



ISBN: 978-602-96530-4-5

PROCEEDING

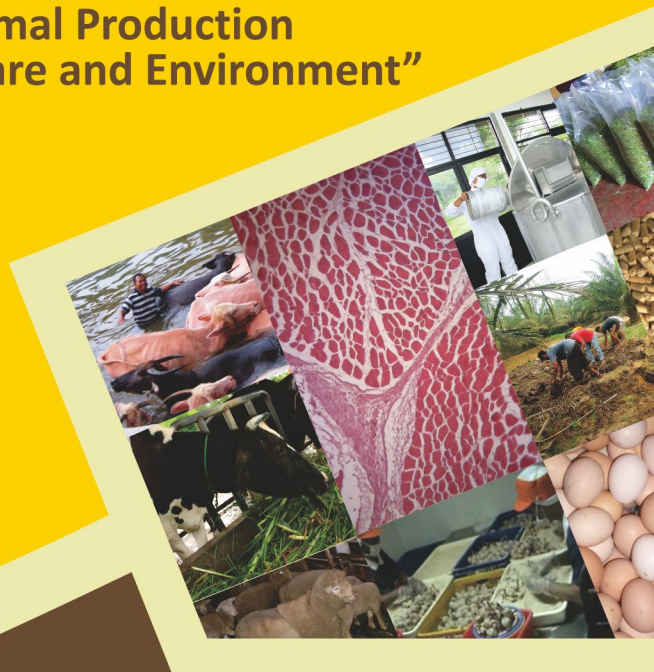


THE THIRD INTERNATIONAL SEMINAR ON ANIMAL INDUSTRY

© Hak Cipta milik IPB (Institut Pertanian Bogor)

“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
2015

Bogor Agricultural University

Hak Cipta Dilindungi Undang-Undang
1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan artikel atau tinjauan suatu masalah.
b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumumkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



LIST OF EDITORS

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

Scientific Editors

- Head of Editorial Board : 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. 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

- Winda Al Zahra, S.Pt, M.Sc.Agr
 Irma Nurany 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 Afhan, 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

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan sumber:
 a. Dilarang mengutip sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.
 b. Dilarang mengemukakan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.

Hak Cipta Dilindungi Undang-Undang

Institut Pertanian Bogor



FOREWORD FROM CHAIRPERSON OF ORGANIZING COMMITTEE

Good morning,

Selamat pagi, salam sejahtera bagi kita semua

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

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

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

All participants of the International Seminar on Animal Industry 2015

Distinguished guests, ladies and gentlemen.

It is my great pleasure to welcome you all, our 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 Scientist (HILPI).

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 wise use of natural resources in relation with environmental aspects, toward a sustainable animal production. There will be 98 papers presented during the two days seminar; 9 by invited speakers, 69 for oral and 29 for poster presentations. The speakers came from different countries including Australia, Egypt, France, Korea, Germany, Netherland, Indonesia, Malaysia, Nigeria, Pakistan, Thailand and USA.

This is a great opportunity for scientist, 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 amongst scientist 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 we received from some recognized parties and institutions in this country. In this regards, I would like to address my grateful thanks to Directorate General of Livestock and Animal Health, Ministry of Agriculture Republic of Indonesia for participation and funding support, Infovet and Trobos, Green TV as promotion agency. To: PT. Sierad Produce, Tbk, PT. Kaltim Prima Coal, Tbk, PT. BRIngin Life, PT. Adaro Indonesia, Tbk, PT. Trouw Nutrition Indonesia, PT. Nutricell Pasific, PT. Sweni Transfer Indonesia, PT. Charoen Phokphand Indonesia, Tbk, PT. Wide & Pin, PT. Pupuk Kujang, Tbk, and PT. ANTAM, Tbk, 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 assistance, to international and national reviewers and the Scientific Committee for hard working and such great support. 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.

Hak Cipta Dilindungi Undang-Undang

Hak Sipta Dilindungi Undang-Undang

Bogor Agricultural University

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumunkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



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

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

17-18 September 2015,

Chairperson of Organizing Committee

Asah M. Fua



Hak cipta milik IPB (Institut Pertanian Bogor)

Bogor Agricultural University

Hak Cipta Dilindungi Undang-Undang

2. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:

- a. Penulisan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
- b. Penulisan tidak merugikan kepentingan yang wajar IPB.

2. Dilarang mengumunkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



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

Hak Cipta Dilindungi Undang-Undang
1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumumkannya dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



© Hak cipta milik IPB (Institut Pertanian Bogor)

Bogor Agricultural University

Hak Cipta Dilindungi Undang-Undang

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
 - a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
 - b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumumkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



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	

Hak Cipta Dilindungi Undang-Undang

Hak cipta dilindungi undang-undang Institut Pertanian Bogor Bogor Agricultural University

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
 - a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
 - b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumumkannya dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



	Room A (Theme D)	Room B (Theme B and C)
1. Session 1	Moderator : Dr. Rajesh Jha	Moderator : Ummi Noorhakimah
4.00-14.10	Thongsuk Jetana Rain Tree Pod in Livestock Feeds: Opportunity, Challenges and Possibility	Yeni Widiawati Fermentation Kinetics Of Palm Oil Plantation By-Product Based Diet
4.10-14.20	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
4.20-14.30	Rusdi Evaluation of Eleutherine (<i>Eleutherine americana</i>) as Feed Additive for Poultry	H. A. Sukria Physical Quality And Storage Time Pellet Indigofera Spleaves
4.30-14.40	Discussion	Discussion
Session 2	Moderator :Thongsuk Jetana	Moderator : Imana Martaguri
4.45-14.55	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
4.55-15.05	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
5.05-15.15	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
5.15-15.25	Discussion	Discussion
5.25-15.40	Coffee break	
Session 3	Moderator : Anis Mukhtiani	Moderator : Lisa T. Praharani
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	Moderator : Rusdi	Moderator: Veronica
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

2. Dilarang mengemukakan dan memperbaharui sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



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	Moderator : Iis Arifantini
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	Moderator : Prof. Cece Sumantri
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 Hycole and Hyla Rabbits Performance were Raised in Indonesia
15.35-15.45	Discussion
15.45-16.00	Coffee break

Welcoming dinner. Venue IICC 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 : IICC Ballroom		
Time	Event	Speaker
08.00-08.30	Registration	Committee
08.30-08.35	Opening Ceremony	Master of Ceremony
Plenary Session 2 <i>Moderator: Dr. Jean Pierre Bidanel</i>		
08.45-08.55	Invited speaker 1	Prof. Wayne Pitchford Outcomes of Selection for Residual Feed Intake in Australian Beef Cattle
08.55-09.15	Invited speaker 2	Prof. Myunggi Baik Molecular Mechanisms Regulating Beef Quality in Korean Cattle
09.15-09.35	Invited speaker 3	Prof. I Wayan Teguh W. Vaccination and Subclinical Manifestation of Avian Influenza in Indonesia
09.35-09.50	Discussion	
09.50-10.00	Appreciation to Invited Speaker	Prof. Luki Abdullah
Coffee Break		
Plenary Session 3 <i>Moderator: Prof. Wayne Pitchford</i>		
10.10-10.30	Invited speaker 1	Dr. Kai J. Kuehlmann 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 F 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	Suharyanto Skim Milk Powder Substitution With Soymilk Powder Could Improve Physical Properties Of Beef Surimi-Based Sausage
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>	Iwan Prihantoro The Potency of <i>Azollapinnataas</i> A High Protein Forage for High Productivity Livestock
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	Discussion

Hak Cipta Dilindungi Undang-Undang

Hak Cipta milik IPB (Institut Pertanian Bogor)

Bogor Agricultural University

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
 - a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
 - b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumunkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



2. Dilarang mengemukakan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.

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
Session 6	Moderator : Ir Anita S.T. MRur.Sc
14.30-14.45	Lisa Praharani Comparisson of Anglo Nubian X Etawah Grade Goats And Saanen 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 Haieiii) 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
Session 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
Session 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 IICC 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

Bogor Agricultural University



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. Najoan & 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
Hycle and Hyla Rabbits Performance were Raised in Indonesia. <i>B. Brahmantiyo, Y. C. Raharjo & L. H. Prasetyo</i>	76

Hak Cipta Dilindungi Undang-Undang

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
b. Pengutipan tidak merugikan kepentingan yang wajar IPB.

2. Dilarang memunculkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.

Institut Pertanian Bogor



Constraints to, Challenges of, and Opportunities for Rearing Goats in Bali Province. A Case Study: Rearing Kids in Karangasem Regency. *L. Doloksaribu, B. P. McLachlan, R. S. Copland & P. J. Murray* 80

Daily Activities and Propolis Production of *Trigona* Bee Keeping in Three Nest Types. *M. Muhsinin, Erwan & D. Kisworo* 84

Harmony between Livestock Behaviors: Birth Time and Sites Selection Behaviors in Sheep and Goats. *Mohamad Yamin, Graeme Payne & Judith Blackshaw* 88

Theme B. Feed Technology

1. Fermentation Kinetics of Palm Oil Plantation by-Product Based Diet. *Y. Widiawati, M. Winugroho, Jafar S. & Sri M.* 95

Potential of Papaya (*Carica Papaya L.*) Leaf Flour in Animal Feed to Increase the Weight and Decrease the Ammonia on Broiler Excreta. *A. Rahmawati, M. Hidaningrum, A. Surniawan* 99

Utilization of Haylage of Local Agro-Industrial Byproduct Pretreated with Afex Method. *A. Fitri, W. Kurniawan, N. Hidayah, A. Safitri & A. Jayanegara* 103

Physical Quality and Storage Time Pellet *Indigofera sp* Leaves. *H. A. Sukria, U. I. Sholihah, L. Abdullah* 106

Identification of Substrates of The Yeast Ubiquitin Ligase Rsp5 Under High-Temperature Stress Conditions. *I. Wijayanti & H. Takagi²* 109

Feeding Water For Sheep. *Y. Retnani, K. B. Santoso, N. A. Pramesti, N. N. Khasanah* 113

Theme C. Forage Production and Technology

Potential of Dwarf Elephant Grass (*Pennisetum purpureum* Schum. cv. Mott) in Dry Land Areas of Bojonegoro as Forage-Based Feed Sustainability. *M. A. Hamdan, P. D. M. H. Karti & I. Prihantoro* 119

Development of *Indigofera zoolingieriana* and *Pueraria javanica* on Dry Land Integrated with Teak Forest in Bojonegoro. *R. P. Pardede, P. M. H. Karti, I. Prihantoro* 124

The Diversity and Quality of Forages Used for Feeding of Goat in Payakumbuh of West Sumatra. *Khalil* 128

The Addition of *Arbuscular mycorrhizal* Fungi in Enhancing Productivity and Drought Tolerance Mechanisms of *Indigofera zollingeriana*. *P. D. M. H. Karti, S. Sowmen, L. Abdullah & D. Sopandie* 132

Growth and Productivity of Different Sorghum Varieties Cultivated with *Indigofera* in Intercropping System. *M. Telleng, L. Abdullah, I. G. Permana, P. D. M. H. Karti & K. G. Wiryawan²* 136

Herbage Production and Nutritive Value of Some Forage Legumes as Calf Feed Supplement. *I G. N. Jelantik, T. T. Nikolaus, C. L. Penu & J. Jeremias* 141

Evaluation of Growth and Biomass Production of Sorghum Mutant Lines (Sorghum Brown midrib) at Different of Harvest Time. *Sriagtula R, PDMH Karti, L Abdullah, Supriyanto, DA Astuti, S Sowmen & Mardhiyetti* 145

Dynamic Respons of Forage Availability to Landuse Exchange in Bogor Regency. *N. R. Kumalasari & A. Sopiani* 150

The Potency of *Azollapinnataas* A High Protein Forage for High Productivity Livestock *I. Prihantoro, L. Adiyanti, A. T. Permana, M. A. Setiana & P. D. M. H. Karti* 153

Theme D. Animal Nutrition

Rain Tree Pod (*Samanea saman*) In Livestock Feeds: Opportunity, Challenges and Possibility. *T. Jetana, S. Uswang, S. Sophon & M. Techakamphu* 159



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>	163
Evaluation of Eleutherine (<i>Eleutherine americana</i>) as Feed Additive for Poultry. <i>Rusdi, A. Hasanuddin & R. Arief</i>	167
The Effect of NaOH Concentrations and Polysaccharides Extract of Palm Kernel Meal on Performance of 4 Weeks Old-Broiler Chickens. <i>B. Sundu, S. Bahry & R. Dien</i>	172
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. <i>M. N. Rofiq, D. S. Wahyuni, W. Negara, S. Matono & R. A. Gopar</i>	176
Growth and Feed Efficiency of Male Lambs Fed on Grass or Enriched Corn Cob Silage Basal Diet. <i>D. Yulistiani & W. Puastuti</i>	180
Nitrogen Utilization and Rumen Fermentation of Five Breed of Sheep Fed Concentrate Containing Different Levels of Rumen Undegradable Protein. <i>D. Yulistiani</i>	183
A Willingness to Pay Evaluation of Silage Implementation for Small Dairy Farmers in Central & East Java. <i>Sutresniwati, S. Simanjuntak, N. Hartati & O. D. Fitranto</i>	187
Fermentability and Digestibility of Rice Straw-Concentrate Base Ration Added with Probiotic. <i>A. S. Tjakradidjaja, Suryahadi & G. A. Gultom</i>	191
Effects of Solid or Liquid Probiotic Supplementation on Rumen Microbial Population and Enzyme Activity. <i>G. A. Gultom, A. S. Tjakradidjaja & Suryahadi</i>	195
Effect of Ammoniated Straw on Methane Production in an <i>in vitro</i> System and on Growth Performance. <i>M. M. Eissa, H. R. Metawi, W. M. A. Sadek, A. R. Khattab & M. M. Anwar</i>	199
Effect of Gambir extract (<i>Uncaria gambir</i> Roxb) Supplementation as Antioxidant on Performance of ISA-Brown Laying Hens of 40-43 Weeks Old. <i>Sumiati, F. R. Tera, J. A. N. Made & M. Rita</i>	203
Root Tubers as Alternative Energy Sources in Rabbit Ration: Effect on Growth Performance and Economic Value. <i>L. Khotijah, D. M. Fassah & N. Apriliawaty</i>	207
Live Weight Gain of Beef Cattle Fed on Complete Feed Silage of Water Hyacinth Supplemented with Mineral Zinc-Proteinate. <i>A. Muktiani, K.G. Wiryawan, B. Utomo & E. Pangestu</i>	210
The Effect of Adding Fermented Waste Cabbage in Calf Starter Pellets on Total Lactic Acid Bacteria and <i>Escherichia coli</i> . <i>O. N. Putri, S. Mukodiningih & C. S. Utama</i>	214
Substitution of Fish Meal by Cricket or Indigofera Shoot Leaf Meal on Laying Japanese Quail (<i>Coturnix japonica</i>) Performance. <i>RA Ninasari, A Anggraeny, GE Tresia, AWA Bungsu, S Adah, S Simanjuntak, BD Dianingtyas, YC Sari, Sumiati & DA Astuti</i>	217
Benefit of Kemuning Leaves Meal in Ration Containing Date Fruit Waste to Suppress Gastrointestinal Parasites Infestation of Goats. <i>G. E. Tresia, D. Evvyernie, E. Harlina & H. A. Sukria</i>	220
Golden Snail Eggs (<i>Pomacea canaliculata</i>) and Bay Leaf Meal as Natural Feed Supplement to Improve Quail Egg Quality and Reduced Yolk Cholesterol. <i>A. Dharmawan, A. Dwiputra, B. Novandri, Y. A. Sya'ban, A. Zulkarnaen & W. Hermana</i>	224
<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. <i>S. Suharti, S. Nurhanah, D. Aryani, S. L. Simanjuntak, D. A. Astuti & K. G. Wiryawan</i>	229

Hak Cipta Dilindungi Undang-Undang

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:

- Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
- Pengutipan tidak merugikan kepentingan yang wajar IPB.

2. Dilarang memunculkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



1.	Experimental level of <i>Chromolaena odorata</i> in complete diet does not impair intake, rumen fermentation and microbial protein synthesis efficiency in cattle. <i>G. F. Bira, M. L. Mullik, I. G. N. Jelantik, G. Maranatha, Y. M. Mulik, I. M. A. Sudarma & Dahlanuddin</i>	233
	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>). <i>N. M. J. Arini, D. S. Wahyuni, A. S. Putri, L. Rahmawati, D. Permatahati, Nurhayu, Y. Purnamawati, M. I. Almai, A. Saepudin, Sumiati & D. A. Astuti</i>	237
	The Study of Jack bean (<i>Canavalia ensiformis</i>) Addition on the Performance of Rats as Animal Model. <i>L. Maulana, D. Evvyernie & D. Diapari</i>	241
	The Effect of Herbs Supplementation on Egg Quality and Lipid Blood of Laying Quail (<i>Coturnix-Coturnix Japonica</i>). <i>D. M. Suci, I. Purwanto & W. Hermana</i>	245
	Feed Intake, Weekly Gain and Feed Conversion of Growing Goats Fed Protected Fatty Acid. <i>A. M. Tasse, Ld. Nafiu, D. Agustina, F. Y. Irawan</i>	249
	Nutrient Profile and <i>in vitro</i> Digestibility of Fresh and Ensiled Cassava in Swine. <i>U. P. Swari & R. Jha</i>	252
	Effect of Combination Silkworm Pupae Meal and Garlic Meal on Blood Profiles, Visceral Organs and Carcass Yield of Broiler Chicken. <i>A. S. Putri, Sumiati, & D. A. Astuti</i>	254
	Strategy of Beef Cattle Development Based on Agricultural by Product in Kuningan District, West Java. <i>E. B. Laconi, S. Mulatsih & F. T. Farda</i>	259
Theme E. Animal Genetic, Breeding, and Reproduction		
	Analysis of Captive Breeding Management of Silvery Gibbon (<i>Hylobates moloch</i> Audebert 1798). <i>A. P. Dharma, A. M. Fuah, S. S. Mansjoer, E. Iskandar & M. Yamin</i>	265
	Phenotypic Variation in Male Local Chicken at Tapin Regency Using Significant Analysis. <i>S. N. Rahmatullah, L. Wardah & A. Sulaiman</i>	269
	Effects of Selection on the Efficiency and Variability of Sow Reproduction and Maternal Abilities. <i>P. Silalahi, M. A. Setiadi, D. Duryadi, J. Gogu�, Y. Billon, T. Tribout & J. P. Bidanel</i>	272
	Effect of Caffeine on Morphology of Epididymis Spermatozoa of Bali Bull. <i>O. D. Putranti, Soeparna, T.D. Lestari, and L. Adriani</i>	277
	Comparisson of Anglo Nubian X Etawah Grade and Saanen X Etawah Grade Goats for Some Reproductive Traits. <i>L. Praharani, Supryati & R. Krisnan</i>	280
	Service Per Conception In Beef Cattle With Artificial Insemination in Kapuas Basarang District of Central Kalimantan. <i>M. H. Astuti & L. S. Asi</i>	284
	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. <i>A. Anggraeni, D. Widyaningrum, A. O. Rini & C. Sumantri</i>	288
	Morphological Genetic Distances of Local Buffalo Subpopulations in Pasaman District, West Sumatera Province. <i>A. Anggraeni, A. Haryadi & C. Sumantri</i>	292
	Morphometric Comparative Study of Head Linear Surface Measurement of Thin-Tailed, Batur, Wonosobo and Garut Sheep. <i>R. H. Mulyono, M. Baihaqi & R. Pratiwi</i>	296
	Hypoosmotic Test in Rabbit Spermatozoa. <i>Arifiantini R. I, Maulidya I. & Nalley W. M. M</i>	300
	Effect of Freezing on Bovine Sperm Morphology. <i>W. M. M. Nalley, I. R. Arifiantini, W. W. Rahmah & E. Sukmawati</i>	303
	Determination of Soy Extract Concentration in Tris Buffer of Frisian Holstein Chilled Semen. <i>T. L. Yusuf, I. R. Arifiantini, W. M. M. Nalley & E. Sukmawati</i>	306

2. Dilarang mengemukakan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mengemukakan sumber:
 a. Penguatian hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
 b. Penguatian tidak merugikan kepentingan yang wajar IPB.



Identification of Uterin Milk Protein (UTMP) Gene in Bali Cattle by Using Direct Sequencing. *Jakaria, F. Saputra, K. A. Paramitasari, P. P. Agung & Maskur* 309

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* 317

Meat Quality of Marica Goat (*Capra hircus*) Meat Fed Different Protein Level. *Hajrawati, E. Abustam, M. I. Dagong & M. A. Achmar* 321

Skim Milk Powder Substitution with Soymilk Powder Could Improve Physical properties of Beef Surimi-based Sausage. *Suharyanto, O. Mega & I. Badarina* 325

Effects of Local Flour Types on Physical Properties and Acceptability of Beef Sausage. *L. Suryaningsih, K. Suradi, R. L. Balia & E. Wulandari* 329

Characteristic of Lactic Acid Bacteria Isolated from *Danke* from Sinjai, South Sulawesi. *M. S. Soenarno, Al Faafa J, Arief II* 333

Bacteriological Quality of *Se'i* Treated with Liquid Smoke. *G. E. M. Malelak, I. G. N. Jelantik, G. Maranatha & P. Kune* 341

Increase on Commercial Weight, Carcass Quality and Economic Benefit of Selected Local Meat Chicken Fed on Fermented Diet Contained Digestive Enzymes and Probiotics. *M. A. Yaman, Allaily & Y. Usman* 344

An Analysis of Cattle Traders Practices on Animal Traceability in Malaysia. *A. B. Salina, L. Hassan, A. A. Saharee, M. A. Stevenson & K. Ghazali* 349

Effect of Moisture Reduction Method, Storage Period and Temperature on Honey Quality. *H. C. H. Siregar* 353

Nitrite Residue and Sensory Characteristics of *Dendeng* With Addition of Strawberry (*Fragaria ananassa*) as Curing Agent. *A. Kosim, W. E. Wibisono, L. Simamora, L. Yulia & T. Suryati* 358

Biodiversity Based on Flavor and Amino Acid Profile of Indonesia Local Chickens. *I. R. H. Soesanto, S. Darwati, I. I. Arief* 361

Moisture, pH Value and Physical Quality Stability of *Dendeng* During Storage at Different Temperature. *T. Suryati, I. I. Arief, Z. Wulandari & D. Febriantini* 364

Milk Production of Sahiwal x Holstein Crossbreed in Two Different Systemon Local Farm Kudat, Sabah-Malaysia. *D. S. Hanizar, I. G. Permana & Despal* 368

Physical Meat Quality of Kacang Goat and Garut Sheep Fed Sorghum Based Concentrate. *S.J. Sianturi, A. M. Fuah, H. Nuraini & D. Diapari* 371

Weight Loss of Inter-island Transported Cattle from Kupang Is Reduced by Feeding High Protein-Mineral Mix Block during Quarantine and Sea Transportation. *I M. A. Sudarma, M. L. Mullik & T. O. D. Dato* 375

Theme G. Animal Physiology, Behaviour, and Welfare

Level of Malondialdehyde (MDA), Uric Acid and Lymphocyte: Neutrphyl Ratio of Laying Hen in The Different Temperature Humidity Index (THI). *D. Latipudin, L. Adriani & R. Permana* 381

The Using of Thermograph as Non-Invasive Method to Observe Subclinical Mastitis in Tropical Dairy Cattle. *W. Al Zahra & H. Susanty* 385

Physiological Response and Blood Profile of Sheep Reared in Petir Village and Fed Cassava Tops Silage (*Manihot esculenta* sp.). *A. Sudarman, M. Hayashida, E. Jatmika, S. Suharti* 388

Theme H. Animal Environment Management

Hak Cipta Dilindungi Undang-Undang

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:

a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.

b. Pengutipan tidak merugikan kepentingan yang wajar IPB.

2. Dilarang memunculkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.

Bogor Agricultural University



(Nitrous oxide) Gases Production from Lactating Dairy Cow Feces in Different Management Feeding System. <i>A. Atabany, Muladno, Salundik, W. Alzahra & R. Puspitasari</i>	395
---	-----

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>	401
Women, Gender Equality in Livestock Development: Case Study from Papua and Central Java. <i>T. Sumarti & A. M. Fuah</i>	404
The Application of <i>Tesang</i> Sharing System at Cattle Farms in Indonesia. <i>S. N. Sirajuddin, Muh. Aminawar, A. Amrawaty, St. Nurlaelah</i>	408

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>	413
--	-----

List of Participant

cdvii

List of ISAI Committee

cdxii

Index of Author

cdxiv

Acknowledgement

cdxvii

1. Diizinkan mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
 a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
 b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
 2. Dilarang mengumunkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.

Hak Cipta © Institut Pertanian Bogor (Institut Pertanian Bogor)

Bogor Agricultural University



© Hak cipta milik IPB (Institut Pertanian Bogor)

Bogor Agricultural University

INVITED SPEAKER

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

Hak Cipta Diliindungi Undang-Undang

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
 - a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
 - b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumumkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



Hak Cipta Diliindungi Undang-Undang

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
 - a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
 - b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumumkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.

Feeding Wafer For Sheep

Y. Retnani^{1*}, K. B. Santoso¹, N. A. Pramesti¹, N. N. Khasanah¹

¹ Department of Nutrition and Feed Technology, Faculty of Animal Science, Bogor Agricultural University, Jl. Agatis, Kampus Darmaga, Bogor 16680, Indonesia

² Department of Agriculture, Indonesia

*e-mail: yuli.retnani@yahoo.com

Abstract

Thin-tailed sheep is one of local sheep that can support the needs of people's animal protein. Wafer complete feed of waste vegetable market is one of the feed results of technology that have nutritional value better than feeding a conventional feed i.e. forage and rice bran. This research was conducted at Laboratory of Feed Industry, Faculty of Animal Science, Bogor Agricultural University, Indonesia. The acceptability, performance test were conducted at Gapoktan Farm, Cilangkap-Jakarta, on July-November 2013. Experimental design used randomized block design with 5 treatments and 3 replications. The treatments were wafer feed composition i.e R1 (100% of conventional feed), R2 (75% of conventional feed+ 25% of wafer feed), R3 (50% of conventional feed + 50% of wafer feed), R4 (25% of conventional feed + 75% of wafer feed), R5 (100% of wafer feed). The results in this study indicated that the addition of water on wafer had significantly different ($P < 0.05$) on acceptability of sheep at 3 and 6 weeks storage. Wafer of feed were increase the sheep's final body weight, but it didn't have any effect on sheep's daily consumption. Wafer of feed that was given 100% to the sheep had the lowest feed conversion. Meanwhile, level of 25% of wafer complete feed had the highest value of IOFC.

Keyword: acceptability, body weight, feed conversion, sheep, wafer

Introduction

Sheep population in East Jakarta are 1744 head, this will result the increasing of feed requirements (Central Bureau of Statistics, 2012). Scarcity of forage has caused farmers to utilized waste vegetable from the market as their livestock feed. One of the sheep in East Jakarta is called the thin tail sheep. This sheep has characteristics of short tail and small body, its hair color is generally white, coarse and irregularly in the body (Arifin et al., 2007). As it is known that forage productivity is seasonal. During the rainy season, forage stock is abundant, but during the dry season forage stock is only a few or even none so that the sheep productivity will be decreased. Sheep farms are relied heavily on forage productivity that determine succeed of the farm. In order to solve these problems, it needs to look for alternative feed forage in the dry season. Vegetable waste when it is used as a raw material has several advantages that have economic value because it can produce a variety of useful products and easily obtainable, cheap, and available, also can reduce the problem of environmental pollution caused by waste (Retnani et al., 2014). The weakness of this vegetable waste is easy to decay, voluminous (bulky) and the availability is fluctuated, so the processing technology is needed to make this vegetable waste to be durable, easy to stored and easy to given to the animal. In order to solve this problem is by making vegetable waste into wafer feed. A pressing technology can make feed product into a wafer form. The wafer feed must contain energy; mineral; vitamin and protein needed by animal to increase productivity (Retnani et al., 2010a).

Materials and Methods

The experiment used 15 thin heads sheep with average initial body weight around 27.43±5.43 kg. The experimental sheep were maintained individually. The ratio used consisted of two types conventional feed (field grass and rice bran) and wafer feed. Nutrient composition of wafer feed (% Dry Matter) is presented on Table 1.

Table 1. Nutrient Composition of Wafer Feed (% Dry Matter)

Wafer feed	Water Content	Ash	Crude protein	Crude Fiber	Crude fat	NFE
Nutrien	15.79	12.41	16.90	23.04	4.18	43.47

Laboratory Analysis of Feed Science and Technology (2012)



Figure 1 showed that diagram process of wafer feed production by chopping, drying, mixing, pressing, heating and forming with temperature 100°C for 10 minutes to get wafer feed and then cooling in room temperature (Retnani *et al.*, 2014).

Experimental Design

The experimental design used randomized block design with 5 treatments and 3 replications. The treatments were wafer feed composition i.e R1 (100% of conventional feed), R2 (75% of conventional feed + 25% of wafer feed), R3 (50% of conventional feed + 50% of wafer feed), R4 (25% of conventional feed + 75% of wafer feed), R5 (100% of wafer feed). Conventional feed were field grass and rice bran. The treatments were analyzed with the analysis of variance, and the differences among treatments were examined with orthogonal contrast test (Steel and Torrie, 1993). Wafer feed variables measured were acceptability, body weight, feed consumption and feed conversion.

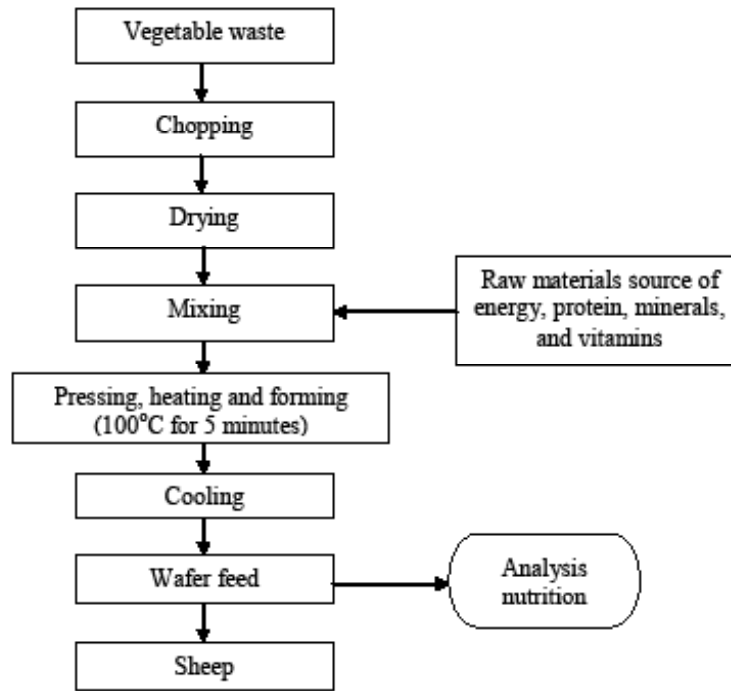


Figure 1. Diagram Process of Wafer Feed Production (Retnani *et al.*, 2014)

Results and Discussion

Acceptability can be interpreted as an acceptance of livestock against a given feed (Stewart *et al.* 1998). The addition of water at 0 weeks of storage did not affect the acceptability of sheep on the wafer complete feed. Wafers which were not added with water had the lowest value of acceptability about 18:30 or 23.86 g or 0.025% BB, and the value of the highest acceptability by the addition of water was as much as 25% of the weight of the feed given around 66.98 ± 38.08 g or 0.093% BB.

Final body weight in this study ranged from 27.07-34.00 kg/head. The result showed that wafer of feed treatment could increase final body weight of sheep. Treatment of R1 (100% of conventional feed) have final body weight was 27.07±6.87, R2 (75% of conventional feed+ 25% of wafer feed) is 32.87±4.91, R3 (50% of conventional feed + 50% of wafer feed) is 32.07±10.16, R4 (25% of conventional feed + 75% of wafer feed) was 29.53±6.12 R5 (100% of wafer feed) was 34.00±1.00. The treatment of R5 (100% wafer feed) has average body weight of the highest compared to other treatments. Sheep were fed by conventional feed had final body weight 27.07 kg, meanwhile sheep were fed 100% of wafer feed complete had 34 kg or 25.6% higher than conventional. According to Purbowarti *et al.* (2005). body weight thin tail sheep can reach 30-40 kg in males.

The result showed that wafer of feed treatment did not significant ($P>0.05$) on sheep's daily consumption. Treatment of R1 (100% of conventional feed) had sheep's daily consumption was 1559 ± 97, R2 (75% of conventional feed+ 25% of wafer feed) is 1598 ± 156, R3 (50% of conventional feed + 50% of wafer feed)

2. Dilarang mengemukakan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.
 Hak Cipta Milik IPB (Institut Pertanian Bogor)
 Penguatipan tidak merugikan kepentingan pendidikan, penelitian, pennisan karya ilmiah, penyusunan laporan, penulisan artikel atau tinjauan ilmiah atau untuk keperluan non komersial.
 1. Dilarang mengemukakan dan memperbanyak seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:

© Hak cipta milik IPB (Institut Pertanian Bogor)



was 1624 ± 117, R4 (25% of conventional feed + 75% of wafer feed) was 1454 ± 138, R5 (100% of wafer feed) was 1487 ± 109.

Feed conversion was affected by feed quality, digestibility value, and efficiency. Increase in feed quality will improve body weight gain, so feed conversion value will decrease, meaning that the application of feed is efficient (Pond *et al.*, 1995). Feed conversion depends on dry matter intake and body weight gain. Feed conversion in this study ranged from 9.19-38.50.

Income is one of the main objectives in farm. By knowing the amount of income received by then a farmer can determine if feed costs incurred during the maintenance of livestock or not economical enough. IOFC (Income Over Feed Cost) that calculates the difference between sheep sales revenue minus feed cost incurred during the maintenance process.

The amount of benefits obtained by calculating the value of the business efficiency is the difference between sheep sales revenue minus feed cost incurred during the process of maintenance. IOFC were Rp. 10.100 (R1), Rp. 164.100 (R2), Rp. 156.800 (R3), Rp. 31.400 (R4), Rp. 146.050 (R5). The highest Income Over Feed Cost feed of sheep fed with 25% of wafer feed was Rp. 164.100,-.

Conclusion

Wafer of feed were able to increase the sheep's body weight, but didn't effect on sheep's daily consumption. Wafer of feed that was given 100% to the sheep had the lowest feed conversion. Meanwhile, level of 25% wafer complete feed had the highest value of IOFC.

References

- Arifin A, Isminursiti A, Rianto E. 2007. Protein deposition on thin tail sheep by feeding forage and concentrates with a different presentation methods. National seminar on animal husbandry and veterinary. Semarang (ID). <http://www.peternakan.lit-bang.dep-tan.go.id/full-teks/loka-karya/prork16-17.pdf>. [25 Juni 2015]
- Central Bureau of Statistics of DKI Jakarta. 2012. Jakarta in Figures 2012. Jakarta (ID): Central Bureau of Statistics of provincial DKI Jakarta.
- Purbowati, 2005. Fattening of Sheep. Penebar Swadaya, Jakarta.
- Retnan Y, FP Syananta, L Herawati, W Widiarti, A Saenab, 2010a. Physical Characteristic and Palatability of Market Vegetable Waste Wafer for Sheep. *J. Anim. Prod.* 12: 29 -33.
- Retnan Y, Andi S, Taryati. 2014. Vegetable Waste as Wafer Feed For Increasing Productivity of Sheep. *Asian Journal of Animal Sciences.* 8 (1) : 15-23.
- Steel RGD and JH Torrie, 1993. Principles and Procedures of Statistic. 2nd Edn., Graw-Hall, New York.
- Stewart JL, Dunsdon AJ, Kass M, Lopez Ortiz S, Larbi A, Premaratne S, Tangendjaja B, Wina E, Vargas JE. 1998. Genetic variation in the nutritive value of *Gliricidia sepium*: acceptability, intake, digestibility, and live weight gain in small ruminants. *J Anim Sci.* 75:111-124.

Hak Cipta Dilindungi Undang-Undang

Hak Cipta Dilindungi Undang-Undang

Bogor Agricultural University

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mempublikasikan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



ACKNOWLEDGEMENT



Bogor Agricultural University



**Faculty of Animal Science
Bogor Agricultural University**

© Hak cipta milik IPB (Institut Pertanian Bogor)

Bogor Agricultural University

Hak Cipta Dilindungi Undang-Undang

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
 - a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
 - b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumumkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



Primary Sponsor

© Hak cipta milik IPB (Institut Pertanian Bogor)

Bogor Agricultural University



Hak Cipta Dilindungi Undang-Undang

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
 - a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
 - b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumumkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



Supported by



adaro

© Hak cipta milik IPB (Institut Pertanian Bogor)

Bogor Agricultural University



COAL FROM INDONESIA

PT KALTIM PRIMA COAL

Hak Cipta Dilindungi Undang-Undang

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
 - a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
 - b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumunkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



© Hak cipta milik IPB (Institut Pertanian Bogor)

Hak Cipta Dilindungi Undang-Undang

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
 - a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
 - b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumumkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.

Bogor Agricultural University

BRINGIN LIFE

ASURANSI - Jiwa - KESEHATAN - Pensiun





nutricell the science of life

program
diploma
ipb

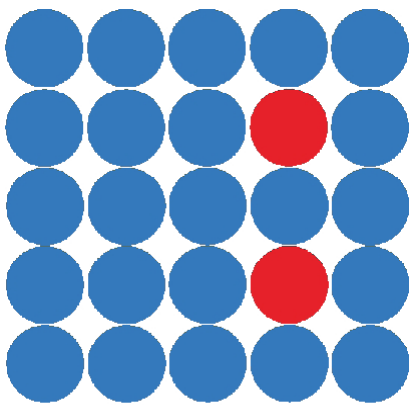


© Hak cipta milik IPB (Institut Pertanian Bogor)

Bogor Agricultural University

Hak Cipta Dilindungi Undang-Undang

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
 - a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
 - b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumunkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



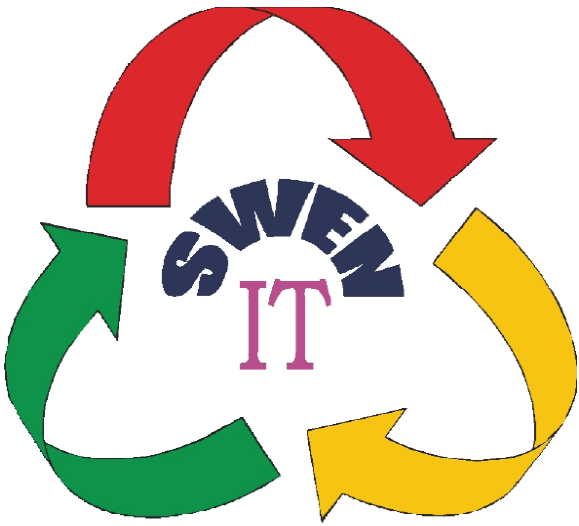
MB-IPB

© Hak cipta milik IPB (Institut Pertanian Bogor)

Bogor Agricultural University

Hak Cipta Dilindungi Undang-Undang

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
 - a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
 - b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumumkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



PT WIDE & PIN
ENGINEERING & INSPECTION

© Hak cipta milik IPB (Institut Pertanian Bogor)

Bogor Agricultural University

Hak Cipta Dilindungi Undang-Undang

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
 - a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
 - b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumunkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



antam

© Hak cipta milik IPB (Institut Pertanian Bogor)

Bogor Agricultural University

Hak Cipta Dilindungi Undang-Undang

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
 - a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
 - b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumumkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



Infovet

MAJALAH PETERNAKAN DAN KESEHATAN HEWAN

TABLOID AGRIBISNIS DWIMINGGUAN
AGRINA

TROBOS



Inovasi Peradaban Baru

© Hak cipta milik IPB (Institut Pertanian Bogor)

Bogor Agricultural University

Hak Cipta Dilindungi Undang-Undang

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
 - a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
 - b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumunkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



© Hak cipta milik IPB (Institut Pertanian Bogor)

Bogor Agricultural University

Hak Cipta Diliindungi Undang-Undang

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
 - a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan kritik atau tinjauan suatu masalah.
 - b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumumkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.



© Hak cipta milik IPB (Institut Pertanian Bogor)

Hak Cipta Dilindungi Undang-Undang

1. Dilarang mengutip sebagian atau seluruh karya tulis ini tanpa mencantumkan dan menyebutkan sumber:
 - a. Pengutipan hanya untuk kepentingan pendidikan, penelitian, penulisan karya ilmiah, penyusunan laporan, penulisan artikel atau tinjauan suatu masalah.
 - b. Pengutipan tidak merugikan kepentingan yang wajar IPB.
2. Dilarang mengumumkan dan memperbanyak sebagian atau seluruh karya tulis ini dalam bentuk apapun tanpa izin IPB.

Supported by:



PT KALTIM PRIMA COAL



TROBOS

