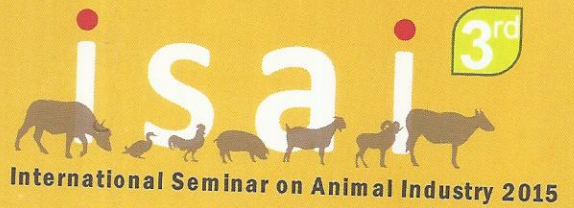


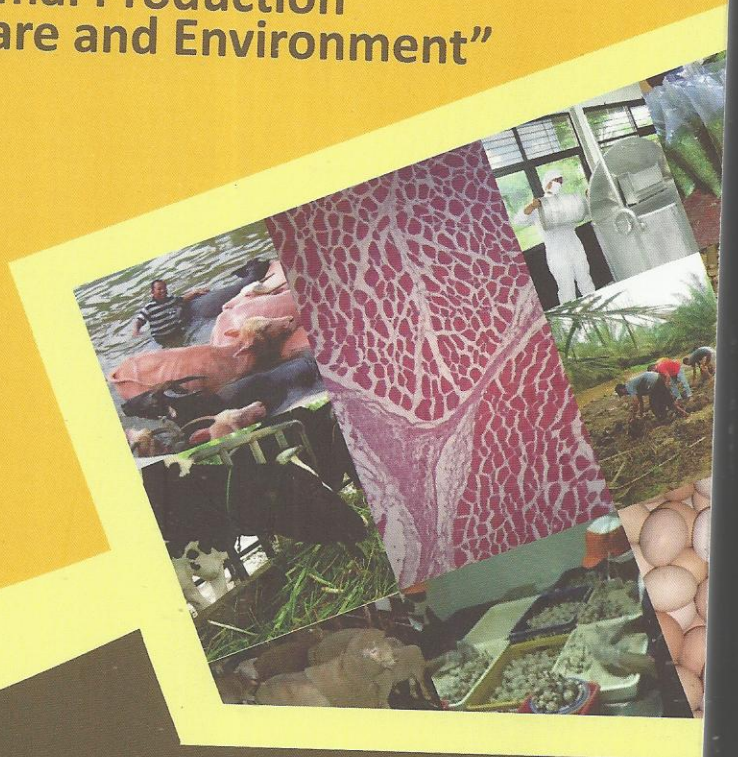
ISBN: 978-602-96530-4-5

PROCEEDING

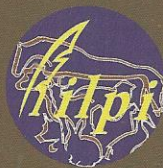


THE THIRD INTERNATIONAL SEMINAR ON ANIMAL INDUSTRY "Sustainable Animal Production for Better Human Welfare and Environment"

September, 17-18 2015
IPB International Convention Center
Bogor-Indonesia



Organized by:



Sponsored by:



**FACULTY OF ANIMAL SCIENCE
BOGOR AGRICULTURAL UNIVERSITY**

LIST OF EDITORS

Proceeding of the 3rd International Seminar on Animal Industry,
Bogor, 17-18 September 2015

Scientific Editors

Chief : Prof. Dr. Ir. I Komang G. Wiryawan
Secretary : Prof. Dr. Ir. Cece Sumantri, M.Agr.Sc
Members : Prof. Dr. Ir. Bas. Kemp. (Netherland)
Prof. Myunggi Baik (Korea)
Prof. Wayne Pitchford (Australia)
Prof. Dr. Ir. Wasmen Manalu, M.Sc
Prof. Dr. Ir. Iman Rahayu H.S., MS
Prof. Dr. Ir. Nahrowi Ramli, M.Sc
Prof. Dr. Ir. Muladno, MSA
Prof. (R)Dr. Ir. Bess Tiesnamurti
Prof. Dr. Ir. Dewi Apri Astuti, MS
Dr. Jean Pierre Bidanel (France)
Dr. Anjas Asmara Samsudin (Malaysia)
Dr. Kai J. Kuehlmann (Germany)
Dr. Ir. Idat Galih Permana, M.Sc.Agr
Dr. Tuti Suryati, SPt, MSi
Dr. Indah Wijayanti, S.Tp, M.Si
Ir. Anita Tjakradidjaja S., M.Rur.Sc

Technical Editors

Windi Al Zahra, S.Pt, M.Sc.Agr
Irma Nuranny Purnama, SPt, MSi
Fitri M. Manihuruk, S.Pt
Himmatul Khasanah, S.Pt
Reikha Rahmasari, S.Pt, M.Si
Rika Zahera, S.Pt, M.Si

List of Reviewers

Prof. Dr. Ir. Sumiati, M.Sc
Prof. Dr. Ir. Dewi Apri Astuti, MS
Prof. Dr. Ir. I Komang G. Wiryawan
Prof. Dr. Ir. Bas. Kemp. (Netherland)
Prof. Myunggi Baik (Korea)
Prof. Dr. Ir. Erika B. Laconi, MS
Prof. Dr. Ir. Cece Sumantri, M.Agr.Sc
Prof. Dr. Ir. Iman Rahayu H.S., MS
Prof. Dr. Ir. Yuli Retnani, M.Sc
Prof. Dr. Ir. Wasmen Manalu, M.Sc
Prof. Dr. Ir. Panca Dewi M.H.K, MS
Prof. Dr. Ir. Luki Abdullah, M.Sc.Agr
Prof. Dr. Ir. Yuli Retnani, MSc
Dr. Jean Pierre Bidanel (France)
Dr. Anjas Asmara Samsudin (Malaysia)
Dr. Kai J. Kuehlmann (Germany)
Dr. Ir. Asnath M. Fuah
Dr. Indah Wijayanti, S.Tp., M.Si
Dr. rer.nat. Nur Rochmah Kumalasari, S.Pt, M.Si
Dr. Ir. Lilis Khotijah, MS
Dr. Ir. Asep Sudarman, M.Sc
Dr. Ahmad Yani, S.TP, M.Si
Dr. Ir. Muhammad Ridla, M.Agr
Dr. Ir. Widya Hermana, M.Si
Dr. Ir. Afton Atabany, M.Si
Dr. Ir. Didid Diapari, MS
Ir. Burhanudin, MM
Dr.Agr Asep Gunawan, S.Pt, M.Sc
Dr. Tuti Suryati, S.Pt, M.Si
Ir. Anita Tjakradidjaja S., M.Rur.Sc
Dr. Irma Isnafia Arief, S.Pt, M.Si
Dr. Ir. Heri Ahmad Sukria, M.Sc.Agr
Dr. Ir. Rudi Afnan, M.Sc.Agr
Dr. Anuraga Jayanegara, S. Pt, M.Sc
Dr. Ir. Henny Nuraini, MS
Dr. Ir. Rudy Priyanto
Dr. Sri Suharti, SPt, M.Si
Dr. Ir. Idat Galih Permana, MSc Agr
Dr. Ir. Rita Mutia, M.Agr
Dr. Ir. Dwierra Evvyernie A, MS, M.Sc
Dr. Ir. Hotnida H. C. Siregar, M.Si
Dr. Ir. Suryahadi, DEA
Ir. Lucia Cyrilla, E.N.S, M.Si
Dr.Ir. Sri Darwati, MSi
Dr. Epi Taufik, S.Pt, MVPH, M.Si
Dr. Ir. Moh. Yamin, M.Agr.Sc
Dr. Despal, S.Pt, M.Sc.Agr
Dr. Ir. Niken Ulupi, M.Si
Dr. Jakaria, S.Pt, M.Si
Dr. Iwan Prihantoro, S.Pt, M.Si
Drh. Agus Setiono, MS, Ph.D
Dr. Ir. Sri Mulatsih, M.Sc.Agr
Maria Ulfah, SPt, MSc.Agr
Yuni Cahya E., S.Pt, M.Si

FOREWORD FROM CHAIRPERSON OF ORGANIZING COMMITTEE

Distinguished,

Rector of Bogor Agricultural University, Prof. Dr.Ir. Herry Suhardiyanto, M.Sc.

Director General of Livestock Services and Animal Health, Ministry of Agriculture, Republic of Indonesia, Prof. Dr. Ir. Muladno, MSA.

Dean of Animal Science Faculty, Bogor Agricultural University, Prof Dr Luki Abdullah M.Agr.Sc.

All participants of the International Seminar on Animal Industry 2015

Good morning ladies and gentlemen,

It is my great pleasure to welcome you all, distinguished guests, speakers and participants, to the Third International Seminar on Animal Industry (ISAI 3rd, 2015) held at the IPB International Convention Center, Bogor Indonesia. This seminar with the theme **“Sustainable Animal Production for Better Human Welfare and Environment”** is organized by Faculty of Animal Science, Bogor Agricultural University in collaboration with Association of Indonesia Animal Scientists.

Following the recommendations from Isai 1 and Isai 2, which were held in Indonesia in 2009 and 2012, the strategic issues of Isai 3rd is emphasized on animal production systems and technology and the use of natural resources in relation with environmental aspects, toward a sustainable animal production. There will be 97 papers presented during the two days seminar; 9 by invited speakers, 69 for oral and 28 for posters presentations. The speakers came from different countries including Australia, Egypt, France, Korea, German, Netherland, Indonesia, Malaysia, Nigeria, Pakistan, Thailand, USA.

This is a great opportunity for scientists, researchers, private sectors and policy makers to discuss, share information and experiences on interesting topics in animal production in a broad sense, including good farming practices, recent technologies and save animal products. I believe, there is an open window for initiating and strengthening collaboration among scientists and institutions during and after the seminar.

On behalf of the Organizing Committee, I would like to express my sincere appreciation and thanks to IPB, and some units within, including Institute of Research and Community Empowerment, Faculty of Animal Science, Department of Animal Production and Technology, Department of Nutrition and Feed Technology, Diploma Program, Management and Business Program for all advice and funding support.

The success of this seminar could only be achieved with all the valuable supports and sponsorship from some recognized institutions in this country. In this regards, I would like to address my grateful thanks to Directorate General of Livestock Services and Animal Health-Indonesia Ministry of Agriculture for funding support, and Infovet and Trobos, Green TV as promotion agency. To: Sierad Produce, Kaltim Prima Coal, BRIngin Life, Adaro Indonesia, Trouw Nutrition Indonesia, Nutricell Pasific, Sweni Transfer Indonesia, Charoen Phokphand, Wide & Pin, Pupuk Kujang, and ANTAM thank you so much with big appreciation, for having being part of this important event and such enormous contributions.

My recognition and gratitude are also forwarded to the Steering Committee for advice and assistanship, to international and national reviewers and the Scientific Committee for hard working and such great contribution. Last but not least, to all my dear colleagues of the Organizing Committee members, who have been working smartly and full of dedication and passion, to make this seminar a great successful event.

To all participants, hopefully, the two days seminar may bring fresh ideas, and enhancing collaborations for future successtoward sustainable animal production. Big appologies for any inconveniences during the seminar, wish you all having good times, and fruitful discussions.

During your short stay, please enjoy the surrounding of Bogor city, the Museum of Presidential Palace and Historical Botanical Garden of Bogor.

Bogor, September 17th, 2015

The Isai 3rd 2015,

Chairperson of Oraganizing Committee

Asnath M. Fuah

REMARKS FROM DEAN OF ANIMAL SCIENCE FACULTY

Prof. Dr. Muladno, MSA
Director General of Livestock and Animal Health-Ministry of Agriculture Republic of Indonesia,

Prof. Dr. Ir. Herry Suhardiyanto, M.Sc.
Rector of IPB

Dr. Ir. Asnath Maria Fuah
Chairperson, The 3rd International Seminar on Animal Industry

Our Colleagues from Indonesian universities and research institutes,
Distinguished foreign participants and speakers,

Representative of livestock services officers of local government from all over Indonesia,

Distinguished guests, ladies and gentlemen.

Assalamu'alaikum warahmatullaahi wabarakatuh,

I am pleased to welcome you all to Bogor city for attending "The 3rd International Seminar on Animal Industry 2015" held at Faculty of Animal Science, Bogor Agricultural University (IPB). As the Dean of Faculty, I am also really honored to host this conference.

First, let me introduce briefly about Bogor city. Bogor is one of the major scientific and educational centers in Indonesia. A significant part of academic and research base was laid in the period of Dutch colonization. In particular, since the beginning of the 19th century there were established laboratories and professional schools focused primarily on improving the efficiency of the colonial agriculture. Similar to the prevailing profile of research and academic activity was retained in Bogor after gaining independence. As in the second half of 20th century, and in the 2000s strongest areas were Agricultural sciences, Biology, Animal and Veterinary Sciences. The main educational and scientific center with the utmost national importance is the Bogor Agricultural University (IPB). It is therefore the city regularly hosted various international events, such as international seminars and conferences.

I would like to express my gratitude to IPB for supporting us to hold this conference, and also to the organizing committee of the present conference for their hard work and persistence. I convey my sincere gratitude to all the parties which is supporting this event, such as Directorate General of Livestock and Animal Health-Ministry of Agriculture Republic of Indonesia, Infovet Trobos, Agrina, Green TV as promotion agency and Sierad Produce, Kaltim Prima Coal, BRIngin Life, Adaro Indonesia, Trouw Nutrition Indonesia, Nutricell Pasific, Sweni Transfer Indonesia, Charoen Phokphand, Wide & Pin, Pupuk Kujang, and ANTAM thank you so much with big appreciation, for having being part of this important event and such enormous contributions. I am very pleased to see here the delegates from various foreign countries as well as representatives from many domestic institutions.

I hope you find this conference and the city, both interesting and stimulating and that you enjoy meeting up with your professional colleagues as well as having pleasure time during your stay in Bogor.

Thank you very much and
Wassalamu'alaikum warahmatullaahi wabarakaatuhu.

Bogor, 17 September 2015
Prof. Dr. Ir. Luki Abdullah, MSc.Agr
DEAN



SEMINAR PROGRAM

Conference Program

Thursday, September 17, 2015

Time Slot	Venue : ICC Ballroom	
	Event	Speaker
08.00-09.00	Registration	Committee
09.00-09.05	Opening Ceremony	Master of Ceremony
09.05-09.15	Report from Organizing Committee	Dr. Ir. Asnath M.Fuah, MS
09.15-09.25	Welcome Address from Dean Faculty of Animal Science	Prof. Dr. Ir. Luki Abdullah, M.Sc.Agr.
09.25-09.35	Welcome Address from Rector of Bogor Agricultural University	Prof. Dr. Ir. Herry Suhardiyanto, M.Sc
09.35-10.00	Opening and Keynote Speech by Ministry of Agriculture / Directorate General of Livestock and Health Services	Prof. Dr. Ir. Muladno, MSA
10.00-10.05	Appreciation for Keynote Speakers from Dean Faculty of Animal Science	Prof. Dr. Ir. Luki Abdullah, M.Sc.Agr.
10.05-10.20	Sponsorship Appreciation from Chairman of Organizing Committee	Dr. Ir. Asnath M.Fuah, MS.
10.20-10.25	Photo session	Photographer
10.25-10.40	Coffee break	
	Plenary Session 1 <i>Moderator: Prof. Dr. Ir. Komang G. Wiryawan</i>	
10.40-11.00	Invited speaker 1	Prof. Dr. Ir. Bas. Kemp Preserving Health, Welfare and Productivity in a Challenging Environment
11.00-11.20	Invited speaker 2	Dr. Jean Pierre Bidanel Genomic Selection for More Sustainable Livestock Production
11.20-11.40	Invited speaker 3	Ir. Yunus Triyonggo, MM Building Human Resources Competency Model in Poultry Industry
11.40-12.00	Discussion	
12.00-12.05	Invited Speaker Appreciation from Scientific Committee	Prof. Dr. Ir. Dewi Apri Astuti, MS.
12.05-12.15	Sponsorship Appreciation from Vice Dean Faculty of Animal Science	Dr. Ir. Moh. Yamin, M.Agr.Sc.
12.15-12.25	Student Plenary	
12.25-13.20	Lunch	
13.20-13.50	Poster session	

Time	Room A (Theme D)	Room B (Theme B and C)
Session 1	<i>Moderator : Dr. Rajesh Jha</i>	<i>Moderator : Umni Noorhakimah</i>
14.00-14.10	Thongsuk Jetana Rain Tree Pod in Livestock Feeds: Opportunity, Challenges and Possibility	Yeni Widiawati Fermentation Kinetics Of Palm Oil Plantation By-Product Based Diet
14.10-14.20	Supriyati KOMPIANG Effect of Different Protein and Energy Levels in Concentrate Diets on Performances of Anglo-Nubian Goat During Pregnancy and Lactation Periods	Ainissya Fitri Utilization Of Haylage Of Local Agro- Industry By product Pretreated With Afex Method
14.20-14.30	Rusdi Evaluation of Eleutherine (<i>Eleutherine americana</i>) as Feed Additive for Poultry	H. A. Sukria Physical Quality And Storage Time Pellet Indigofera Spleaves
14.30-14.40	Discussion	Discussion
Session 2	<i>Moderator :Thongsuk Jetana</i>	<i>Moderator : Imana Martaguri</i>
14.45-14.55	Utsav Prakash Tiwari Nutrient Profile And In Vitro Digestibility Of Fresh And Ensiled Cassava In Swine	Moh Ali Hamdan Potential Of Dwarf Elephant Grass (<i>Pennisetum Purpureum</i> Schum. Cv. Mott) In Dry Land Areas Of Bojonegoro As Forage- Based Feed Sustainability
14.55-15.05	Alif Putri Effect of Combination Silkworm Pupae Meal and Garlic Meal on Blood Profiles, Visceral Organs and Carcass Broiler	Rido Pande Pardede Development Of Indigofera Zoolingeriana And Pueraria Javanica On Dry Land Integrated With Teak Forest In Bojonegoro
15.05-15.15	Burhanudin Sundu The effect of NaOH Concentrations and Polysaccharides Extract of Palm Kernel Meal on Performance of 4 Weeks Old-Broiler Chickens	Malcky Telleng Growth and Productivity of Different Sorghum Varieties Cultivated with Indigofera in Intercropping System
15.15-15.25	Discussion	Discussion
15.25-15.40	Coffee break	
Session 3	<i>Moderator : Anis Muktiani</i>	<i>Moderator : Lisa T. Praharani</i>
15.40-15.50	Muhamad Nasir Rofiq Combination Effect of Nutritech Feed Additive Containing Saponin, Tanin and Eugenol Essential oils on In Vivo Rumen Methane Production in Dairy Cattle Using Open Circuit Respiration Chamber Technique	Imana Martaguri Carbon Storage Capacity of Forage Native Grasses Growing in Palm Plantation at Transformation Forest Ecosystem in Jambi
15.50-16.00	Dwi Yulistiani Nitrogen Utilization and Ruminant Fermentation of Five Breed of Sheep Fed Concentrate Containing Different Levels of Rumen Undegradable Protein	I Gusti Ngurah Jelantik Herbage Production and Nutritive Value of Some Forage Legumes as Calf Feed Supplement
16.00-16.10	Sutresniwati A Willingness to Pay Evaluation for Silage Implementation for Small Dairy Farmers	Riesi Sriagtula Evaluation of Growth and Production of Sorghum Lines (Sorghum Brown Midrib) at Different of Harvest Time as Feed
16.10-16.20	Discussion	Discussion
Session 4	<i>Moderator : Rusdi</i>	<i>Moderator: Veronica</i>
16.25-16.35	Anita S. Tjakradidjaja Fermentability and Digestibility of Rice Straw - Concentrate Base Ration Added with Probiotic	Nur Rochmah Kumalasari Modelling of Forage Availability Response to Landuse Exchange in Bogor

Time	Room A (Theme D)	Room B (Theme B and C)
16.35-16.45	Gusti A. Gultom Effects of Solid or Liquid Probiotic Supplementation on Rumen Microbial Population and Enzyme Activity	Khalil The Diversity and Quality of Forages Used for Feeding of Goat in Payakumbuh of West Sumatra
16.45-16.55	Eissa M. M Effect Of Ammoniated Straw On Methane Production In An In Vitro System And On Growth Performance	P.D.M.H. Karti The Addition of Arbuscular mycorrhizal Fungi in Enhancing Productivity and Drought Tolerance Mechanisms of <i>Indigofera zollingeriana</i>
16.55-17.05	Discussion	Discussion

Time	Ballroom (Theme A)
Session 1	<i>Moderator : Iis Arifiantini</i>
14.00-14.10	Fuah A.M Beef Cattle Production, Constraints and Opportunities for Small Farmers in South Central Timor Regency West Timor
14.10-14.20	S.N. Sirajuddin The Application of Tesang Sharing System at Cattle Farms in Indonesia
14.20-14.30	Niken Ulupi Production Performance of Laying Hen in Cage System with Different Housing Temperature
14.30-14.40	Lucia Cyrilla Evaluation of Good Dairy Farming Practice Implementation in Dairy Goat Farm
14.40-14.50	Discussion
Session 2	<i>Moderator : Prof. Cece Sumantri</i>
14.55-15.05	Lindawati Doloksaribu Constraints to, Challenges of, and Opportunities for Rearing Goats in Bali Province. A case study: Rearing Kids in Karangasem Regency
15.05-15.15	Hearty Salatnaya Trigona Spppropolis, Pollen, And Honey Production In Two Different Agroecosystem
15.15-15.25	Prabowo, S Distribution of Thermal Body Surface Ettawah Grade in Different Tropic Microclimates
15.25-15.35	Bram Brahmantiyo Hycle and Hyla Rabbits Performance were Raised in Indonesia
15.35-15.45	Discussion
15.45-16.00	Coffee break

Welcoming dinner. Venue ICC Ballroom

Time Slot	Event
18.20-19.00	Registration and Dinner (Instrument from Gentra)
19.00-19.05	Opening by Master of Ceremony
19.05-19.15	Speech from Chairman of Committee
19.15-19.25	Speech from Dean of Animal Science Faculty
19.25-20.00	Gentra Kaheman
20.00-20.20	Prof. Singer
20.20-21.20	Spontaneity from Country Representative
21.20	Closing

Friday, September 18, 2015

Venue : HCC Ballroom		
Time	Event	Speaker
8.00-8.30	Registration	Committee
8.30-8.35	Opening Ceremony	Master of Ceremony
Plenary Session 2 <i>Moderator: Dr. Jean Pierre Bidanel</i>		
8.35-8.55	Invited speaker 1	Prof. Wayne Pitchford Outcomes of Selection for Residual Feed Intake in Australian Beef Cattle
8.55-9.15	Invited speaker 2	Prof. Myunggi Baik Molecular Mechanisms Regulating Beef Quality in Korean Cattle
9.15-9.35	Invited speaker 3	Prof. I Wayan Teguh W. Vaccination and Subclinical Manifestation of Avian Influenza in Indonesia
9.35-9.50	Discussion	
9.50-10.00	Appreciation to Invited Speaker	Prof. Luki Abdullah
10.00-10.10	Coffee Break	
Plenary Session 3 <i>Moderator: Prof. Wayne Pitchford</i>		
10.10-10.30	Invited speaker 1	Dr. Kai J. Kuchlmann The Role of Feed Additive in Animal Industry under Tropical Condition
10.30-10.50	Invited speaker 2	Dr. Anjas Asmara Samsudin Recent Advances in Gut Microbiology Research in Relation to Animal Nutrition
10.50-11.10	Invited speaker 3	Prof. Bustanul Arifin Social Economic and Policy in Animal Industry
11.10-11.25	Discussion	
11.25-11.30	Appreciation for Invited Speaker	Prof. Dr. Ir. Sumiati, M.Sc.
11.30-13.20	Lunch and Prayer	
13.20-13.50	Poster session	

Time	Room A (Theme D and G)	Room B (Theme E and J)
Session 5	<i>Moderator: Sutresniwati</i>	
13.50-14.00	Sumiati Effect of drinking gambir extract (<i>Uncaria gambir Roxb</i>) as Antioxidant on Performance of 40-43 Weeks Old of Laying Hens	Rudi Afnan Weight Loss And Mortality Of Broiler During Transportation From Different Distances To Slaughterhouse
14.00-14.10	Muktiani, A Live Weight Gain of Beef Cattle Fed on Complete Feed Silage of Water Hyacinth Supplemented with Mineral Zinc-Proteinate	Hajrawati Meat Quality Of Marica Goat (<i>Capra Hircus</i>) Meat Fed Different Protein Level
14.10-14.20	Putri O. N The Effect of Adding Fermented Waste Cabbage in Calf Starter Pellets on Total Lactic Acid Bacteria And <i>Escherichia coli</i>	Suharyanto Skim Milk Powder Substitution With Soymilk Powder Could Improve Physical Properties Of Beef Surimi-Based Sausage
14.20-14.30	Discussion	Discussion
Session 6	<i>Moderator : Prof. Khalil.</i>	
14.35-14.45	Ninasari Ra Substitution of Fish Meal by Cricket or Indigofera Shoot Leaf Meal on Japanese Quail (<i>Coturnix japonica</i>) Performance	Lilis Suryaningsih Effects Of Local Flour Types On Physical Properties And Acceptability Of Beef Sausage

Time	Room A (Theme D and G)	Room B (Theme F and J)
14.45-14.55	Tresia G.E Benefit of Kemuning Leaves Meal (<i>Murraya paniculata</i> [L.] Jack) Addition in Ration Containing Date Fruit Waste to Suppress Gastrointestinal Parasites Infestation of PE Goat	Soenarno Ms Characteristic Of Lactic Acid Bacteria Isolated From Dangke From Sinjai, South Sulawesi
14.55-15.10	Sri Suharti Rumen Microbe, Protein Microbial Synthesis, Cellulase Activity and Nutrient Digestibility of Bali Cattle Rumen with the Addition of Calcium Soap-Soybean Oil In vitro	M. Aman Yaman Increase on Commercial Weight, Carcass Quality and Economic Benefit of Selected Local Meat Chicken Fed on Fermented Diet Contained Digestive Enzymes and Probiotics
15.10-15.15	Discussion	Discussion
15.15-15.30	Coffee break	
Session 7	Moderator : Dr. Lindawati Doloksaribu	Moderator : Dr. Asnath Maria Fuah
15.30-15.40	G. F. Bira Incremental Level Of Chromolaena Odorata In Complete Diet Does Not Impair Intake, Rumen Fermentation And Microbial Protein Synthesis Efficiency In Cattle	Salina A.B An Analysis Of Cattle Traders Practices On Animal Traceability In Malaysia
15.40-15.50	Arini NMJ Substitution Of Fish Meal By Cricket Or Indigoferasp Shoot Leaf Meal To Evaluate Protein Balance Of Japanese Quail (Coturnix Japonica)	Hotnida C H Siregar Effect Of Moisture Reduction Method, Storage Period And Temperature On Honey Quality
15.50-16.00	Mokhamad Faesal R. Hakim Feeding Ecology of Sumatran Orangutan (<i>Pongo abelii</i> , Lesson 1827) in West Batang Toru Forest Block, North Sumatra	Iman Rahayu Biodiversity Based On Fatty Acid And Amino Acid Profile Of Indonesian Local Chickens
16.00-16.10	Discussion	Discussion
Session 8	Moderator : Mokhamad Faesal Rakhman Khakim	Moderator : Dr. Burhanudin Sundu
16.15-16.25	D. Latipudin Level Of Malondialdehyde (Mda), Uric Acid And Lymphocyte: Neutrophil Ratio Of Laying Hen In The Different Temperature Humidity Index (Thi)	I M. A. Sudarma Weight Loss Of Inter-Island Transported Cattle From Kupang Is Reduced By Feeding High Protein-Mineral Mix Block During Quarantine And Sea Transportation
16.25-16.35	Windi Al Zahra The Using Of Thermograph As Non-Invasive Method To Observe Subclinical Mastitis In Tropical Dairy Cattle	Ummi Noorhakimah Abdullah Cattle Importation And The Trend Of Fmd Occurrence In Peninsular Malaysia From 2000-2010
16.35-16.45	A. Sudarman Physiological Responses And Blood Profiles Of Sheep Fed Cassava Leaves Silage (<i>Manihot Esculenta</i> Sp.) Reared Traditionally In Petir Village	Moh Yamin Harmony Between Livestock Behaviors: Birth Time and Sites Selection Behaviors in Sheep and Goats
16.45-17.00	Discussion	Erika B Laconi Strategy of Beef Cattle Development Based on Agricultural Product in Kuningan District, West Java
17.00-17.10		Discussion

Time	Ballroom (Theme E and J)
Session 5	Moderator : Anneke Anggraeni
13.50-14.00	Surya Nur Rahmatullah Phenotypic Variation In Male Local Chicken At Tapin Regency Using Significant Analysis
14.00-14.10	Parsaoran Silalahi Effects Of Selection On The Efficiency And Variability Of Sow Reproduction And Maternal Abilities
14.10-14.20	Oktora Dwi Putranti Effect Of Caffeine On Morfology Of Epididymis Spermatozoa Of Bali Bull
14.20-14.30	Discussion
Season 6	Moderator : Ir Anita S. T. MPur.Sc
14.35-14.45	Lisa Praharani Comparisson of Anglo Nubian X Etawah Grade Goats And samon X Etawah Grade Goats For Some Reproductive Traits
14.45-15.00	Maria Haryulin Astuti Service Per Conception In Beef Cattle With Artificial Insemination In Kapuas Basarang District of Central Kalimantan
15.00-15.10	Anneke Anggraeni Association Of Growth Hormone (Gh/Mspi) And Growth Hormone Releasing Hormone (Ghrh/Haeiii) Genes With Milk Components Of Hf Cows Under Small Farmers In Lembang, West Java
15.10-15.20	Discussion
15.20-15.30	Coffee break
Season 7	Moderator : Dr. Epi Taufik
15.30-15.40	R.Iis Arifiantini Hypoosmotic Test In Rabbit Spermatozoa
15.40-15.50	Nalley Wmm Effect Of Freezing On Bovine Sperm Morphology
15.50-16.00	Tuty L Yusuf Determination of Soy Extract Concentration In Tris Buffer of Frisian Holstein Chilled Semen
16.00-16.10	Discussion
Season 8	Moderator : Surya Nur Rahmatullah
16.15-16.25	S. Rusdiana Estimated Value of Live Buffalo Prices In The Economic Analysis Of The Income of Farmers In The Village
16.25-16.35	Aslina Asnawi Financing Preferences For Cattle Farmers In Bone Regency South Sulawesi
16.35-16.45	Sumarti T Women, Gender Equality In Livestock Development: Case Study From Papua and Central Java
16.45-16.55	Discussion

Closing Ceremony, Venue ICC Ballroom

Time Slot	Event
17.10-17.15	Opening
17.15-17.25	The Best Presenter (Oral and Poster) Announcement
17.25-17.35	Presence of Presents
17.35-17.45	Speech from Representative Invited Speaker: Prof. Wayne Pitchford
17.45-17.55	Speech from Representative Invited Speaker: Thongsuk Jetana
17.55-18.05	Closing Speech from Dean of Animal Science Faculty

LIST OF CONTENTS

List of Editors	ii
Foreword from Chairperson of Organizing Committee	iii
Remarks from Dean of Animal Science Faculty	v
Seminar Program	vii
List of Contents	xiii
Invited Speaker	
Preserving Health, Welfare and Productivity in a Challenging Environment. <i>B. Kemp</i>	3
Genomic Selection for More Sustainable Livestock Production: The French Situation. <i>Jean-Pierre Bidanel, D. Boichard, D. Milan</i>	7
Outcomes of Selection for Residual Feed Intake in Australian Beef Cattle. <i>W. S. Pitchford</i>	11
Molecular Mechanisms Regulating Beef Quality in Korean Cattle. <i>M. Baik</i>	16
Vaccination and Subclinical Manifestation of Avian Influenza in Indonesia. <i>I. W. T. Wibawan</i>	18
The Role of Feed Additives in Tropical Animal Farming Industry with Emphasis on Organic Acids. <i>Kai-J. Kühlmann</i>	22
Recent Advances in Gut Microbiology Research in Relation to Animal Nutrition. <i>A. Samsudin</i>	28
Theme A. Animal Production, Technology, and Industry	
Beef Cattle Production System, Constraints and Opportunities for Small Farmers in South Central Timor Regency, West Timor. <i>A. M. Fuah, M. Baihaqi, R. Priyanto, L. Abdullah & M. Ismail</i>	35
The Performance of Peranakan Ongole (PO) cattle and Their Crossbreeds in Growing and Fattening Periods. <i>R. Priyanto, Jakaria, S. Natasasmita, M. Ismail, I. N. Apriliyani & W. P. Santi</i>	39
Production Performance and Egg Quality of Laying Hens on Cage System with Different Housing Temperature. <i>N. Ulupi, R. Afnan & T. Setiawati</i>	43
Evaluation of Good Dairy Farming Practice Implementation In Dairy Goat Farm. <i>L. Cyrilla, A. Atabany, D. A. Astuti, B. P. Purwanto & A. Sukmawati</i>	47
Performance of Chiken Broiler Using Water Hyacinthasa Substitute for Some Rations. <i>J. R. M. Keintjem, M. Najosan & F. N. Sompie</i>	52
Chemical and Physical Properties of Rex and Satin Rabbits Meat. <i>B. Brahmantiyo & H. Nuraini</i>	57
Propolis, Pollen, and Honey Production on Two Different Agroecosystem. <i>H. Salatnaya, A. M. Fuah, W. D. Widodo</i>	61
Distribution of Thermal Body Surface Ettawah Grade in Different Tropic Microclimates. <i>S. Prabowo, A. Atabany, A. Yani & T. Supriatna</i>	65
Development Strategies of Community Dairy Farms in Karo Regency, North Sumatera. <i>T. Simamora, A. M. Fuah, A. Atabany & Burhanuddin</i>	69
The Effect of Cage Floor Types on Growth Performance and Behaviour of Local Rabbit. <i>M. Baihaqi, M. Yamin, V. M. S. L. Gaol & M. Priwahyuningsih</i>	73
Hycole and Hyla Rabbits Performance were Raised in Indonesia. <i>B. Brahmantiyo, Y. C. Raharjo & L. H. Prasetyo</i>	76

Constraints to, Challenges of, and Opportunities for Rearing Goats in Bali Province. A Case Study: Rearing Kids in Karangasem Regency. <i>L. Doloksaribu, B. P. McLachlan, R. S. Copland & P. J. Murray</i>	80
Daily Activities and Propolis Production of <i>Trigona</i> Bee Keeping in Three Nest Types. <i>M. Muhsinin, Erwan & D. Kisworo</i>	84
Harmony between Livestock Behaviors: Birth Time and Sites Selection Behaviors in Sheep and Goats. <i>Mohamad Yumin, Graeme Payne & Judith Blackshaw</i>	88
Theme B. Feed Technology	
Fermentation Kinetics of Palm Oil Plantation by-Product Based Diet. <i>Y. Widiawati, M. Winugroho, Jafar S. & Sri M.</i>	95
Potential of Papaya (<i>Carica Papaya L.</i>) Leaf Flour in Animal Feed to Increase the Weight and Decrease the Ammonia on Broiler Excreta. <i>A. Rahmawati, M. Hidaningrum, A. Kurniawan</i>	99
Utilization of Haylage of Local Agro-Industrial Byproduct Pretreated with Afex Method. <i>A. Fitri, W. Kurniawan, N. Hidayah, A. Safitri & A. Jayanegara</i>	103
Physical Quality and Storage Time Pellet <i>Indigofera sp</i> Leaves. <i>H. A. Sukria, U. I. Sholihah, L. Abdullah</i>	106
Identification of Substrates of The Yeast Ubiquitin Ligase Rsp5 Under High-Temperature Stress Conditions. <i>I. Wijayanti & H. Takagi²</i>	109
Feeding Wafer For Sheep. <i>Y. Retnani, K. B. Santoso, N. A. Pramesti, N. N. Khasanah</i>	113
Theme C. Forage Production and Technology	
Potential of Dwarf Elephant Grass (<i>Pennisetum purpureum</i> Schum. cv. Mott) in Dry Land Areas of Bojonegoro as Forage-Based Feed Sustainability. <i>M. A. Hamdan, P. D. M. H. Karti & I. Prihantoro</i>	119
Development of <i>Indigofera zollingeriana</i> and <i>Pueraria javanica</i> on Dry Land Integrated with Teak Forest in Bojonegoro. <i>R. P. Pardede, P. M. H. Karti, I. Prihantoro</i>	124
The Diversity and Quality of Forages Used for Feeding of Goat in Payakumbuh of West Sumatra. <i>Khalil</i>	128
The Addition of <i>Arbuscular mycorrhizal</i> Fungi in Enhancing Productivity and Drought Tolerance Mechanisms of <i>Indigofera zollingeriana</i> . <i>P. D. M. H. Karti, S. Sowmen, L. Abdullah & D. Sopandie</i>	132
Growth and Productivity of Different Sorghum Varieties Cultivated with <i>Indigofera</i> in Intercropping System. <i>M. Telleng, L. Abdullah, I. G. Permana, P. D. M. H. Karti & K. G. Wiryanan²</i>	136
Herbage Production and Nutritive Value of Some Forage Legumes as Calf Feed Supplement. <i>I G. N. Jelantik, T. T. Nikolaus, C. L. Penu & J. Jeremias</i>	141
Evaluation of Growth and Biomass Production of Sorghum Mutant Lines (Sorghum Brown midrib) at Different of Harvest Time. <i>Sriagtula R, PDMH Karti, L Abdullah, Supriyanto, DA Astuti, S Sowmen & Mardhiyetti</i>	145
Dynamic Respons of Forage Availability to Landuse Exchange in Bogor Regency. <i>N. R. Kumalasari & A. Sopiani</i>	150
Theme D. Animal Nutrition	
Rain Tree Pod (<i>Samanea saman</i>) In Livestock Feeds: Opportunity, Challenges and Possibility. <i>T. Jetana, S. Uswang, S. Sophon & M. Techakamphu</i>	155
Effect of Different Protein and Energy Levels in Concentrate Diets on Performances of Anglo-Nubian Goat During Late Pregnancy and Lactation. <i>Supriyati & L. Praharani</i>	159

Evaluation of Eleutherine (<i>Eleutherine americana</i>) as Feed Additive for Poultry. Rusdi, A. Hasanuddin & R. Arief	163
The Effect of NaOH Concentrations and Polysaccharides Extract of Palm Kernel Meal on Performance of 4 Weeks Old-Broiler Chickens. B. Sundu, S. Bahry & R. Dien	168
Combination Effect of Nutritech Feed Additive Containing Saponin, Tanin and Eugenol Essential Oils on <i>in Vivo</i> Rumen Methane Production in Dairy Cattle Using Open Circuit Respiration Chamber Technique. M. N. Rofiq, D. S. Wahyuni, W. Negara, S. Mutono & R. A. Gopar	172
Growth and Feed Efficiency of Male Lambs Fed on Grass or Enriched Corn Cob Silage Basal Diet. D. Yulistiani & W. Puastuti	176
Nitrogen Utilization and Ruminant Fermentation of Five Breed of Sheep Fed Concentrate Containing Different Levels of Rumen Undegradable Protein. D. Yulistiani	179
A Willingness to Pay Evaluation of Silage Implementation for Small Dairy Farmers in Central & East Java. Sutresniwati, S. Simanjuntak, N. Hartati & O. D. Fitrianto	183
Fermentability and Digestibility of Rice Straw-Concentrate Base Ration Added with Probiotic. A. S. Tjakradidjaja, Suryahadi & G. A. Gultom	187
Effects of Solid or Liquid Probiotic Supplementation on Rumen Microbial Population and Enzyme Activity. G. A. Gultom, A. S. Tjakradidjaja & Suryahadi	191
Effect of Ammoniated Straw on Methane Production in an <i>in vitro</i> System and on Growth Performance. M. M. Eissa, H. R. Metawi, W. M. A. Sadek, A. R. Khattab & M. M. Anwar	195
Effect of Gambir extract (<i>Uncaria gambir</i> Roxb) Supplementation as Antioxidant on Performance of ISA-Brown Laying Hens of 40-43 Weeks Old. Sumiati, F. R. Tera, J. A. N. Made & M. Rita	199
Root Tubers as Alternative Energy Sources in Rabbit Ration: Effect on Growth Performance and Economic Value. L. Khotijah, D. M. Fassah & N. Aprilawaty	203
Live Weight Gain of Beef Cattle Fed on Complete Feed Silage of Water Hyacinth Supplemented with Mineral Zinc-Proteinate. A. Muktiani, K.G. Wiryawan, B. Utomo & E. Pangestu	206
The Effect of Adding Fermented Waste Cabbage in Calf Starter Pellets on Total Lactic Acid Bacteria and <i>Escherichia coli</i> . O. N. Putri, S. Mukodiningsih & C. S. Utama	210
Substitution of Fish Meal by Cricket or Indigofera Shoot Leaf Meal on Laying Japanese Quail (<i>Coturnix japonica</i>) Performance. RA Ninasari, A Anggraeny, GE Tresia, AWA Bungsu, S Adah, S Simanjuntak, BD Dianingtyas, YC Sari, Sumiati & DA Astuti	213
Benefit of Kemuning Leaves Meal in Ration Containing Date Fruit Waste to Suppress Gastrointestinal Parasites Infestation of Goats. G. E. Tresia, D. Evvyernie, E. Harlina & H. A. Sukria	216
Golden Snail Eggs (<i>Pomacea canaliculata</i>) and Bay Leaf Meal as Natural Feed Supplement to Improve Quail Egg Quality and Reduced Yolk Cholesterol. A. Dharmawan, A. Dwiputra, B. Novandri, Y. A. Sya'ban, A. Zulkarnaen & W. Hermana	220
<i>In Vitro</i> Study of Calcium Soap-Soybean Oil Addition in The Rumen of Bali Cattle on Rumen Microbial Population, Microbial Protein Synthesis, Cellulase Activity, and Nutrient Digestibility. S. Suharti, S. Nurhanah, D. Aryani, S. L. Simanjuntak, D. A. Astuti & K. G. Wiryawan	225
Incremental level of <i>Chromolaena odorata</i> in complete diet does not impair intake, rumen fermentation and microbial protein synthesis efficiency in cattle. G. F. Bira, M. L. Mullik, I. G. N. Jelantik, G. Maranatha, Y. M. Mulik, I. M. A. Sudarma & Dahlanuddin	229

Substitution of Fish Meal by Cricket or <i>Indigofera</i> sp. Shoot Leaf Meal to Evaluate Protein Balance of Japanese quail (<i>Coturnix japonica</i>). N. M. J. Arini, D. S. Wahyuni, A. S. Putri, A. L. Rahmawati, D. Permatahati, Nurhayu, Y. Purnamawati, M. I. Almai, A. Saepudin, Sumiati & D. A. Astuti	233
The Study of Jack bean (<i>Canavalia ensiformis</i>) Addition on the Performance of Rats as Animal Model. L. Maulana, D. Evyernie & D. Diapari	237
The Effect of Herbs Supplementation on Egg Quality and Lipid Blood of Laying Quail (<i>Coturnix-Coturnix Japonica</i>). D. M. Suci, I. Purwanto & W. Hermana	241
Feed Intake, Weekly Gain and Feed Conversion of Growing Goats Fed Protected Fatty Acid. A. M. Tasse, Ld. Nafiu, D. Agustina, F. Y. Irawan	245
Nutrient Profile and <i>in vitro</i> Digestibility of Fresh and Ensiled Cassava in Swine. U. P. Tiwari & R. Jha	248
Effect of Combination Silkworm Pupae Meal and Garlic Meal on Blood Profiles, Visceral Organs and Carcass Yield of Broiler Chicken. A. S. Putri, Sumiati, & D. A. Astuti	250

Theme E. Animal Genetic, Breeding, and Reproduction

Analysis of Captive Breeding Management of Silvery Gibbon (<i>Hylobates moloch</i> Audebert 1798). A. P. Dharma, A. M. Fuah, S. S. Mansjoer, E. Iskandar & M. Yamin	257
Phenotypic Variation in Male Local Chicken at Tapin Regency Using Significant Analysis. S. N. Rahmatullah, L. Wardah & A. Sulaiman	261
Effects of Selection on the Efficiency and Variability of Sow Reproduction and Maternal Abilities. P. Silalahi, M. A. Setiadi, D. Duryadi, J. Gogu�, Y. Billon, T. Tribout & J. P. Bidanel	265
Effect of Caffeine on Morphology of Epididymis Spermatozoa of Bali Bull. O. D. Putranti, Soeparna, T.D. Lestari, and L. Adriani	269
Comparisson of Anglo Nubian X Etawah Grade and Saanen X Etawah Grade Goats for Some Reproductive Traits. L. Praharani, Supryati & R. Krisnan	272
Service Per Conception In Beef Cattle With Artificial Insemination in Kapuas Basarang District of Central Kalimantan. M. H. Astuti & L. S. Asi	277
Association of GH <i>MspI</i> and GHRH <i>HaeIII</i> Genes with Milk Components of Holstein-Friesian (HF) Cows under Small Farmers in Lembang, West Java. A. Anggraeni, D. Widyaningrum, A. O. Rini & C. Sumantri	280
Morphological Genetic Distances of Local Buffalo Subpopulations in Pasaman District, West Sumatera Province. A. Anggraeni, A. Haryadi & C. Sumantri	284
Morphometric Comparative Study of Head Linear Surface Measurement of Thin-Tailed, Batur, Wonosobo and Garut Sheep. R. H. Mulyono, M. Baihaqi & R. Pratiwi	288
Hypoosmotic Test in Rabbit Spermatozoa. Arifiantini R. I, Maulidya I. & Nalley W. M. M	292
Effect of Freezing on Bovine Sperm Morphology. W. M. M. Nalley, I. R. Arifiantini, W. W. Rahmah & E. Sukmawati	295
Determination of Soy Extract Concentration in Tris Buffer of Frisian Holstein Chilled Semen. T. L. Yusuf, I. R. Arifiantini, W. M. M. Nalley & E. Sukmawati	298
Identification of Uterin Milk Protein (UTMP) Gene in Bali Cattle by Using Direct Sequencing. Jakaria, F. Saputra, K. A. Paramitasari, P. P. Agung & Maskur	301

Theme F. Animal Product Technology and Logistic

Weight Loss and Mortality of Broilers during Transportation from Different Distances to Slaughterhouse. R. Afnan, N. Ulupi & F. Sutrisno	309
--	-----

Meat Quality of Marica Goat (<i>Capra hircus</i>) Meat Fed Different Protein Level. <i>Hajrawati, E. Abustam, M. I. Dagong & M. A. Achmar</i>	313
Skim Milk Powder Substitution with Soymilk Powder Could Improve Physical properties of Beef Surimi-based Sausage. <i>Suharyanto, O. Mega & I. Badarina</i>	317
Effects of Local Flour Types on Physical Properties and Acceptability of Beef Sausage. <i>L. Suryaningsih, K. Suradi, R. L. Balia & E. Wulandari</i>	321
Characteristic of Lactic Acid Bacteria Isolated from <i>Danke</i> from Sinjai, South Sulawesi. <i>M. S. Soenarno, Al Faafa J. Arief II</i>	325
Bacteriological Quality of <i>Se'i</i> Treated with Liquid Smoke. <i>G. E. M. Matelak, I. G. N. Jelantik, G. Maranatha & P. Kuncu</i>	333
Increase on Commercial Weight, Carcass Quality and Economic Benefit of Selected Local Meat Chicken Fed on Fermented Diet Contained Digestive Enzymes and Probiotics. <i>M. A. Yaman, Allaily & Y. Usman</i>	336
An Analysis of Cattle Traders Practices on Animal Traceability in Malaysia. <i>A. B. Salina, L. Hassan, A. A. Saharee, M. A. Stevenson & K. Ghazali</i>	341
Effect of Moisture Reduction Method, Storage Period and Temperature on Honey Quality. <i>H. C. H. Siregar</i>	345
Nitrite Residue and Sensory Characteristics of <i>Dendeng</i> With Addition of Strawberry (<i>Fragaria ananassa</i>) as Curing Agent. <i>A. Kosim, W. E. Wibisono, L. Simamora, L. Yulia & T. Suryati</i>	350
Biodiversity Based on Flavor and Amino Acid Profile of Indonesia Local Chickens. <i>I. R. H. Soesanto, S. Darwati, I. I. Arief</i>	353
Moisture, pH Value and Physical Quality Stability of <i>Dendeng</i> During Storage at Different Temperature. <i>T. Suryati, I. I. Arief, Z. Wulandari & D. Febriantini</i>	356
Milk Production of Sahiwal x Holstein Crossbreed in Two Different Systemon Local Farm Kudat, Sabah-Malaysia. <i>D. S. Hanizar, I. G. Permana & Despal</i>	360
Physical Meat Quality of Kacang Goat and Garut Sheep Fed Sorghum Based Concentrate. <i>S.J. Sianturi, A. M. Fuah, H. Nuraini & D. Diapari</i>	363
Weight Loss of Inter-island Transported Cattle from Kupang Is Reduced by Feeding High Protein-Mineral Mix Block during Quarantine and Sea Transportation. <i>I M. A. Sudarma, M. L. Mullik & T. O. D. Dato</i>	367
Theme G. Animal Physiology, Behavior, and Welfare	
Level of Malondialdehyde (MDA), Uric Acid and Lymphocyte: Neutrphyl Ratio of Laying Hen in The Different Temperature Humidity Index (THI). <i>D. Latipudin, L. Adriani & R. Permana</i>	373
The Using of Thermograph as Non-Invasive Method to Observe Subclinical Mastitis in Tropical Dairy Cattle. <i>W. Al Zahra & H. Susanty</i>	377
Physiological Response and Blood Profile of Sheep Reared in Petir Village and Fed Cassava Tops Silage (<i>Manihot esculenta</i> sp.). <i>A. Sudarman, M. Hayashida, E. Jatmika, S. Suharti</i>	380
Theme H. Animal Environment Management	
N ₂ O (Nitrous oxide) Gases Production from Lactating Dairy Cow Feces in Different Management Feeding System. <i>A. Atabany, Muladno, Sahundik, W. Alzahra & R. Puspitasari</i>	387
Theme I. Social Economy and Policy in Animal Production	
Estimated Value of Live Buffalo Prices in the Economic Analysis of the Income of Farmers in the Village. <i>S. Rusdiana & L. Praharani</i>	393

Women, Gender Equality in Livestock Development: Case Study from Papua and Central Java. <i>T. Sumarti & A. M. Fuah</i>	396
The Application of <i>Tesang</i> Sharing System at Cattle Farms in Indonesia. <i>S. N. Sirajuddin, Muh. Aminawar, A. Amrawaty, St. Nurlaelah</i>	400
Theme J. Animal Health	
Cattle Importation and the Trend of FMD Occurrence in Peninsular Malaysia from 2000-2010. <i>U. N. Abdullah, L. Hassan & O. B. Lee</i>	405
List of Participant	cdvii
List of ISAI Committee	cdxii
Index of Author	cdxiv
Acknowledgement	cdxvii

Women, Gender Equality in Livestock Development: Case Study from Papua and Central Java

T. Sumarti¹ & A. M. Fuah²

¹Department of Communication Science and Community Development, Faculty of Human Ecology,
Bogor Agricultural University

²Department of Animal Production and Technology, Faculty of Animal Sciences,
Bogor Agricultural University

Abstract

Livestock and its products accounted for 12 percent of the agricultural 2011 domestic products. The number of male and female workers increased by 2.19% and 3.54% per year respectively within the period of 2007-2011. Livestock is an entry point for promoting gender equality and women empowerment in rural areas. The objectives of this study were to analyze the function of livestock for men and women, various roles played by gender in livestock management, and gender issues, including women's empowerment in livestock development. Rapid rural appraisal method was used to collect information from farmers including gender participants in Bintuni Bay, West Papua and Klanten, Central Java. The results revealed that large animals were owned and managed by men, while small animals (goats, sheep and poultry) were mostly kept by women near the household. Women played significant contribution in management, processing and marketing of animals and products. Most of the decision making was by women, while men participated in coordinating activities related to large ruminants husbandry. More than 40% of women had access to economic resources, and often played significant roles in family income. The main constraint's prohibited women to actively involved as leaders in livestock organization were mainly due to social and cultural reasons. Participation of women in livestock activities could increase household income by 10 to 15%. Involved women in livestock sectors were essential, taking into account the level of knowledge there experiences, including specific trainings in livestock marketing and supply chain.

Keywords: gender equality, livestock development

Introduction

Government policy for livestock development in the framework of national food self-sufficiency are directed to the fulfillment of livestock-based food through community farming programs. Livestock commodities kept for food and the development of agricultural farming were included cattle, buffaloes, goats, and poultry. In the meantime, commodities for export were goats, sheep, pigs, and poultry (Director General of Animal Husbandry and Health or DGAH, 2014). In Indonesia, from 2008 to 2012, the livestock sub-sector and the results contributed to Gross Domestic Product (GDP) around 12% to the overall agriculture (Ministry of Agriculture, 2012).

Livestock enterprise was one of the main activities in rural areas, more villagers involved in this sub-sector along with the increased GDP. The members of male and female workers increased in the period 2007-2011, 2.19% and 3.54% per year respectively, showing that the number of females working in livestock sub-sector was higher than males. However, the employment in the livestock sub-sector in 2012 was dominated by males workers (56-58%) compared to females (42- 44%). (DGAH, 2013). Livestock business and development were the entry point to promote gender equality and the empowerment of women in rural areas. Traditionally, the division of roles and responsibilities in the livestock business was as follows: males for large livestock (cattle, buffaloes, goats) and females for small livestock (poultry). Community participation was still seen in the narrow context, and even there was still gender bias in the development, considering females to be inferior. Women's participation in the agricultural development was not obvious and they seem to be in a position of being unable to develop their business (Sumarti, 2012). Hence, it is important for all development sectors to implement Presidential Instruction No. 9 of 2000 on Gender Mainstreaming (PUG) in development. This paper aimed to analyze: (1) the function of livestock for men and women; (2) a variety of gender roles in the livestock business; (3) gender issues occurring in livestock development programs; and (4) efforts to empower women in the livestock business.

Methods

The study was conducted in two different places: (1) Teluk Bintuni Regency in West Papua, specifically in Bintuni District (the kampongs of Iguriji, Gaya Baru, Argo Sigemeray), and in Manimeri District (the kampongs of Atibo Pasamai, Banjar Ausoy); and (2) Klaten Regency in Central Java, specifically Jambakan village in Bayat District and Glagah village in Jatinom District. A qualitative approach was used, supported by quantitative data. The approach was carried out through the community case study method, using data collection techniques, in-depth interviews and group discussions on 5-15 household participants per kampong, adopted from Qoriah and Sumarti, (2008). In Teluk Bintuni Regency, the quantitative data was obtained from 47 respondents who raised more than one type of livestock.

Results and Discussion

The Roles of Livestock

Livestock was still secondary part of farmers activities, indicated by the numbers and composition of livestock owned by households in the five kampongs of TelukBintuni, and two villages of Klaten Regency (Table 1).

Table 1. The numbers and composition of livestock in each village

Kampong/ Village	Livestock species	Average no of livestock	Age Structure of native chicken
Teluk Bintuni Regency			
Iguriji	Native chicken,	12	12% chicks, 7% young chickens, 81% hens and cocks
	pigs	3	
Gaya Baru	Native chicken,	34	27% chicks, 35% young chickens, 38 % hens and cocks
	pig	7	
Argo Sigemeray	Native chicken,	15	58% chicks, 5% young chickens, 37% hens and cocks
	goats	4	
Atibo Pasamay	Native chicken,	31	50% chicks, 20% young chickens and 30% hens and cocks
	pig	3	
Banjar Ausoy	Native chicken,	39	34% chicks, 14% young chickens and, 52% hens and cocks
	duck	32	
	cattle	4	
	goats	7	
Klaten Regency			
Jambakan	Goat	n.a	n.a
Glagah	Dairy cattle	n.a	n.a

The results indicated that livestock kept by farmers in Teluk Bintuni Regency quite varied, i.e. native chickens, pigs, goats, cattle, broiler, and duck; while farmers in Klaten raised only goats and dairy cows. The livestock diversity was determined by agro-ecological conditions, culture and the existing breeding programs. The Argo Sigemeray and Banjar Ausoy were transmigration settlement unit areas, and most of them were Javanese community who were Muslim, and used to growing vegetables and rice. The residents of Iguriji, Gaya Baru, and Atibo Pasamay were Papuans, most of them were Christian, and used to planting annual crops and local plants like *kasbi*, *petatas*, taro in their gardens and yards. Jambakan and Glagah village in Central Java were poor areas which received Village Independent Food program. Jambakan was categorized as a dry land, got assistance from Government in goats management, while Glagah as a wetland area, received assistance in goats and dairy cows. Small livestock such as pigs, goats, and chickens were raised for family food security, and most activities were carried out by women, as also reported by Qoriah and Sumarti (2008). However, when the livestock function was increasingly important for the family economic resources, then men will be more responsible. For Papuans, livestock business was still a secondary, part of their daily activities. The main economic activities were still characterized by hunting and gathering, such as collecting nuts, red fruits, and sago, hunting deer, and planting *petatas*, taro and *kasbi* in the fields. Chicken raising, selling live chickens or eggs were mostly done by women, while pig raising was done by men and women for the needs of customary parties where as Lestari and Augusta stated that decision

making for input and management by women. Pigs were sold to fulfill children school needs and Christmas celebrations. For Javanese community, both in transmigration areas and in the two villages in Klaten, dairy cows, and also goats, ducks and chicken were managed by men for family income.

The Division of Gender Roles in Livestock Business

The roles and responsibilities of men and women in the livestock business in Papuan and Javanese communities can be seen in Table 2.

Table 2. Distribution of Gender Roles in Livestock Activities

Activity	Native Papuan	Java Transmigrant	Java - Klaten
Providing feed and drink for chickens	women	women	n.a
Taking care of chicks and sick birds	women	women and men	n.a
Herding birds out and back into the cage	women	women and men	n.a
Selling chickens and eggs	women	women and men	n.a
Feeding pigs	women	-	-
Selling pigs	women and men	-	-
Finding grass/ herding goats	-	men	women and men
Selling goats	-	men	men
Feeding cattle	-	women and men	women and men
Cleaning the cattle stall	-	men	men
Milking	-	-	women and men
Selling cow milk	-	-	women and men

The roles of Papuan women were mostly on poultry and pigraising, while selling pigs was carried out by both women and men. Javanese transmigrants, women tended to raise chicken together with men, while for cattle and goats, men tended to be more responsible than women. In Klaten, goats were raised by men and women, but men were more responsible in cattle raising. This revealed that livestock as an extra family income was carried out by women, while the responsibility for main economic sources was by men, similar to the results of Fuah (1998) that women were more responsible for small livestock. There was no correlation between household economic status and access to benefits, similar to the report of Yuwono and Prasodjo (2013).

Gender Issues in Livestock Development Program

Gender equality in livestock development could be seen from the men and women access to and control over resources and benefits of the programs as shown in Table 3.

Table 3. Men and women access to and control over resources and benefits

	Native Papuan	Java Transmigrant	Java -Klaten
Access to resources and benefits			
Land	Adat (communal)	men	men
Input (seed, feed, vaccine)	women	men	men
Training	women	men	men
Farmer group	women	men	men
Market	women	men, women	men
Income	women	women was	women
Control of resources and benefits			
Land	Adat (communal)	men	men
Input (seed, feed, vaccine)	Men	men	men
Training	Men	men	men
Farmer group	Men	men	men
Market	women	equal	men
Income	equal	equal	men

A gender gap was found in the Papuan livestock business, where women had more access to resources and benefits, but the control remains in men hands. Raising chicken was secondary, since the main activities were hunting and gathering. Gender gap also occurred in both Javanese transmigrants and Javanese in Klaten, for different reasons. Women worked on livestock, access to and control over the resources and benefits were more men-dominated. Many Papuans believed that women working only to help their husband to make a living. ILO (2007) stated that gender equality was the enjoyment of equal rights, opportunities and responsibility of men and women, boys and girls in all spheres of life. It was a fairness treatment for men and women, according to their respective needs and interests.

Conclusion

It can be concluded that: 1) Large animals were kept and managed by men, while goats, and poultry were more woman's domain; 2) Women were responsible in livestock management, processing and marketing; (3) Most work and decision-making of women took place at household level, while men participated in public meetings related to goat husbandry; 4) Women had access to economic resources, and were often important income earners for households. Women faced significant structural and cultural obstacles to becoming effective leaders and gaining access to significant roles in society.

References

- Dirjen Peternakan dan Kesehatan Hewan, 2013. Statistik Peternakan dan Kesehatan Hewan 2013. Dirjen Peternakan dan Kesehatan Hewan, Jakarta.
- , 2014. Rencana Kerja Program dan Kegiatan Dirjen Peternakan dan Kesehatan Hewan tahun 2015. Dirjen Peternakan dan Kesehatan Hewan, Jakarta.
- Fuah AM. 1998. Gender Contribution on Small Livestock System in West Timor. Proceeding.
- Kementrian Pertanian, 2012. Perencanaan Tenaga Kerja Sektor Pertanian 2012-2014. Kementrian Pertanian, Jakarta.
- KIT, Agri-Pro Focus, IIRR. 2012. Challenging chains to change: Gender equity in agricultural value chain development'. KIT Publishers, Royal Tropical Institute, Amsterdam.
- Laven A, N Verhart, KIT. 2011. Addressing gender equality in agricultural value chains: Sharing work in progress.'
- Lestari NI, I Agusta. 2013. Analisis Gender dalam Program Simpan Pinjam untuk Kelompok Perempuan (SPP). *Jurnal Sosiologi Pedesaan*, hal 131-152.
- Qorih SN, T Sumarti. 2008. Analisis Gender dalam Program Desa Mandiri Pangan (Studi kasus: Desa Jambakan, Kec. Bayat, Klaten-Jawa Tengah). *Jurnal Transdisiplin Sosiologi, Komunikasi dan Ekologi Manusia*, Vol. 2. 2008.
- Sumarti T. 2012. Analysis of Agricultural Development Policy: Need for Gender Lens. Papers for Ministry of Agriculture.
- SDC.2010. The market development (M4P) approach: a summary.' With support by Springfield Centre for Business in Development Ltd., United Kingdom. May 2010.
- Yuwono PA, NW Prasodjo. 2013. Analisis Gender pada Program Pengembangan (Kasus Petani Lahan Kering Peserta Program PUAP di desa Cikarang, Kec. Dramaga, Kabupaten Bogor, Jawa Barat. *Jurnal Sosiologi Pedesaan*, hal 153-176.