</b>	<b>READINESS OF ORGANIC VEGETABLES FARMER GROUPS IN DEALING MEA</b> Anne Charina, Rani Andriani Budi Kusumo, Agriani Hermita, Yosini Deliana	733
<b>H.10</b>	<b>IDENTIFICATION OF AGRICULTURAL BUSINESS INNOVATION PROCESS FOR STRATEGIC EXPORT COMMODITY IN PT MALABAR KOPI INDONESIA THROUGH HISTORICAL ANALYSIS</b> Devi Maulida Rahmah, Fahmi Rizal, S. Rosalinda	739
<b>H.11</b>	<b>FORMULATING POLICIES IN FORESTRY AND AGRICULTURAL LAND USE MANAGEMENT TO MEET FOOD SECURITY PROGRAMS AND EMISSION REDUCTION TARGET IN INDONESIA</b> Ardiyanto W. Nugroho	745
<b>H.12</b>	<b>URBAN FARMING: A POLITICAL PERSPECTIVE (A CASE STUDY IN BANDUNG CITY)</b> Ari Ganjar Herdiansah, Adi Nugraha, Oekan S. Abdoellah	753
<b>H.13</b>	<b>THE POTENTIAL OF SUSTAINABLE URBAN FARMING DEVELOPMENT</b> Suryani and Rini Fitri	757
<b>H.14</b>	<b>EVALUATION ON RSPO STANDARD APPLICATION OF OIL PALM KKPA SMALLHOLDERS TOWARDS CERTIFICATION IN KAMPAR KIRI TENGAH SUB-DISTRICT, KAMPAR DISTRICT: APPLICATION OF RAPFISH APPROACH</b> Novia Dewi, Sakti Hutabarat, Suardi Tarumun	761
<b>H.15</b>	<b>THE COMMUNITY ABILITY IN SUPPORTING THE LOCAL RESOURCE-BASED PRODUCTIVE EFFORT IN FOOD SELF-SUFFICIENT VILLAGES OF LAMPUNG PROVINCE</b> Kordiyana K. Rangga	765
<b>H.16</b>	<b>MODEL AND STRATEGY OF DEVELOPMENT PLANNING OF FOOD SECURITY IN METRO BASED ON EMERGENCY STATUS</b> Sandi Asmara, Roni Kastaman, Ace Setiawan, Ade Moetangad	771

## **MOTIVATION AND PARTICIPATION OF FOOD BARN MEMBERS IN LAMPUNG PROVINCE**

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### **ABSTRACT**

One of efforts in achieving food security is improving food production system focusing on local institution such as food barns. They function as community food stock for daily need or for emergency situation and they can achieve their goals through members' participation. In participating in the group activities, members need to have motivation. This paper attempts to analyse the level of members' participation, level of motivation, and correlation between motivation and participation in food barns. The results revealed that members' motivation and participation on food barns are both categorized in moderate level, and motivation has a significant correlation with participation.

**Keywords :** Food Barn, Motivation, Participation

### **I. INTRODUCTION**

Food is a basic need of human. Therefore, fulfilment of food by a government, including Indonesia, is a must. One of the Indonesian policies on food, the Regulation number 18, 2012, states that food security is a condition of food fulfilment for people including individual, in terms of adequate, safe, various, nutritious, equal, affordable, and compatible with religion/faith, and culture for people to live healthy, active, and productive.

The Indonesian Government has implemented programs and activities to achieve food security. However, there are a lot of people who are living in condition of food insecurity or in energy consumption insecurity.

Lampung Province is one of food production central areas in Indonesia, especially rice production, as a staple food. In 2014 there was a surplus of rice production of 1,235,316 tons in Lampung (BPS, 2014). Nonetheless, at the same time, 21.38% Lampungnese lived in severe and 38.16% in moderate food insecurity. Research by Hilmiyati, Ismono, and Indriani (2014) found that malnutrition or undernutrition existed despite rice surplus. Prasmatiwi, Rosanti and Listiana (2013) also found that 15% rice farmers were in food susceptibility and insecurity condition. Therefore, achieving food security is absolutely needed.

An effort to achieve food security is developing food production system focusing on local culture and institutions, one of which is food barn or 'lumbung pangan'. Indonesian farmers used to manage their food production, especially rice, together as a community activity and save their harvested unhulled rice in food barns. Some food barns belong to community since they build them together and some are built as a funding program from the government. Based on the Ministry of Home Affairs # 30, 2008, food barns are managed by local/village government and function as community food reserves for consumption or for emergency cases such as crop failures, famine season, and price fluctuations.

Food barns existing in villages in Lampung Province are managed by community in the forms of farmer groups, neighborhood groups, and other social groups. However, the study showed that 15% rice farmers was in food susceptibility and insecurity. Farmers who are producers of rice sell their product in a relatively low price but they are also consumers by buying rice in a high price. The food barn institution is important in managing food stock of farmers (Rachmat *et al.*, 2010), resolving crop failure and making food available until the following harvest season (Witoro, Napili, and Sihaloho, 2006), saving food for social and spiritual activities (Nurgani, 2010).

In managing the food barns, farmers need to participate. According to Notoatmodjo (2007), in participation members are supposed to contribute not only financially but also in terms of power and ideas. Kholiq, Hardinsyah, and Djamiludin (2008) said that members of food barns participate in making use of the barns, meetings, and carrying out activities.

In participating in any activities, any one needs to have motivation. The two-factor theory of Herzberg (in Gibson, Ivancevich, and Donnelly, 1996) says that two factors influencing people's motivation in doing activities are intrinsic factor and extrinsic factor. Intrinsic factor in food barn activities consists of achievement,



appreciation, responsibility, progress, self-esteem, hope, needs, and satisfaction. Extrinsic factor consists of compensation, status, supervision, competition, attractiveness, environmental situation, and other members.

Members' participation and motivation are important in the sustainability of food barns as a local institution in achieving farmers' food security. This study is to explore their participation and motivation in the food barn institution, and analyse correlation between motivation and participation.

## II. MATERIALS AND METHODS

The study uses a survey method and was conducted in two districts, Pringsewu and Lampung Selatan where there are most active food barns. The total of respondents are 160 rice farmers, members of 45 food barns. Data were collected through group discussions and interviews using structured questionnaires in June 2017.

Motivation and participation variables are measured using Likert scales. Motivation variable is categorized into 5, i.e. very low, low, moderate, high, and very high. Participation variable is categorized into 3 categories, i.e. low, medium, and high.

Data are analyzed descriptively using frequency table, percentage, mean, and rank Spearman correlation test.

## III. RESULTS AND DISCUSSION

### A. Characteristics of Farmers

Farmers characteristics include age, education, farm size, and family size. Most farmers (56.88%) are in the productive age between 41-56 years old, and the rest are younger than 41 years (21.25%), and older than 72 years (21.87%).

In terms of formal education, from the most to the least, farmers have elementary school level (56.25%), middle school level (32.50%), high school level (10%), and no school (1.25%).

The average paddy land holding is 0.47 hectare that can be cultivated once or twice yearly. Farmers mostly (50%) have farming land less than 0.5 hectare, 44.38% farmers have between 0.5-1 hectare, and 5.62% have more than 1 hectare farming land. They mostly (59%) live with 1-2 other family members and the rest live with more than 2 in the family.

### B. Level of Motivation

Motivation is the encouragement or the force of an individual to do activities. This comes from within/internal or from outside the person. In average, the levels of intrinsic and extrinsic motivation of members in doing or participating in food barn activities, as shown on Table 1, both are in moderate category (3.27 and 3.06 of 5). These results are different from research results by Hubeis (2007) saying that motivation of extension workers in Sukabumi are in good or high category.

Table 1. Average scores of members' motivation

	Motivation	Average score	Category
Intrinsic Motivation	Achievement	2.21	low
	Appreciation	2.29	low
	Responsibility	2.96	moderate
	Progress	3.44	high
	Self-esteem	3.09	moderate
	Hope	3.91	high
	Needs	4.56	very high
	Satisfaction	3.21	moderate
	Total average score	3.27	moderate
Extrinsic Motivation	Compensation	2.79	moderate
	Status	2.51	low
	Supervision	2.33	low
	competition	2.26	low
	Attractiveness	3.73	high
	Environment	3.87	high
	Other members	3.91	high
	Total average score	3.06	moderate

In this study, from the most powerful to the lower forces of internal motivation are needs (very high category), hope, progress, and satisfaction (moderate). Levels of motivation driven by achievement and appreciation are in low category. This means that farmer members of food barn join the food barn activities because they want to fulfill their basic needs, as rice is their staple food, regardless of achievement and appreciation they receive from

being members of the food barn. The most important thing for them is that they can save their harvested rice and take it when they need it.

In terms of extrinsic motivation, members are driven by, from the highest to lowest levels, other members, environmental situation, attractiveness of food barn activities, compensation, status, supervision, and competition.

Food barn is a local wisdom that has been established since 1960. In the study area, in average, food barns has established for 23 years and farmers have become members for 18.8 years. They become members mostly because of other members. The spirit of mutual cooperation among members is the most dominant force in doing food barn activities. Some benefits farmer members get from food barn are the guaranteed availability of rice to anticipate food scarcity, borrowing inputs and or money for their agriculture, illness compensation, death aid, and holiday allowance. They feel or perceive the benefits that motivates them in being members. This is in line with Suherdi, Amanah, and Muljono (2014) who stated that motivation has a positive correlation with farmers' perception on the benefits of forest.

### C. Level of Participation

Participation is involvement of people in activities especially in a development program. It is important that intended people involve in all activities for the sustainability of the program. In the activities of food barns, members together with administrators are expected to involve in planning, carrying out, monitoring, and making use of food barn functions such as savings dan borrowing money or products. The research showed that the average members' participation on food barns is in moderate level with the score 2.04 of 3. This result is different from the research resulted by Suprayitno, Sumardjo, and Sugihen (2012) who says that participation of farmers in managing candlenut forest in Maros District is in low level.

The food barn member activities having scores from the highest to the lowest respectively are rice saving, planning, managing, monitoring, developing business/marketing, borrowing, and money saving (Table 2).

The main activity of food barn is rice saving. Members save unhulled rice right after harvested as a stock and they can take it any time they need for consuming or selling. Most members participate in the rice saving and not many in borrowing. Members also involve in planning and managing activities, together with barn administrators. They plan and manage where, how, and when to put as well as to take the rice. Since most food barns in the study area are self-help granary, they manage the activities together.

Table 2. Average scores of members' participation

Participation variable	Average score	Category
Planning	2.51	high
Managing	2.47	high
Monitoring	2.18	moderate
Money saving	1.28	low
Rice saving	2.66	high
Borrowing	1.40	low
Developing business	1.81	moderate
Total average score	2.04	moderate

### D. Correlation between Motivation and Participation of Food Barn Members

Members' motivation is expected to correlate with their participation. The analysis showed that, overall, motivation has a significant correlation with participation, meaning that the higher the motivation the higher the participation (Table 3). This supports the result of study done by Suprayitno, Sumardjo, and Sugihen (2012) about motivation and participation in managing and utilizing candlenut forest in Maros.

Most factors of intrinsic and extrinsic motivation have a significant relationship with participation. In intrinsic motivation, factors related to participation, respectively from the most significant are: self esteem, hope, satisfaction, progress, appreciation and achievement. Farmer members participate in food barn activities driven by their pride of being members. They feel that by participating they have high pride and they are satisfied being members. Based on the study, the food, especially rice, availability of most farmers is categorized in 'continuous' meaning that they have enough food to consume, and they have direct access on food by being members of food barn. Farmers have become members for a relatively long time (18.8 years) and food barn functions as fulfillment of their hope by saving and borrowing food collectively. This condition is parallel with result of research by Kholid, Hardinsyah, and Djamaludin (2008) saying that one of factors contributing to community's participation in developing food barn activity is tradition to store food by the community.

The intrinsic factors that do not have a significant relationship are responsibility and needs. A relatively low land holding (average of 0.47 ha) forces farmers (almost 50% of farmers) to also work off-farm. Although most food barns are not formally structured organization, they have organizers such as a leader, a secretary, and a treasurer who manage the barn activities. This may cause most members do not feel responsible in participating in food barn activities. Based on the scores stated in Table 1, the motivation driven by needs is the highest and most farmers are this category so that the motivation driven by needs does not correlate to their participation.

Extrinsic factors that significantly motivate members in participating respectively from the strongest are compensation, supervision, status, and competition. They experience the benefits and most members are motivated because of barn's attractiveness, good social environment and membership which scores shown in Table 1 as high.

Table 3. Correlation between motivation and participation of food barn members

Motivation Factors		Participation	
		Correlation Coefficient	P value
Intrinsic Factor	Achievement	0.180*	0.023
	Appreciation	0.182*	0.021
	Responsibility	0.125	0.115
	Progress	0.187*	0.018
	Self-esteem	0.342**	0.000
	Hope	0.258**	0.001
	Needs	0.098	0.218
	Satisfaction	0.206**	0.009
Extrinsic Factor	Compensation	0.261**	0.001
	Status	0.194*	0.028
	Supervision	0.196*	0.013
	Competition	0.174*	0.030
	Attractiveness	0.076	0.338
	Environment	0.146	0.065
	Other members	0.083	0.297
	Motivation	0.292**	0.000

#### IV. CONCLUSION

Food barn members' motivation and participation are in moderate category. Motivation has a significant correlation to participation of members in food barn activities. Intrinsic motivation factors related to participation are: self esteem, hope, satisfaction, progress, appreciation and achievement. Extrinsic factors significantly motivate members in participating are compensation, supervision, status, and competition.

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