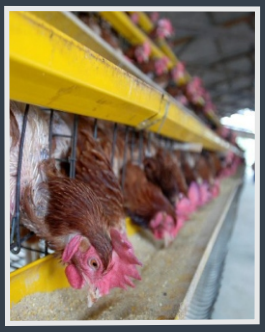
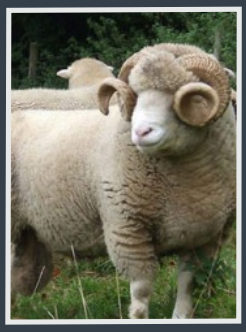
The 7th INTERNATIONAL SEMINAR ON TROPICAL ANIMAL PRODUCTION

"Contribution of Livestock Production on Food Sovereignty in Tropical Countries"

Program Citations, General Information and Abstracts





September 12-14, 2017
Yogyakarta,Indonesia

Organized by :
Faculty of Animal Science, Universitas Gadjah Mada Yogyakarta
Indonesian Society for Sustainable Tropical Animal Production [ISSTAP]
INDONESIA, 2017

WELCOME ADDRESS

Selamat pagi, Good morning, and *Assalamu'alaikum Wr. Wb.*

The honorable Rector Universitas Gadjah Mada, Invited Speakers, all of delegates, distinguished guests, participants, ladies and gentlemen.

First of all, it is our great pleasure and honor to extend a warm welcome to all of you at The 7th International Seminar on Tropical Animal Production (ISTAP), which be held on September 12 - 14, 2017 at Auditorium Drh. R. Soepardjo, Universitas Gadjah Mada, Yogyakarta, Indonesia. This seminar is proudly organized by Faculty of Animal Science Universitas Gadjah Mada, every 4 years since 1994. But, since last two years (2017) ISTAP has been conducting for every two years in collaboration with the Indonesian Society for Sustainable Tropical Animal Production (ISSTAP). We consider due to the rapid development of science and technology in animal production and also the need for exchange knowledge and experiences among the stakeholders, this scientific event is conducted for every two years.

The contribution of this seminar to the development of national food security is truly significant for introducing of new scientific knowledge and equipment that is much needed in Indonesia to maintain a safe and secure environment and to look at more effective ways to meet and anticipate the future challenges. We can see great enthusiasm of the entire participant to present their latest research finding as well as to share valuable information and knowledge for human prosperity all over the world.

In these 3 days of seminar, we have invited some important distinguished speakers for the plenary session and invited papers relevant to the animal production challenges for sharing their valuable information and knowledge. Other participants from over 11 different countries and from research institute and/or universities can deliver their precious research through oral and poster presentations at concurrent sessions.

At this opportunity, we would like to express our special thank you to the Steering Committee, Scientific Committee, Reviewers and Editorial Boards for their great contribution to make the seminar a great success. Also, we would like to congratulate and deliver high appreciation to the Organizing Committee as the organizer for their great contribution and generous efforts to make the seminar successfully organized. We are really indebt to your valuable time, effort and sacrifice to the success of this seminar.

To all of the participants, I do hope this seminar will enrich you with the new perspective of recent knowledge and of course with new friends for possible future partnership and collaboration in fostering the advancement of animal science. Also, I wish to all of the participants having a great achievement of success and fulfill the expectation as well as enjoying the interaction with all participants. Surely, with all of our hospitality, we have been trying our best to make your brief visit to our country become a wonderful and memorable moments. We are looking forward to meeting you in the future event.

Finally, we wish you all a very pleasant and most enjoyable stay in Yogyakarta, Indonesia, beside you scientific journeys.

Thank you very much for your attention, *Terima kasih, Wassalamu'alaikum Wr. Wb*.

Yogyakarta, 12 September 2017

Sincerely yours,
Dean Faculty of Animal Science UGM

Prof. Dr. Ali Agus

LIST OF CONTENTS

Congress Theme
This international event is called The 7th International Seminar on Tropical Animal Production (ISTAP) with the theme "Contribution of Livestock Production on Food Sovereignty in Tropical Countries"

Period and Venue
September 12th (Tuesday) – 14th (Thursday), 2017
The main venue of the Congress is Auditorium drh. Soepardjo, Faculty of Animal Science Universitas Gadjah Mada Campus, Bulaksumur, Yogyakarta, Indonesia Telp: +62 (0274) 513363 Fax: +62 (0274) 521578

Official Language
English is the official language. Translation facility is not provided.

Secretariat Office
The 7th ISTAP Secretariat Room will be operated in the 1st floor, Faculty of Animal Science, UGM.

Registration
Participants can register and pick up the conference kit at the registration counter which will be available at the Main Entrance of Auditorium drh. Soepardjo, Faculty of Animal Science at the following date and time:

- Tuesday, September 12th, 2017 starts from 07:00 – 17:00
- Wednesday, September 13th 2017 starts from 07:00 – 17:00

Oral Presentation
Oral Presentation for Invited Speakers and short presentation are located in the 1st floor of and 2nd floor, Faculty of Animal Science, UGM

Poster Presentation

- Poster Zone is located at the 1st floor, Auditorium drh. Soepardjo, Faculty of Animal Science, UGM
- Presenters have to stand in front of their poster during the Poster Session in Tuesday, September 12th, 2017 at 13:00 – 14:00 to present their poster.

Exhibitions
Souvenirs and product exhibitons are available at the 1st floor, 1st floor, Auditorium drh. Soepardjo, Faculty of Animal Science, UGM. You can find the traditional foods and beverages and various souvenirs from Yogyakarta such as batik clothes, mask and unique handicrafts as well as animal products both from the companies and small medium entreprises.

Internet
All registered participants are eligible to use internet for free

Currency
The currency of Indonesia is Rupiah (IDR). The approximate exchange rates (as in September 2017) is US$ 1 = IDR 13,350. Money changer is not available in the registration venue.

Electricity
220 Volts, 50 Hertz (two-pin plug)

Time Zone
Yogyakarta standard local time is included in Western Indonesia Time Zone, GMT + 07:00 hours.

Important Telephone Numbers
Important Telephone Numbers

Police Emergency Call	110
Regional Police Office of Yogyakarta	+62-274-563494
Central Police Office of Yogyakarta	+62-274-512940
Bulaksumur Sector Police Office	+62-274- 557111
Province Tourist Information Center	+62-274-587486
City Tourist Information Center	+62-274-588025
Fire Fighter	+62-274-113 or +62-274-7474704
Indonesian Red Cross (IRC)	+62-274-372176 or +62-274-380434
Yogyakarta City IRC	+62-274-372176
Ambulance	+62-274-452118 or 118
Yogyakarta Save & Rescue	+62-274-563231, +62-274-562811 (ext 319)
Dr. Sardjito Hospital	+62-274-587333
Bethesda Hospital	+62-274-562246, +62-274-521245
Panti Rapih Hospital	+62-274-514845, +62-274-514014, +62-274-563333
Jogja International Hospital	+62-274-4463555 (Emergency Call) or +62-274-4463444 (hunting)
Adi Sutjipto International Airport	+62-274-566666, +62-274-484261
Garuda Indonesia Airline Ticket Reservation	+62-274-551515
Lion Air/Wing Air Ticket Reservation	+62-274-555028, +62-274-555029 or +62-274-555030
ASA Taxi	+62-274-545545
Armada Taxi	+62-274-517248
Centris Taxi	+62-274-544977
Indrakelana Taxi	+62-274-565565

JAS Taxi	+62-274-373737
Pandawa Taxi	+62-274-370000
Pataga Taxi	+62-274-371725
Prinkopad Taxi	+62-274-621055
Rajawali Taxi	+62-274-561459
Ria Taxi	+62-274-382262
Sadewa Taxi	+62-274-412000
Setia Kawan Taxi	+62-274-563551,
Vetri Taxi	+62-274-563555,
	+62-274-7449252,
	+62-274-566011
Save and Rescue	115
Emergency Call	112

Contact Persons of Secretariat:

Dr. Rio Olympias Sujarwanta	+ 62 8561542868
Ms. Rima Amalia	+62 82136048419
Ms. Zazin Mukmila	+62 85878300780

SOCIAL ACTIVITIES

Opening Ceremony
Time : 08:00 – 08:50, Tuesday, September 12th, 2017
Venue : Auditorium drh. Soepardjo 2nd floor,
Faculty of Animal Science, UGM

Welcome Dinner
Time : 18:30 – 21:00, Tuesday, September 12th , 2017
Venue : Auditorium 1st floor, drh. Soepardjo,
Faculty of Animal Science, UGM

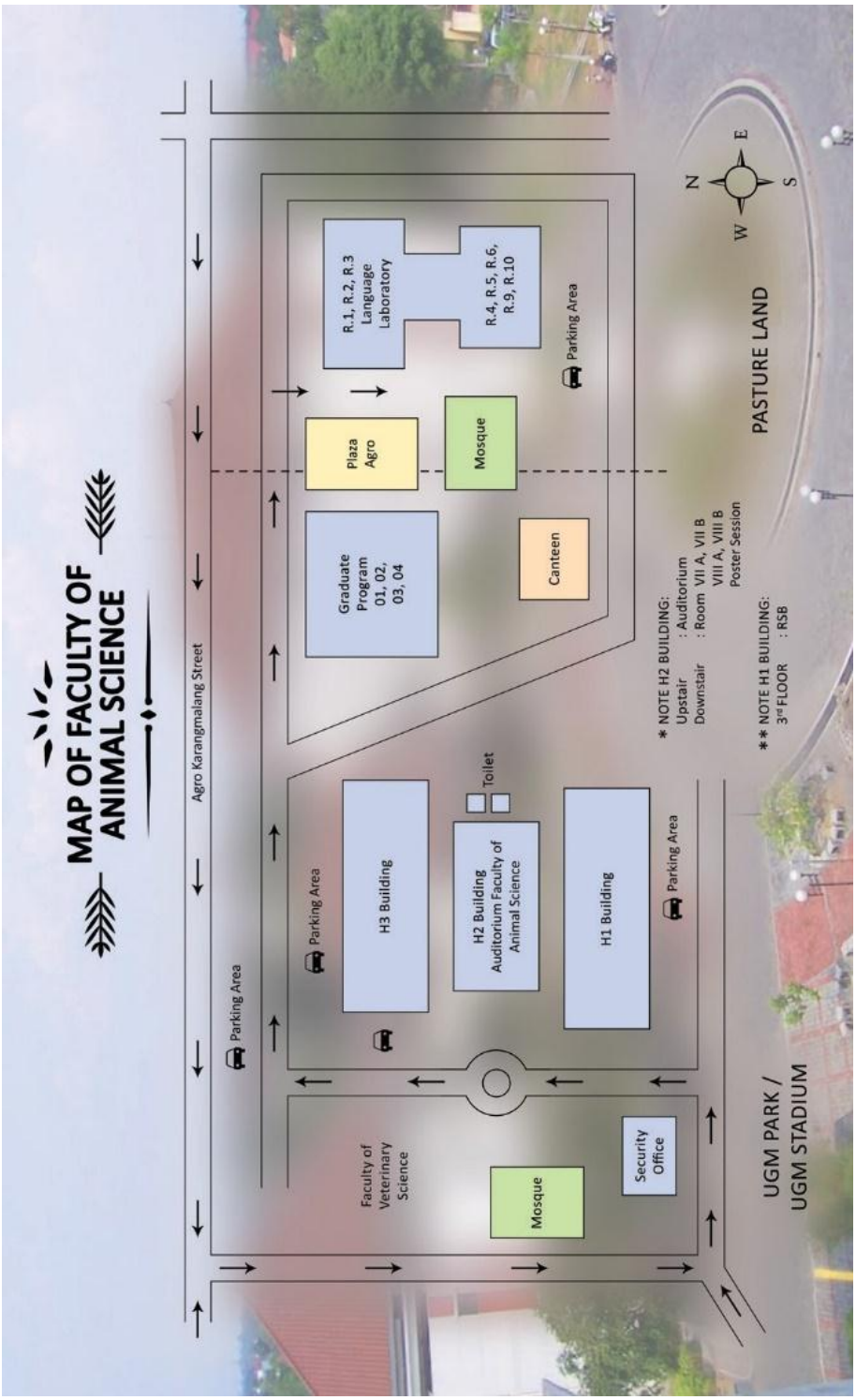
Closing Ceremony
Time : 17:15– 18:00, Wednesday,September 13th, 2017
Venue: Auditorium drh. Soepardjo 2nd floor
Faculty of Animal Science, UGM,

Field Trip
Time : 08:30 – 17:30, Thursday, September 14th , 2017
Venue : Nglanggeran Ancient Volcano and Prambanan Temple

SEMINAR VENUE

The 1st and 2nd Floor drh. Soepardjo, Faculty of Animal Science, UGM RSB (Ruang sidang Besar), 3rd Floor H1 Building, Room 6 Graduate Program Faculty of Animal Science, UGM

Map of Faculty of Animal ScienceUniversitas Gadjah Mada



SEMINAR PROGRAM

Time	September 12
07.30-08.00	Registration
08.00-08.25	Opening Ceremony
08.25-08.40	Welcome Speech
08.40-08.50	Opening Speech by Rector UGM
08.50-09.00	Foto Session
09.00-09.15	Coffee break
09.15-10.10	Plenary Session I
10.10-11.05	Plenary Session II
11.05-12.00	Plenary Session III
12.00-13.00	Lunch
13.00-14.00	Poster Presentation 1st floor H1-H3 of Animal Science UGM
14.00-15.45	Oral Presentation R.7A,7B,8A,8B, RSB, Auditorium, Room 6 graduate program
15.45-16.00	Coffee break
16.00-18.00	Congress ISSTAP
18.30-21.00	Welcome dinner

Time	September 13
08.15-08.30	Registration
08.30-09.00	Coffee break
09.00-10.00	Plenary Session IV
10.00-11.00	Plenary Session V
11.00-12.00	Plenary Session VI
12.00-13.00	Lunch
13.00-15.00	Oral Presentation R.7A,7B,8A,8B, RSB, Auditorium
15.00-15.15	Coffee break
15.15-17.15	Oral Presentation R.7A,7B,8A,8B, RSB, Auditorium
17.15-18.00	Closing ceremony

Time	September 14
08.30-17.30	Field Trip

PREPARATION GUIDELINES FOR PRESENTATION

Plenary Sessions

1. Presentation time for each Plenary Speaker is 40 minutes followed by 15 minutes for discussion.
2. There will be a computer and a digital projector available in the Auditorium for MS Power Point presentation.
3. Please email your MS Power Point Presentation file to secretariat of the Seminar by September 8, 2017 through istap@ugm.ac.id
4. Even though a presentation file is submitted by email before the Seminar, it is strongly recommended to save your file in CD or USB storage and bring it with you.
5. The file should be submitted to the information desk on-site one day before your scheduled presentation time with clear identification of your paper.

Oral Presentation

1. Each oral presentation is 10 minutes followed by 5 minutes for discussion
2. Following items are the same to Plenary Session mentioned as above.

Poster Presentation

1. Size of the poster is A0 [1189 mm (height) x 841 mm (width)
2. Body of Poster: Portrait-oriented layout (read top to bottom)
3. Poster frames with the creamy color background will be provided at the poster area with the code of each poster in each poster frame. Pins (provided by the committee) will be used to put your poster up.
4. Author(s) should display/fix their posters in the morning started from 07:30 to 11:00 am on September 12, 2017. Posters should be taken down only at the end of the Seminar on September 13, 2017 at 16:00. And the committee will not be responsible for the posters which are not taken down after that time.
5. The poster information should include: (1) Title, Author(s), Affiliation(s), and Corresponding Email, (2) Introduction, (3) Materials and Methods, (4) Results and Discussion, (5) Conclusion, and (6) References
6. Poster Text: Text should be of sufficient size for easy reading at a distance of 1.5 meters (Poster Title: at least 76 pt font size, bold preferred (located at the top of the poster, centered or justified left)– Body Text: at least 32 pt font size with single spacing)
7. Avoid using ALL CAPITAL letters. And use italics instead of underlining
8. The images (clips arts, graphs, diagrams, and drawings) must be in high resolution EPS format (at least 300 dpi at final size). Avoid 3-D graphs
9. Each **poster presenter** will be allocated one hour for discussion during the Poster Session from 13:00 to 14:00 at their stand on the 1st Floor H1-H3.
10. Assistants will be allocated at the poster presentation area.

PRESENTATION VENUE
Faculty of Animal Science, UGM

EVENT	DATE	VENUE
Speech	12 Sept	2nd Floor Auditorium
Plenary Session 1	12 Sept	2nd Floor Auditorium
PS. 1.1		
PS. 1.2		
PS. 1.3		
Poster Presentation (afternoon, 1-2 PM)	12 Sept	1st Floor Auditorium
Oral Presentation (afternoon 2-4 PM)	12 Sept	
Session 1A: Ruminant Nutrition 1		2nd Floor Auditorium
Session 1B: Monogastric Nutrition and Production 1		Room 7A
Session 1C: Food and Animal Product, and by-products 1		Room 7B
Session 1D: Social Economic 1		RSB (3rd Floor, H1)
Session 1E: Breeding and Genetic 1		Room 8A
Session 1F: Ruminant Production 1		Room 8B
Session 1G: Food Safety and Halal Food Industry		Room 6 graduate program
Plenary Session 2	13 Sept	2nd Floor Auditorium
PS. 2.1		
PS. 2.2		
PS. 2.3		
Oral Presentation (afternoon 1-3 PM)	13 Sept	
Session 2A: Ruminant Nutrition 2		2nd Floor Auditorium
Session 2B: Monogastric Nutrition and Production 2		Room 7A
Session 2C: Food and Animal Product, and by-products 2		Room 7B
Session 2D: Social Economic 2		RSB (3rd Floor, H1)
Session 2E: Breeding and Genetic 2		Room 8A
Session 2F: Ruminant Production 2		Room 8B
Oral Presentation (afternoon 3-5 PM)	13 Sept	
Session 3A: Ruminant Nutrition 3		2nd Floor Auditorium
Session 3B: Monogastric Nutrition and Production 3		Room 7A
Session 3D: Social Economic 3		RSB (3rd Floor, H1)
Session 3E: Breeding and Genetic 3		Room 8A
Session 3F: Ruminant Production 3		Room 8B

PLENARY SESSIONS
POSTER PRESENTATIONS
ORAL PRESENTATIONS

PLENARY SESSIONS
Day 1 Program (Tuesday, September 12, 2017) (2nd Floor, Auditorium drh. R. Soepardjo, Faculty of Animal Science UGM)

07.30 – 08.00	Registration (1st Floor Auditorium Faculty of Animal Science UGM)
08.00 – 09.00	Opening Ceremony
09.00 – 09.15	Coffee Break
09.15 – 10.10	***Plenary Session I:*** Chairperson: Panjono, PhD. **Plenary speaker:** a. Prof. Liang Chou Hsia National Pingtung University of Science and Technology, Taiwan Topic: **The Use of Modern Technology for Production of Traditional Tropical Small Ruminants**
10.10-11.05	***Plenary Session II:*** Chairperson: Muhlisin, Ph.D. **Plenary speaker :** a. Dr. Vu Dinh Ton Vietnam National University of Agriculture Topic: **"Role of Livestock Production in Farm Households' Economy and Challenges in Perspective of Sustainable Development in Vietnam"**
11.05 – 12.00	***Plenary Session III:*** Chairperson: Yuny Erwanto, Ph.D. **Plenary Speaker :** a. Prof. Dr. Tridjoko Wisnumurti Universitas Gadjah Mada, Indonesia Topic: **Halal Life Style And Global Trade**
12.00 – 13.00	Lunch

POSTER PRESENTATIONS

Session Poster (1st Floor, Faculty of Animal Science UGM)
Time : Tuesday, 12 September 2017, 13:00 -14:00

Chairperson: Dr. Tri Anggraini Kusumastuti

NO	CODE	TITLE
1	22373-42263-2-SM	**The Effect of Gamma Irradiation on Nutrient Profiles and Total Gas Production In Vitro of Two Sorghum Straw Variety** *Teguh Wahyono, Shintia NW Hardani and Suharyono*
2	23050-44611-1-SM	**The Estimation of Natural Increase, Population Dinamics and Output of Beef Cattle in Klaten Central of Java** *Sumadi, A. Fathoni, S. B. Kusuma, D. N. H. Hariyono*
3	23053-44614-1-SM	**Estimate the Milk Production of Friesian Holstein (Fh) Based on Incomplete Record in Balai Besar Pembibitan Ternak Unggul-Hijauan Pakan Ternak (Bbptu-Hpt) Baturraden, Banyumas, Central Java** *Sumadi, Asriana Dwi Martanti, Adiarto, Tety Hartatik, Budi Prasetyo Widyobroto, Akhmad Fathoni*
4	23316-45667-1-SM	**The Effect of Rhizobium Inoculation and Harvesting Time on the Quality and Biomass Productivity of Peanut Straw (*Arachis hypogea*) in Sandy Soil** *Nafiatul Umami, Bambang Suhartanto, Ristianto Utomo, Putri Dwinda Heristiningrum*
5	23345-45812-1-SM	**Consumption, Digestibility and Weight Gain of Kacang Goat Received Rations Containing Solid Herbal Waste** *Arif Nindyo Kisworo, Ali Agus, Kustantinah Kustantinah, Bambang Suwignyo*

6	23346-45811-1-SM	**Nutritional Value and In Vitro Digestibility of Shrimp Waste Fermented with Isoptericola sp. A10-1** *Amrih Prasetyo, Lies MiraYusiati, Yuny Erwanto, Wihandoyo, Nanung Agus Fitriyanto,and[2]Rusman*
7	23553-46108-1-SM	**Applying of Antigen JT at Recombinant on Jembrana Disease Detection: Early Approval** *Endang Tri Margawati, Indriawati, Muhamad Ridwan, Dian Karyanti, Anna Januar, Sulaxono Hadi Fikri*
8	23565-46131-1-SM	**Studies Institute Capital PT PNM Branch Cirebon against Cattle Development in the Sub District Cibingbin Dukuhbadag Village District Kuningan** *Fitri Dian Perwitasari, Devi Yuliananda dan Bastoni*
9	23570-46141-1-SM	**In Vitro Digestibility of the Combination Napier Grass (*Pennisetum purpureum)* and Tithonia (*Tithonia diversifolia)*** *Novirman Jamarun, Elihasridas, Roni Pazla, Fitriyani*
10	23601-46228-1-SM	**Financial Analysis Of Medium Scale Pig Farming Livestock In The Gianyar District** *Ida Ayu Parwati and Nyoman Suyasa*
11	23648-46343-1-SM	**Production Of Chicken Carcass And Non Carcass Of Kampung Chickens Who Received Rations Skin Dragon Fruit Flour (*Hylocereus polyrhizus*) Fermented** *Gusti A.M. Kristina Dewi. I M. Nuriyasa dan I W.Wijana*
12	23709-46662-1-SM	**Phylogenetic Tree Analysis for Ongole Grade (Kebumen cattle) Based on Partial SRY gene** *Tety Hartatik, Dwi Nur Happy Hariyono, Galuh Adi Insani, Sumadi, Dyah Maharani, Jafendi Hasoloan Purba Sidadolog*
13	23734-46739-1-SM	**Vegetable Tanning Process Of Starry Trigger Fish (*Abalistes stellaris*) And Its Plotting To Leather Products** *Indri Hermiyati, Fitrilia Silvianti, M. Wahyu Sya'bani*

ORAL PRESENTATIONS (Afternoon)

Session 1 A: Ruminant Nutrition 1 (2nd Floor Auditorium, Faculty of Animal Science UGM)
Chairperson: Dr. Sri Mukodiningsih

TIME	CODE	TITLE
14.00-14.15	23306-45670-1-SM	**Morphological Characteristics and Biomass Production of *Chicory intybus* in Yogyakarta** *Nafiatul Umami, Bambang Suhartanto, Ali Agus, Bambang Suwignyo, Nilo Suseno, Farrah Siti Zakkiyah, Tim Cookson*
14.15-14.30	24809-49652-1-SM	**In Vitro Digestibility of Fermented Rice (*Oryza sativa*) Straw and Cassava (*Manihot utilissima*) Leaves Basal Feed Supplemented with Cassava Tuber** *Cuk Tri Noviandi, Ristianto Utomo, Zazin Mukmila*
14.30-14.45	24926-50079-2-SM	**Effects of Different Season on Dominant Spesies and Chemical Composition Tropical Agricultural Weeds** *Bambang Suwignyo, Bambang Suhartanto, Briyan Ahmad Suparja, Wahyudin, Galih Pawening*
14.45-15.00	25248-51206-1-SM	**Feed Evaluation based on Tannin Content and Gas Production of Twelve Tropical Feedstuffs** *Kustantinah Adiwimarta, Edwin Indarto, Zuprizal, Cuk Tri Noviandi, Nanung Danar Dono, Fajar Aji Mukti*
15.00-15-15	28128-62394-1-SM	**Effect as Feed Supplement Wafer the Nutrient Consumption and Digestibility of Pasundan Cattle** *Herni, Y. Retnani, S. Suharti*
15.15-15.30	25555-52329-1-SM	**Calliandra calothyrsus as Tannins Source for In Vitro Methane Production Inhibition** *Muhlisin, M. A. Anas, C. Hanim, and L. M. Yusiati*

Session 1B: Monogastric nutrition and production 1 (1st Floor Room 7A, Faculty of Animal Science UGM)
Chairperson: **Prof. K.G. Wiryawan, Ph.D.**

TIME	CODE	TITLE
14.00-14.15	25169-51030-1-SM	**Genetic Parameter Estimation on Pra Production Traits of Alabio and Mojosari Ducks After Selection Based on Egg Production in Two Generation** *Jafendi H. Purba Sidadolog, Isti Damayanti,Tohir, Dyah Maharani and Tety Hartatik*
14.15-14.30	24440-48656-1-SM	**Potency of Persimmon Fruit (*Dyospiros kaki*) As An Organic Antibiotic, Antifungal and Anthelmintic on The Livestock : An Analysis** *Retno Widyani Sarwoko, Muhammad Hisyam Hermawan, Susan Maphilindawati Noor, AE TH Wahyuni, Kuswandi Tirto Diharjo*
14.30-14.45	24301-48384-1-SM	**Isolation and Identification of Fungi Type from Juice of Cabbage Waste as Probiotic Agency** *Cahya Setya Utama, Zuprizal, Chusnul Hanim, Wihandoyo*
14.45-15.00	24136-47879-1-SM	**Addition of Feed Additive Wheat Leaf Binahong (*Anredera Cordifolia* (Ten.) Steenis) in to Diets on Growth Performance of Broiler Chickens** *Nur Widodo, Wihandoyo, Nanung Danar Dono, and Zuprizal*
15.00-15.15	23332-45739-1-SM	**Effect of Cage Densities and Betaine Supplementation on Nitrogen Retention in Quails** *Adi Ratriyanto, Rysca Indreswari, Sigit Prastowo*
15.15-15.30	23366-45870-1-SM	***The Effect of Daily Activities Stingless Bees of Trigona sp. on Honey Production*** *Agussalim Agussalim, Ali Agus, Nafiatul Umami, I Gede Suparta Budisatria*
15.30-15.45	23538-46066-1-SM	**The Study of Nutrient Requirement On Native Chicken That Given Free Choice Feeding On Grower Phase**

Charles V. Lisnahan, Wihandoyo, Zuprizal, Sri Harimurti

Session 1C: Food and animal product, and by-products 1 (1st Floor Room 7B, Faculty of Animal Science UGM)
Chairperson: **Dr. IGN Jelantik (Universitas Nusa Cendana)**

TIME	CODE	TITLE
14.00-14.15	24221-48158-1-SM	**Properties of Goat Milk Kefir Supplemented with Glucomannan from Porang (*Amorphophallus oncophyllus*) Tuber** *Nurliyani, Eni Harmayani, and Sunarti*
14.15-14.30	24298-48377-1-SM	**The Effect of Kinds of Sugar on Chemical and Physical Quality of Ground Beef Jerky with Sun Drying** *Jamhari, Edi Suryanto, Dyah Ayu Laksmiwati*
14.30-14.45	24494-48760-1-SM	**Utility of Biogas Sludge as Media for White Oyster Mushroom (*Pleurotus Florida*)** *Ambar Pertiwiningrum, Nanung Agus Fitriyanto, Cahyono Agus, Ramdhan Dwi Nugroho*
14.45-15.00	24647-49173-1-SM	**The Effect of Merapi Volcanic Ash Addition to the Quality of Liquid Organic Biofertilizer Made from Goat and Sheep Feces** *Nanung Agus Fitriyanto, Kinanthi Hening Swari Jayeng Sashanti, Bambang Suwignyo, Nafiatul Umami, Yuny Erwanto*
15.00-15.15	24648-49175-1-SM	**Optimization of Indonesian Goat Satay Gridiron with Velocity Airflow Control at 40 Skewers Capacity** *Endy Triyannanto, Muslim Mahardika, and Yudi Pranoto*
15.15-15.30	24650-49179-1-SM	**Physical and Sensory Characteristics of Broiler Chicken Sausages With Addition Of Spirulina (*Arthrospira platensis*)** *Edi Suryanto, Jamhari, Rio Olympias Sujarwanta, Endy Triyannanto, Setiyono,*

		Rusman, Friska Putri Sumajava, and Addi Jaler Mukhshon
15.30-15.45	23355-45847-1-SM	**The Quality of Salted Egg Using Kemangi Leaf (*Ocimum basillicum L.*)** *Herly Evanuarini, Imam Thohari, Ristya Andree*

Session 1 D: Social Economic (3rd Floor Room RSB H1, Faculty of Animal Science UGM)
Chairperson: **Prof. Dr. Sutrisno Hadi**

TIME	CODE	TITLE
14.00-14.15	24675-49219-1-SM	**Beef Cattle Farmers' Group Cohesion in Bantul and Sleman Regencies Yogyakarta Special Region** *Fransiskus Trisakti Haryadi., Rini Widiati, Tri Anggraeni Kusumastuti., Siti Andarwati*
14.15-14.30	24654-49184-1-SM	**Influence of Low-Income Household Mother for The Increase Children Milk Consumption** *Suci Paramitasari Syahlani, Mujtahidah Anggriani Muzzayanah*
14.30-14.45	24817-49668-1-SM	**The Potential of Livestock Farming in the Agricultural Income Structure of Rural Farmers** *Sudi Nurtini, R. Ahmad Romadhoni Surya Putra, and Defi Chusnul Chotimah*
14.45-15.00	24178-48037-1-CE	**Factors Influencing Smallholder Farmer's Decision to Adopt Artificial Insemination as A Cattle Reproduction Technology in Yogyakarta** *R. Ahmad Romadhoni Surya Putra, Restiyana Agustine, Tri Satya Mastuti Widi*
15.00-15.15	24561-48918-1-SM	**Allocation of Expenditure for Livestock Products Foods in Indonesia: Working-Lesser Approach** *Mujtahidah Anggriani Ummul Muzayyanah, R Ahmad Romadhoni Surya Putra, Suci Paramitasari Syahlani, Nurul Hasanah Uswati Dewi*

15.15-15.30	27155-57876-1-SM	**Income Analysis on Capital Assistance Model through the Revolving Ettawa Crossbred Goat in Yogyakarta Indonesia** *Tri Anggraeni Kusumastuti, Rini Widiati, Agung Wijaya*

Session 1 E: Breeding and Genetic 1 (1st Floor Room 8A, Faculty of Animal Science UGM)
Chairperson: **Prof. Dr. Ismoyowati (Universitas Jendral Soedirman)**

TIME	CODE	TITLE
14.00-14.15	24626-49116-1-SM	**Phenotypic Characterization of Indonesian Local Ducks Based on Body Measurements** *Dyah Maharani, Dwi Nur Happy Hariyono, Daniel Dwiky Ignasia Putra, Jun Heon Lee, Jafendi Hasoloan Purba Sidadolog*
14.15-14.30	25206-51108-1-SM	**Behavior of Bali Cows at Different Reproduction Phase that Kept In Oil Palm Environment** *Endang Baliarti, Panjono, I Gede Suparta Budisatria, Sigit Bintara, Hamdani Maulana, Rio Gustantio, Bayu Andri Atmoko, Tejo Sasongko*
14.30-14.45	24641-49144-1-SM	**Blood Biochemical Profile Of Repeated Breeding Friesian Holstein Grade Cows In The Dairy Processing Unit Faculty Of Animal Science Gadjah Mada University** *Diah Tri Widayati, Novi' Maulida, Adiarto*
14.45-15.00	24635-49131-1-SM	**Pregnancy rate of Bali Cows following Artificial Insemination using Chilled Sexed Sperm under Intensive Management in Tropical Area** *Takdir Saili, La Ode Baa, Astriana Napirah, Syamsuddin, I Wayam Sura dan Febiang Lopulalan*

15.00-15.15	24645-49169-1-SM	**Study on Vaginal Epithelial Cells in Ongole Grade Cattle Suspected Reach Puberty** *A.H.K. Amrullah, D.T. Widayati, D. Maharani*
15.15-15.30	24649-49177-1-SM	**Selection for Bali Bull Based on Growth Traits Using Animal Model** *Andoyo Supriyantono, Frans A. Torey*

Session 1F: Ruminant Production 1 (1st Floor Room 8B, Faculty of Animal Science UGM)
Chairperson: **Dr. Joko Riyanto (Universitas Negeri Sebelas Maret)**

TIME	CODE	TITLE
14.00-14.15	24586-48989-1-SM	**Pre-Weaning Growth of Etawah Grade Goat Base On Different of Doe's Hair Color** *I Gede Suparta Budisatria, Alek Ibrahim, Dyah Maharani*
14.15-14.30	24780-49589-1-SM	**Nitrogen Balance of Bligon and Kejobong Goat Fed King Grass and Peanut Straw** *Lies Mira Yusiati, Chusnul Hanim, I Gede Suparta Budisatria, Rahadyan Adi Nugraha*
14.30-14.45	25245-51200-1-SM	**The Effect Weaning Methods on Lactation Period and Milk Production of Etawah Crossedbred Goat in Smallholder** *Yuni Suranindyah, F.Trisakti Haryadi, Diah Tri Widayati, Dyah Maharani*
14.45-15.00	252-51112-1-SM	**Exterior Characteristics of Jabres Cattle at Brebes Regency, Central Java Province, Indonesia** *Panjono, M.S. Haq, C. Hanim, S. Andarwati, D. Maharani, D.T. Widayati and I.G.S. Budisatria*

15.00-15.15	23278-45388-1-SM	**Nutrient Adequacy of Bali Cattle Fed Only Forage Derived from Palm Oil Plantation in Riau Indonesia** *Eny Endrawati, Panjono, Bambang Suhartanto, Endang Baliarti*
15.15-15.30	23327-45706-1-SM	**Effect of Different Levels of Non-fiber Carbohydrates on Production Performance in Lactating Nili Ravi Buffaloes** *Khalique. A, Rashid M. A., Hammad N. H., Shahid M. Q.*

Session 1 G: Food safety and halal food industry (1st Floor Postgraduate Room, Faculty of Animal Science UGM)
Chairperson: **Nanung Danar Dono, Ph.D.**

TIME	CODE	TITLE
14.00-14.15	23365-45865-1-SM	**Implementation of HACCP and Halal Assurance System in Chicken Slaughterhouses in West Kalimantan** *Adisty L. Virgianda, A. T. Soelih Estoepangesti, Mas'ud Hariadi*
14.15-14.30	23600-46225-1-SM	**Comparasion of Ricotta Cheese Containing Single Lactic Acid Bacteria to Those of Mixed Probiotic Bacteria** *T. W. Murti, N. Firdaus, E. Robiyati, S. Marta, A. Latif, B. T. Santoso*
14.30-14.45	24715-49303-1-SM	**Optimization of Protein Isolation Technique on Pig Hair** *Yatri Drastini, Sumantri, Nur Indah Kumalaratri, Agata Bella Lakshmita , Tridjoko Wisnu Murti*
14.45-15.00	24722-49328-1-SM	**Hair Pig Content Identification from Paint Brush using Porcine Detection Kit** *Khamidinal, Desy Purnama Sari, Hilda Nur Fadilla*

145.00-15.15	23372-45889-1-SM	**Fourier Transform Infra Red (FTIR) Spectra, Amino Acid Profile and Microstructure of Gelatin from Madura and Crossbred Ongole Cattle Hides** *Amertaningtyas, D, Erwanto, Y, Bachruddin, Z., Jamhari*

Day 2 Program (Wednesday, September 13, 2017)

08.15 – 08.30	Registration (2nd Floor Auditorium Faculty of Animal Science UGM)
08.30 – 09.00	Coffee Break
09.00 – 10.00	***Plenary Session III:*** Chairperson: Yuni Suranindyah, Ph.D. Plenary Speaker: a. Dr. John Moran Profitable Dairy System, Australia Topic: **"Success Stories in Asia's Quest for Increasing its Domestic Milk Production"**
10.00 – 11.00	***Plenary Session IV:*** Chairperson: Cuk Tri Noviandi, Ph.D Plenary Speaker: a. Prof. Dr. Metha Wanapat Khonkaen University, Thailand **Topic: "Feeding Strategies on-Farms to Improve Livestock Productivity and Reduce Methane Production".**
11.00-12.00	***Plenary Session V:*** Chairperson: Dr. Endy Triyannanto Plenary Speaker: a. Prof. Lee Keun Taik Gangneung Wonju National University, South Korea Topic: **"Shelf-Life Extension of Fresh Meat and Meat Products by Different Packaging Applications"**

ORAL PRESENTATIONS (Afternoon)

Session 2A: Ruminant Nutrition 2 (2nd Floor Auditorium, Faculty of Animal Science UGM)
Chairperson: **Muhlisin, Ph.D**

TIME	CODE	TITLE
13.00-13.15	23593-46215-1-SM	**The Inclusion Effects of *Indigofera zollingeriana* in Oil Palm Fronds Based Diet on Rumen Fermentation Kinetics and Microbial Yields In Vitro** *Saitul Fakhri, Anuraga Jayanegara, Yurleni Yurleni*
13.15-13.30	23708-46655-1-SM	**Quality of Sorghum Silage Fermented with Starch of Gebanga Flour (*Corypha gebanga*) and Lactic Acid Bacteria as Additives** *Lilo J.M.Christna Kale Lado, Ristianto Utomo, Cuk Tri Noviandi, Nono Ngadiyono*
13.30-13.45	24474-48705-1-SM	**Interaction of Fertilizer, Light Intensity and Media on Maize Growth in Semi-Hydroponic System for Feed Production** *Nur Rochmah Kumalasari, Asep Tata Permana, Riry Silvia and Anggia Martina*
13.45-14.00	24618-49103-1-SM	**Fermentation Characteristics of Corn Stover and *Gliricydia sepium* Combination Silage with Different Presentations** *Trisna Ayuni, Widhi Kurniawan, Astriana Napirah, Rahman*
14.00-14.15	24619-49108-1-SM	**Characteristic Comparison of bmr and Conventional Sorghum as Promising Forage Grown on Ultisol Soil Applied Different Levels of Organic Fertilizer** *Widhi Kurniawan,Astriana Napirah, Rahman, Luki Abdullah, Supriyanto*
14.15-14.30	24680-49226-1-SM	**Evaluation of *Hymenachne amplexicauli*s Grass Silage Quality** *Nur Muhammad, Andriyani Astuti, Ristianto Utomo, Subur Priyono Sasmito Budi*

14.30-14.45	24704-49268-1-SM	**The Effect Addition of Sodium Carbonate as Buffer in Utilization of Tofu Byproducts Lactic Acid Bacteria Fermentation as Basal Ration on Rumen Fermentation Bligon Goat During Lactation** *Farkhan Ihsani, Zaenal Bachruddin, Cuk Tri Noviandi and Lies Mira Yusiati*
14.45-15.00	24713-49288-1-SM	**Chemical Composition and In Sacco Degradation of Fish Waste Meal as Alternative Protein Feed Source** *Maurinda Safitri, Cuk Tri Noviandi, Ristianto Utomo*

Session 2B: Monogastric Nutrition and Production 2 (1st Floor Room 7A, Faculty of Animal Science UGM)
Chairperson: **Prof. Sri Harimurti**

TIME	CODE	TITLE
13.00-13.15	25992-53813-1-SM	**Effect of *Curcuma domestica* Stock Solution on Layer Performance, Egg Quality, and Antioxidant Activity** *Yuli Frita N., H. L. Chang, M. J. Lin, and E. Widodo*
13.15-13.30	24605-49049-1-SM	**Effect of Utilization of Maggot (*Hermetia illucens*) Meal Substituted Fish Meal in the Diets on Broiler Chicken Performance** *J. F. Umboh, M. Najoan, F. N. Sompie, B. Bagau, M. Imbar*
13.30-13.45	23738-46773-1-SM	**Effects of a Natural Preparation Based on Kaolin, Olive Leaf, Turmeric and Mild Paprika on the Performance of Laying Hens** *D. Ouachem and S. Lombarkia*
13.45-14.00	24924-50074-1-SP	**Effects of Dietary Turmeric and Red Ginger Meal on Broiler Chickens Performance in Tropical Area** *Etha 'Azizah Hasiib, Edi Suryanto, Nanung Danar Dono*

14.00-14.15	23588-46204-1-SM	**Growth Performance of Broiler Chickens fed with Crude Glycerin from Large and Medium Scale Biodiesel Producers in Thailand** *Astiari Tia Legawa, Sutha Wattanasit, Chaiyawan Wattanachant*
14.15-14.30	24596-49027-1-SM	**Growth Performance of Male Mojosari-Alabio Crossbred Ducks Fed Diets Containing Green Algae (Ulva fasciata delile) in Tropical Area** *Nanung Danar Dono and Ali Wibowo*
14.30-14.45	24439-48629-1-SM	**Growth of Merawang Chicken with Arab Chicken Crossing and It's Reciprocal Age 1 to 10 Weeks** *Darwati S, Afnan R, Maulana VS*

Session 2C: Food and animal product, and by-products 2 (1st Floor Room 7B, Faculty of Animal Science UGM)
Chairperson: **Dr. Edi Suryanto**

TIME	CODE	TITLE
13.00-13.15	23356-45848-1-SM	**The Effect of Volcanic Ash Addition To The Chemical Quality of Excreta Organic Fertilizer** *Viagian Pastawan, Yuny Erwanto, Nanung Agus Fitriyanto*
13.15-13.30	23577-46165-2-SM	**Isolation and Characterization of Collagenolytic Bacteria from Puffer Fish (Arothon reticularis) Skin Waste** *Raden Lukas Martindro Satrio Ari Wibowo, Nanung Agus Fitriyanto, Ambar Pertiwiningrum, Zaenal Bachruddin*
13.30-13.45	23598-46223-1-SM	**Increased Physical and Morphological Properties of Edible Film Bovine Split Hide Gelatin With The Addition Of SPI And Transglutaminase** *Dwi Wulandari, Yuny Erwanto, Yudi Pranoto, Rusman*
13.45-14.00	24274-48305-1-SM	**The Use of Manure from Cattle Fed Different Level of Concentrate for Musa domestica Larvae Production and Its Utilisation as Chicken Feed**

		IGN Jelantik, TT Nikolaus, H Naiulu, I Benu and C Leo-Penu
14.00-14.15	24456-48659-1-SM	**Analysis of Component and Water Holding Capacity from Distillate Waste of Citronella (*Cymbopogon Nardus*) As A Litter Material** *Cytske Sabuna, Wihandoyo Wihandoyo, Sri Harimurti, Wisnu Nurcahyo*
14.15-14.30	24646-49171-1-SM	**Physical and Sensory Properties of Gluten-Free Modified Cassava Flour-Based Cookies** *Andian Ari Anggraeni, Titin Hera Widi Handayani, Sri Palupi*
14.30-14.45	24473-57810-1-SP	**Chemical and Sensory Quality of Milk Fermented by Starter Combination of *Lactobacillus plantarum* Dad 13*, Lactococcus lactis*, and Yeast** *Dina Tri Marya, Widodo, Sunarti, Nurliyani*

Session 2 D: Social Economic 2 (3rd Floor Room RSB H1, Faculty of Animal Science UGM)
Chairperson: **Moch. Sugiarto, Ph.D**

TIME	CODE	TITLE
13.00-13.15	24714-49294-1-SM	**Determining the Cost of Beef Production from Cattle Fattening in the Smallholder Farming** *Rini Widiati, Tri satya Mastuti Widi dan Tian Jihadhan W.*
13.15-13.30	24655-49186-1-SM	**The Influence of Social Capital on the Effectiveness of Farmers' Group Functions** *Aditya Alqamal Alianta, Fransiskus Trisakti Haryadi, Yustina Yuni Suranindyah*
13.30-13.45	24726-49350-1-SM	**Participation of Jabres Cattle Farmers in the Development of Jabres Cattle Rising at Barokah Farmers Group Kebandungan Bantarkawung Brebes** *Siti Andarwati, Nono Ngadiyono, I Gede Suparta Budi Satria, Muhammad Hasan Albanna, Miftahush Shirotul Haq, Panjono*
13.45-14.00	24719-49318-1-SM	**Financial Analysis of Minister of Agriculture Regulation no 49 / permentan/ pk. 440/10/2016 About the Ration of Import Cow**

		Tian Jihadhan W, Tri Satya Mastuti W, Diah Maharani, Endy Triyananto, I Gede Budisatria, Rochadi Tawaf
14.00-14.15	23329-45727-1-SM	**Strategy of Business Development Based on Potential Area of Livestock in Gianyar District** *Budi Rahayu Tanama Putri, I Gusti Nyoman Gede Bidura, Ida Bagus Gaga Partama, James Hellyward, Ni Wayan Tatik Inggriati*
14.15-14.30	23333-45741-1-SM	**Canvassing the Complexity of Beef Cattle Farming; an Entry Point to Qualitative Modelling** *Novie Andri Setianto, Nunung Noor Hidayat, Pambudi Yuwono*

Session 2E: Breeding and Genetic 2 (1st Floor Room 8A, Faculty of Animal Science UGM)
Chairperson: **Dyah Maharani, Ph.D.**

TIME	CODE	TITLE
13.00-13.15	24656-49204-1-SM	**Micropropagation of Banana Plant (*Musa paradisiaca*) cv. Raja Bulu through Tissue Culture for Diversification of Food and Feed** *Nilo Suseno*
13.15.13.30	24677-49222-1-SM	**Phenotypic Study Results of Crosses between Local Chickens with Layer Chicken Isa Brown** *Franky M S Telupere and Heru Sutejo*
13.30-13.45	24679-49225-1-SM	**Phenotypic Characterization of Angus Grade - Black Cattle from Sragen District** *Adinata Y., Aryogi, N. H. Krishna, L. Affandhy*
13.45-14.00	24681-49230-1-SM	**Phenotypic And Genotypic F2th and F3th Performances Candidate of The New Breed Ongole Croosed Agrinak Cattle** *Aryogi, Y. Adinata, D. Pamungkas*
14.00-14.15	24738-49435-1-SM	**Association of GH|*MspI* and GHRH|*HaeIII* Genes with Milk Components of HF Dairy Cows under an Intensive Management in West Java**

		Anggraeni, A., D. Widyaningrum, A.O. Rini[2] and S.A. Asmarasari
14.15-14.30	24827-49715-1-SM	**Genetic Variation of Muscovy Ducks MC1R Gene in a Different Feather Colors Population** *Ismoyowati, Purwantini D, Tugiyanti E, and Awalludin AN*
14.30-14.45	24930-50097-3-SM	**Sensitivity and Specificity of ELISA Using Excretory/Secretory of Fasciola Gigantica For Detection Fasciolosis In Cattles** *Ima Malawati, Made Sriasih and Djoko Kisworo*
14.45-15.00	24958-50167-1-SM	**Phenotypic Characteristics of Doro Ncanga Swamp Buffalo Reared Extensively on the Native Savannah of Tambora Dompu Regency** *Husni, C. Arman, Maskur*

Session 2 F: Ruminant Production 2 (1st Floor Room 8B, Faculty of Animal Science UGM)
Chairperson: **Dr. Adiarto**

TIME	CODE	TITLE
13.00-13.15	23360-45855-1-SM	**Performance of Local Thin Tailed Sheep Fed Sweet Potato (Ipomoea babatas L) Biomass as A Substitute for Concentrate Feed** *Asep Sudarman, Maki Hayashida, Dhony Pratama, Sri Suharti*
13.15-13.30	23564-46127-1-SM	**The Effect of Different Land and Chicken Manure Mollases Block (KAMBLOK) As Feed Supplement on the Heat Tolerance Coefficiant and Body Weight Gain of Fat Tail Sheep** *Achadiah Rachmawati, Hary Nugroho, and Iqbalul Choiri*
13.30-13.45	23580-46176-2-SM	**Physiological Response and Blood Profile of Sheep given Cassava Leaf Silage (*Manihot esculenta sp.*) as A Substitute for Concentrate Feed** *Asep Sudarman, Maki Hayashida, Eka Jatmika, Sri Suharti*
13.45.14.00	24578-49042-1-SM	**The Correlation of Body Measurements and**

		Body Weights of Ongole Crossbred (PO) Cattle in Kebumen Regency *Satria Budi Kusuma, Nono Ngadiyono, and Sumadi*
14.00-14.15	24670-49210-1-SM	**Blood Biochemical Profile of Bali Cattle with Repeated Breeding Condition** *Anggella Tesalonika Tombuku, Diah Tri Widayati, Dyah Maharani*
14.15-14.30	24673-49217-1-SM	**Supplementation Effect Of Plus Complete Feed Contains ZnSO4 And Zn-Cu Isoleusinate On Weaning Weight Calves Of Post Partum Bali Cows Under Semi Intensive System** *Erna Hartati, F.M.S. Telupere, A. Saleh, and G. Oematan*
14.30-14.45	24689-49241-SM	**Performances of Pregnant-Crossbred Ettawa Goats Given Pellet Concentrate Containing *"Sesbania grandiflora"*** *A. Rai Somaning Asih, I.N. Sadia and Kertanegara*
14.45-15.00	25003-50433-1-SM	**The Evaluation of Wafer Feed Supplement Containing Leucaena Leaf on Pasundan Calves** *Y. Retnani, S. Suharti, L. Khotijah, I. Prihantoro, Taryati, Herni, D. Argadyasto*

Session 3A: Ruminant Nutrition 3 (2nd Floor Auditorium, Faculty of Animal Science UGM)
Chairperson: **Dr. Asep Sudarman (IPB)**

TIME	CODE	TITLE
15.15-15.30	24723-49338-1-SM	**Digestibility of Native Grass Silage Supplemented with Different Levels of *Leucaena leucocephala*** *Ryan Aryadin Putra, Cuk Tri Noviandi, Nafiatul Umami*
15.30-15.45	24928-50085-1-SM	**In Vitro Gas Production of Lemongrass Leaves as Essential Oil Source and its Effect on The Kinetics of Gas Production** *Insani Hubi Zulfa, Asih Kurniawati, Supadmo*

15.45-16.00	28127-62392-1-SM	**Nutrient Composition and In Vitro Digestibility Of *Brachiaria decumbens* Cv. Basilisk With Different Level of Fertilizer** *Nafiatul Umami, Adib Norma Respati, Bambang Suhartanto, Nilo Suseso*
16.00-16.15	24731-49416-1SM	**Effects of Carbon:Nitrogen Ratio On Quality of Chromolaena odorata Silage** *Marthen L. Mullik, Gustaf Oematan, Twen Dami Datto, Bambang Permana, Yelly M. Mulik*
16.15-16.30	24745-49463-1-SM	**In Vitro Degradation and Rumen Fermentation Characteristics of Soybean Meal Protected with Different Levels of Formaldehyde** *Wulandari, Budi Prasetyo Widyobroto, Cuk Tri Noviandi, Ali Agus*
16.30-16.45	24755-49518-1-SM	**In Vitro Digestibility of Timor-Leste Native Grass Supplemented with *Leucaena leucephala* and *Corypa elata Robx.*** *Luis T, Endang Baliarti, Cuk Tri noviandi and Tri Satya Mastuti Widi*
16.45-17.00	27313-58462-1-SM	**The Effect of Starter Addition Physical Quality and pH of Complete Feed Fermentation Based Kumpai Minyak Grass (*Hymenachne amplexicaulis*)** *Anggriawan N.T.P, Andriyani Astuti, Ristianto Utomo, Subur Priyono Sasmito Budi*

Session 3B: Monogastric nutrition and production 3 (1st Floor Room 7A, Faculty of Animal Science UGM)
Chairperson: **Dr. Adi Ratriyanto (UNS)**

TIME	CODE	TITLE
15.15-15.30	24687-49239-1-SM	**Growth Performances of Broiler Chicken Fed on Diets Supplemented with Graded Levels of Neem Leaf Meal** *K.G. Wiryawan, S. Pratama and Sumiati*
15.30-15.45	24936-50106-1-SM	**The Effect of Dietary Violet Roselle Flower and Moringa Leaves Meal Supplementation on Blood Profile of Broiler Chickens** *Akyas Manjaniq, Nanung Danar Dono, Wihandoyo*
15.45-16.00	24458-48662-1-SM	**The Effect of Fermentation on the Nutritional**

		Content of Amorphophallus sp As Poultry Feed *Theresia Nur Indah koni, Zuprizal, Rusman, Chusnul Hanim*
16.00-16.15	23556-46115-1-SM	**The Effect Sago Wasted as Local Feed Resource that Gives Cellulase Enzymes in Fed on Slaughter Weight, Fatty and Organ in Broiler Chickens** *Deki Zulkarnain, Zuprizal Zuprizal, Wihandoyo Wihandoyo, Supadmo Supadmo*
16.15-16.30	24616-49078-1-SM	**The Use of Nano-Encapsulation of Morinda citrifolia Fruit Extract in Drinking Water as Phytobiotic Based Feed Additive in Laying Hens** *Zainal Choiri, Nanung Danar Dono, Chusnul Hanim, Bambang Ariyadi, Zuprizal*
16.30-16.45	23617-46256-1-SM	**Utilization of Mung Bean Sprouts for Weaning Rabbits** *Haryati T, Soewandi B. D. P., and Raharjo Y.*
16.45-17.00	24490-48751-1-SM	**Formulation and Characterization of Cinnamon Bark Essential Oil (*Cinnamomum burmanii*) Nanoemulsion as Poultry Feed Additive Candidate** *Aji Praba Baskara, Bambang Ariyadi, Ronny Martien, Nanung Danar Dono, Zuprizal*

Session 3 D: Social Economic 3 (3rd Floor Room RSB H1, Faculty of Animal Science UGM)
Chairperson: **Dr. Tri Anggraeni Kusumastuti**

TIME	CODE	TITLE
15.15-15.30	23614-46249-1-SM	**The Motivation of Sheep Farmers in the Villages around the IPB Campus to Improve Livestock Productivity** *L. Cyrilla, M. Yamin1, F.N. Rahmah*
15.30-15.45	24464-48677-1-SM	**Developing Strategy for Dairy Cattle Business in Boyolali Regency, Central Java, Indonesia** *Sutrisno Hadi Purnomo, Bayu Setya Hartanto, Nila Falansari*

15.45-16.00	24640-49141-1-SM	**Potential Of Individual Farmer In Different Farm Size Local Beef Cattle In Indonesia** *Moch.Sugiarto, Syarifuddin Nur, Oentoeng E. Jatmiko. Marti Ike Wahyu*
16.00-16.15	24642-49146-1-SM	**Financial Feasibility Study of Establishment of Poultry Feed Mill in Bintuni District West Papua Province** *Trisiwi Wahyu Widayati, S. Hartini , D.J. Raharjo, A.P.E. Widodo, A.R. Ollong, J. Woran, L. Sonbait*
16.15-16.30	27071-57585-1-SM	**Corn and Cattle Integrationto Support NTB's One Million Cattle Program in Lombok Island** *Soekardono, Anwar Fachry*
16.30-16.45	23921-57773-1-SM	**Adoption of Animal Husbandry Innovations by Dairy Farmers in Pasuruan, East Java** *Nurlaili, Dewi Ratih Ayu Daning, Rochijan*

Session 3E: Breeding and Genetic 3 (1st Floor Room 8A, Faculty of Animal Science UGM)
Chairperson: **Prof. Jafendi Hasoloan P.S**

TIME	CODE	TITLE
15.15-15.30	27439-59326-1-SM	**Proportion and Quality of X-Y Chromosome Bearing Sperm on Diluted Semen After Incubation in Different Time of Etawah Crossbreed Goat** *Nurcholidah Solihati, Siti Darodjah Rasad and Annisa Yusrina*
15.30-15.45	24624-62401-1-SP	**Identification Single Nucleotide Polimorphism of Melanocortin 4 Receptor Gene in Madura Cattle** *Prihandini P.W., Sumadi, Gede Suparta and Dyah Maharani*
15.45-16.00	27293-58393-1-SM	**Restriction Mapping MC4R Gene in Bligon Goat Using Bioedit Program** *Latifah Latifah, Tety Hartatik, Dyah Maharani, Kustantinah Kustantinah, Dwi Ahmad Priyadi*
16.00-16.15	28133-62405-1-SM	**Heterosis Value Estimation of Hatching Weight and Growth Characteristics of Reciprocal Crossing Tegal and Magelang Ducks**

		Dattadewi Purwantini, Setya Agus Santosa and Ismoyowati
16.15-16.30	24667-49207-1-SM	**The Quality of Chilled Deg Ram's Semen With Addition Antioxidant Vitamin C and Vitamin E In Citrate Egg Yolk Extender** *Labib Abdillah, S. Bintara, D. Maharani, I.G.S. Budisatria*
16.30-16.45	24678-49224-1-SM	**Chromosome Duplication of Brachiaria decumbens Grass Using Colchicine** *Nilo Suseno, Adib Nurma Respati, M. Danang Yulianto, Nafiatul Umami*
16.45-17.00	23547-46099-2-SM	**Genetic Diversity of Bali cattle from several locations in Indonesia Based on Mitochondrial DNA-Cytochrome b gene** *Endang Tri Margawati1, Slamet Diah Volkandari, Indriawati: Muhamad Ridwan*
17.00-17.15	24610-49060-1-SM	**Effect of Extendeder Medium and Cooling Rate on the Quality of Frozen Semen Post-Thawing at Bali Cattle (*Bos sondaicus*)** *Anna Farhana, Zaituni udin, Jaswandi*

Session 3 F: Ruminant Production 3 (1st Floor Room 8B, Faculty of Animal Science UGM)
Chairperson: **Tri Satya Mastuti Widi, S.Pt., M.P., M.Sc., Ph.D**

TIME	CODE	TITLE
15.15-15.30	24732-49418-1-SM	**Effects of Level of *Chromolaena odorata* in Complete Feed on Intake and Rumen Fermentation of Cattle: pellet diet** *Marthen L. Mullik, Gustaf Oematan, Twen Dami Datto, Bambang Permana, Yelly M. Mulik*
15.30-15.45	24754-49506-1-SM	**Evaluation of Protein Protected in the Cow Beef Cattle Rations Base on The Fermentation and Microbia Activities Ruments By in Vitro** *Riyanto, J, E. Baliarti, T. Hartatik, D.T. Widayati and L. M. Yusiati*
15.45-16.00	24758-49520-1-SM	**Performance of the Simmental Ongole Crosbred Cow Estrus in to Use PGF2α and GnRH Hormone Injection**

		Riyanto, J, Sunarto, Lutojo, A. Mangivera and Y.I. Indra
16.00-16.15	24931-50090-1-SM	**Comparison of Calving Rates with Two Oestrus Synchronization Protocols in Doro Ncanga Buffalo Cows Raised Extensively in Tambora Savannah** *Arman, C and Maskur*
16.15-16.30	24935-50104-1-SM	**Mineral Concentrations of Magnesium and Calsium in Relation to Diestrus and Proestrus in Ongole Crossbred Cows** *Sarmin, Amelia Hana, Pudji Astuti, Yuda Heru Fibrianto, Claude Mona Airin, M.Tauhid Nursalim*
16.30-16.45	24963-50187-1-SM	**The Effect of Ruminally Undegradable Protein Using Formaldehyde on the Nitrogen Balance and Productivity of Kacang Goat** *R. Adiwinarti, Kustantinah, I.G.S. Budisatria, Rusman, E. Indarto*
16.45-17.00	28136-62410-1-SM	**Impact of Dairy Cow's Comfort Using Zero-Flies Fence on Feed Intake And Nutrient Utilization** *Despal, Henryc Firmansyah and Idat Galih Permana*
17.00-17.15	24599-49032-1-SM	**Cortisol Hormones Profiles of Repeat Breeding Local Cattle** *Joana da Costa Freitas, Diah Tri Widayati, Lies Mira Yusiati*

Feeding Strategies on Farms to Improve Livestock Productivity and Reduce Methane Production

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ABSTRACT

Feed resources, feed processing and feeding technology are essentially key factors to the efficient and successful ruminant production especially in the tropics. Diversity and distribution of roughage resources both quantity and quality will impact on the performance of livestock. Numerous agricultural crop-residues such as rice straw can be treated with urea (U) and lime (L) (1.5+1.5% U-lime) to enrich its nutritive value. Furthermore, fodder trees and shrubs including Leucaena leucocephala and Flemingia macrophylla, as well as whole cassava crop can be ensilaged (cassava top silage) to produce high quality protein roughages for ruminant feeding. Feeding of these roughage can result in efficient rumen fermentation and improve meat, milk yield, and milk quality, whilst rumen methane was reduced. These feeding interventions can be employed on farms for establishment (E), development (D), utilization (U), and sustainability (S) (EDU-S) of livestock production.

Agricultural production system including animal production has been shown to impact on global warming especially from methane enteric fermentation of ruminants. Many approaches have been reported to mitigate rumen methane production, however, dietary plants containing plant secondary compounds (condensed tannins, saponins) have impacted on rumen microorganisms, hence can reduce rumen methane production. Nevertheless practical feeding implementations on-farms need to be employed and expanded among farmers/producers, not only to reduce global warming but for the economical advantage of the animal production and improvement of livelihoods.

Under this presentation, details of rumen ecology and fermentation, feed preparation and processing and onwards to utilization by ruminants will be fully illustrated and recommended for possible on-farm implementations.

Keyword: Livestock, Sustainable production, Feed resources, on-farm intervention.

Success Stories in Asia's Quest for Increasing its Domestic Milk Production

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ABSTRACT

Throughout the humid tropics of Asia, smallholder dairy (SHD) farmers have developed their production systems largely based on the "traditional way of doing things". Tradition is a generic word used in this case to mean basing farm management decisions and practices on how their father, or friends or even next door neighbours do things. The low levels of milk production and herd fertility, the high incidences of calf mortalities and poor animal health (such as lameness and mastitis) and the inferior quality of much of the milk sourced from these farms are clear indications that many of these traditional farm management practices are in urgent need of re-evaluation. This need not necessarily be the norm and this paper provides two good examples of how innovation can pay off in the humid tropics of Bangladesh. They clearly demonstrated that improving herd management, particularly feeding management, can dramatically increase cow performance with higher milk yields and herd fertility.

Keywords: Dairy Development, Milk Yield, Herd Fertility

The Use of Modern Technology for Production of Traditional Tropical Small Ruminants

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ABSTRACT

The purpose of this paper is to put new technology into rumen animal production system of small farms, based on the present success experience and research results. Here will discuss the following topics in the paper: breeding good breed, AI and reproduction, lighting system, nutrition, management, housing, avoid heat stress, marketing, and training. Each item will discuss which modern technology can be used for small farm system.

Role of Livestock Production in Farm Households' Economy and Challenges in Perspective of Sustainable Development

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Livestock production sector plays an important role in the socio-economic development of Vietnam (it represents about 30% of agricultural GDP). In the period of 2011 -2015, the livestock sector has a high growth rate, about 4,5-5% annually. In 2015, the total value of livestock production of the nation is about 205,44 thousand billion dongs. Pigs, poultry, and dairy cattle production have grown rapidly over some last years (annual growth rate of pork, poultry meat, egg, and milk production from 2011-2015 were 2.7%; 10%; 7.56%, and 22.1%, respectively). The animal-origin products meet basically the domestic consumption demand, some products even were exported to other countries (Hoang Thanh Van, 2016). In 2013, Vietnam had exported about 40,000 tones de pork (Statica, 2016). Livestock production not only provides enough food for domestic consumers demand (at least 10% of per capita calorie intake of consumers provided by livestock products), but also generates employment and income for a high number of farmers in rural areas (about 6.5 million households or 42% total households in rural areas engaged in livestock production, and shares about 14% in total household income) (Lucila Lapar, Ma., 2015). In the coming years, livestock production sector in Vietnam will be projected to rise due to the rapid increase of consumption demand in the domestic market. However, there will be certainly the ignore difficulties for its development in term of sustainable development.

Halal Life Style And Global Trade

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ABSTRACT

Muslim consumers are very closed to halal matters that related to animal and its followed products. The increasing population and purchasing power of worldwide Muslim's, as well as its new modernization era reinforce the rising trend of halal lifestyle and Islamic or global trade. Syariah or law guided by God in Islam, will be practiced more and more as way of life. Halal lifestyle is seeing as new patterns for 1.6 billion Muslim population. A global market has to respond the distinctive need, preference and market orientation as well as it's economies value and trade. The development of halal market: food and beverage, pharmaceuticals and cosmetics, finance, media and communication, fashion and garments, and travel, tourism, and recreation offer a really opportunity to support growth in the regions or countries despite of low global economic growth. The expenditures of Muslim's for those sectors has been more and more increasing in the future due to some key drivers as: growing demography, growing Islamic economies, lifestyle and business practices and its focus on halal matter. Halal tourism included Syariah compliant hotel, which can be achieved more easily by poor Muslim countries, will be attractive to pull Muslim travelers with high power buying capacity lead to the growth of economy for some region or countries considered as Muslim or even halal friendly destination.

Keywords: Muslim Population growth, Distinct Lifestyle, Halal sectors, Islamic Trade.

Shelf-life Extension of Fresh and Processed Meat Products By Various Packaging Applications

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ABSTRACT

This article delves into the current status of various packaging technologies, which are currently being applied or are under development for the shelf-life extension and quality improvement of fresh and processed meat products. Traditional packaging methods include vacuum packaging, modified atmosphere packaging, and air-permeable packaging. Recently, innovative packaging methods have been introduced that utilize technologies such as barrier-films, active packaging, nanotechnology, microperforated films, far-infrared radiations, and plasma treatment. All of these packaging methods have their own merits and drawbacks in terms of shelf-life and quality maintenance. A right choice of packaging system for fresh and processed meat products must be made in accordance with the conditions of the raw material, storage, and distribution in the market and household, and while considering the environmental sustainability and consumer's expectations.

Keywords: Packaging, Shelf-life, Fresh and Processed Meat Products, Quality of meat

Morphological Characteristics and Biomass Production of Chicory (*Cichoriumintybus* L.) in Yogyakarta

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ABSTRACT

This study was aimed at determining morphological characteristics, adaptability and biomass production of chicory planted in Yogyakarta, Indonesia. This study was carried out by observing the morphology, adaptability to pests and diseases, and biomass production of the crops during the vegetative phase, first and second defoliation. This study used chicory from Crop mark Seed Company New Zealand. The plants were planted in a plot size of 1 m^2 by spreading the seeds and each plant got 3 repetitions. The variables observed in this study were the growth of plants, plant morphology, pests and diseases on plants which were analyzed descriptively, as well as the biomass production, dry matter (DM) and organic matter (OM) of each plant which was analyzed by using Independent Samples T-test. Biomass production was taken from crop production on the first and second harvest. Plant morphology showed that the plants have a good development and the growth data showed that all of these plants have good growth. Adaptability of the chicorywas good because it was free from pests and diseases. The first harvest of chicoryproduced 1.04±0.80 tonnes / ha (DM 9.63±0.21%; OM 78.79±0.46%; the second production 1.47±0.11 tonnes/ha (DM 8.17±0.18%; OM 83.88±0.60%). The analysis showed thatchicoryproduction at the first harvest was significantly different ($P<0.05$) from the second defoliation. Conclusion of this study showed that chicoryfrom New Zealand can grow well in Yogyakarta based on morphological and biomass production.

Keywords: Chicory, Adaptation, Morphology, Biomass production.

Effects of Different Season on Dominant Species and Chemical Composition of Tropical Agricultural Weeds

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ABSTRACT

The study was conducted to determine the dominance level and nutritive composition of weeds during differenrt seasons. Weed sampling was done randomly on agricultural lands located in Pakem, Sleman, Yogyakarta. The method used to determine the level of dominance of weeds was by using line intercept transcect. Plant data collected include height, width, and number of plants with different seasons as treatment. The dominant weeds were then analysed for nutritional quality using proximate analysis methods. The results showed that the level of weed species domination was higher than the legume and forb weeds in different seasons. Weeds that dominate in the dry season include *Digitaria setigera*, *Echinochloa oryzoides*, *Eleusine indica*, *Portulaca oleracea*, and *Cyperus iria* while in rainy season *Ageratum Conyzoides*, *Cyperus iria*, *Ludwigia octovalvis*, *Echinochloa conola*, and *Echinochloa glabrescens*. Based on the proximate analysis of weeds that emerged in different seasons showed that seasonal differences significantly ($P<0.05$) affect the nutritional content of weed grass and some *forbs*. *Cyperus iria* is one of grass weed that dry matter content during dry season (23.3%) higher than rainy season (13.9%) ($P<0.05$). Weeds of shrubs that contain higher dry matter during the dry season are *Cleome rutidosperm* (13.1%) than during rainy season (10.7%) ($P<0.05\%$). Based on the study, it can be concluded that seasonal differences affected the nutritional content of some weed plants and t on the dominance level of weed species. The grasses weed domination level were higher than the shrubs and the legum in the dry season and the rainy season. Seasonal differences significantly affected the content of dry weed material and some weeds and legumes.

Keywords: weed dominance, line intercept transcent, season, tropical climate, weed

The Evaluation of Wafer Feed Supplement Containing Leucaena Leaf on Pasundan Calves

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ABSTRACT

Beef imports began to be restricted, resulting in increased production of local calves beef encouraged to be improved. As an example of the development of local livestock is Pasundan Cattle as an indigenous cattle in West Java. Livestock productivity required a variety of factors, one of which is the quality of feed. Limitation of livestock productivity in several areas in Indonesia are low quality of feed, restricted of forage especially in dry season. A feed processing technology that might be adopted by to farmers the feed of wafers. Feed wafer processing technology is easy and cheap, and easily to stored, and easily given to livestock. The aim of this research to assess the effect of wafer feed supplement containing Leucaena leaf on the production of Pasundan calves. The research was conducted at Laboratory of Feed Industry, Faculty of Animal Science, Bogor Agricultural University and animal conducted on Ciamis, West Java, Indonesia. The average body weight in range 99 ± 20 kg. The design used was a randomized block design with 4 treatments and 5 blocks as replication consisting of T0 = control, T1 = conventional feed + 5% wafer feed supplement, T2 = conventional feed + 10% wafer feed supplement and T3 = conventional feed + 15% wafer feed supplement. Parameters were consumption of dry matter and protein, average body weight, final body weight and blood haematology profile. The average daily weight gain by giving 10% of wafer feed supplement to pasundan calves is 58% most highest than other treatment. Final body weight of local calves by giving 10% of wafer supplement most higest than other treatment. The final body weight by giving 10% of wafer supplement around 14% higher than giving conventional feed.

Keywords: Feed supplement, Local calves, Productivity, Wafer

Incremental Level of *Chromolaena odorata* In Complete Diet for a Cows Fattening

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ABSTRACT

This research was aimed to use of *Chromolaena odorata* as an alternative protein source for livestock is the presence of various anti-nutrient compounds in the plant's tissues. However, recent studies have revealed that physical treatments can effectively eliminate the anti-nutrition associated effects. This experiment aimed at quntifying effects of different levels of *Chromolaena odorata* in a complete diet (given in the form of pellet) on nutrient intake, digestibility, concentration of volatile fatty acids (VFA), and efficiency of rumen microbial crude protein synthesis (EMPs). Four young male Bali cattle(aged ± 2 years old and initial liveweight of 152 kg) were allotted into four dietary treatments were a complete diet containing 10% (COP10) or 20% (COP20) or 30% (COP30) or 40% (COP40) of *Chromolaena odorata* meal given at 2% liveweight. The basal diet (sorghum plumosum hay) and drinking water were given ad libitum. The tested diets were design to be iso-protein (18%) and metabolisable energy (12 MJ) to support a minimum liveweight of 0.8 kg/head/day. Result indicated that increasing level *Chromolaena odorata*from 10% to 40% in the complete diet did not significantly impair all variable measured, though at the higest level (40%) ofinclusion, all variable have shown a diminishing trend. It can be concluded that *Chromolaenaodorata* can potentially be utilized as a cheap protein source for fattened cattle when provided up to 40% in the total diet, but might have a negative effect when the levels raised above the current level since it shows a diminishing trend in important variables such as intake, digestibility and rumen function.

Keywords: Cattle, *Chromolaena odorata*, Microbial crude protein, Rumen digestion

In Vitro Degradation and Rumen Fermentation Characteristics of Soybean Meal Protected with Different Levels of Formaldehyde

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ABSTRACT

The objective of this study was to determine the *in vitro* degradation and rumen fermentation characteristics of soybean meal that were protected with different levels of formaldehyde. In a completely randomized design experiment, 4 levels of formaldehyde (0, 0.6, 0.8, 1.0, and 1.2%; volume/weight) were applied on soybean meal. Protected soybean meals were incubated for 48 h using a 2-stage *in vitro* technique. The results showed that protecting soybean meal with formaldehyde decreased the dry matter and organic matter digestibilities ($P<0.05$) with the lowest on 0.8 to 1.2% formaldehyde treatments. Although there was no significant effects on rumen culture pH, total and proportion of VFA, a significant decrease in NH_3-N concentration and slightly decrease of microbial protein concentration were noticed due to formaldehyde treatments ($P<0.05$). Low NH_3-N and microbial protein concentrations was detected on 0.8, 1.0, and 1.2% formaldehyde treatments 16.3, 15.0, and 10.5 mg/100 mL, respectively, for NH_3-N and 8.32, 7.05, and 6.35 mg/mL, respectively, for microbial protein. It can be concluded that protecting soybean meal with formaldehyde can decrease rumen degradation and NH_3-N concentration with the cost of microbial protein synthesis. The best concentration of formaldehyde for protecting soybean meal was at 0.8%.

Keywords: Formaldehyde, Soybean meal, *In vitro*, Rumen degradation, Rumen fermentation characteristics

Characteristic Comparison of *bmr* and Conventional Sorghum as Promising Forage Grown on *Ultisol* Soil Applied Different Levels of Organic Fertilizer

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ABSTRACT

As promising cereal plant for forage sources, sorghum was grown easily on most of Indonesian soils and produce high number of biomass. Sorghum utilization for ruminant feed purpose still using conventional sorghum, it's not designed specify for forage source and it's have limiting factor about high lignin content which can reduce fiber digestibility. Mutation breeding techniques produced promising sorghum mutant line for forage with low lignin content and high nutrition forage quality. Brown Midrib (*bmr*) sorghum was obtained by gamma ray irradiation at 250 *Gy* for producing sorghum mutant lines containing low lignin, which is possible to be used for forage sources in animal livestock feed. A serial research was conducted to compare the *bmr* lines sorghum (PATIR 3.2 and 3.5) and conventional sweet sorghum varieties (Numbu and CTY-33) on marginal Ultisol soil applied with different levels (0, 10, 20, and 40 ton ha^{-1}) of organic fertilizer. The research parameters were Viability, Pest Disturbance Intensity (PDI), Stem Diameter, Stem Height, Stem °brix, and forage Crude Protein Content. Research result showed that *bmr* line sorghum have similar average of Viability (91.90 vs. 93.30%), and forage Crude Protein Content (7.49 vs. 7.45%) Generally, *bmr* sorghum lines have bigger on stem diameter but shorter on stem height. The superiority of *bmr* lines were lower on PDI (13.84 vs. 31.33%) and higher on Stem °brix content (12.77 vs. 12.30°brix) compare with conventional ones. Based on the characteristics, *bmr* lines sorghum (PATIR 3.2 and 3.5) could be considered its utilization for forage source in marginal soil to replace conventional sorghum varieties which not design for feed source purpose.

Keywords: Sorghum, Brown Midrib, Forage, Marginal Soil, Characteristic.

Chemical Composition and *In Sacco* Degradation of Fish Waste Meal as Alternative Protein Feed Source

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ABSTRACT

This study was done to evaluate chemical composition and *in sacco* degradability of fish waste meal. Fresh fish (*Congresox talabon*) waste meal used in this study was collected from fish crackers industries of Indramayu, West Java. Fresh fish waste samples were dried and ground prior to be analyzed. The sample was analyzed for chemicals composition (dry matter, ash, crude protein, crude fiber, and crude fat) and incubated using nylon bag technique in 2 rumen fistulated Bali cattle to determine its dry matter, organic matter, and crude protein degradability. The results showed that fish waste meal contains a high level of crude protein (56.4%), fat (13.1%), and ash (27.3%), which showed its potency as protein and mineral source. The *in sacco* data showed that DM, OM, and CP degradations were similar or slightly higher than a+b fraction (49.6, 55.5, and 54.7% vs. 49.6, 55.7, and 57.5%, respectively), which imply that fish waste meal was optimally degraded in the rumen.

Keywords: Fish waste meal, Protein feed, Chemical composition, *In sacco*

Interaction of Fertilizer, Light Intensity and Media on Maize Growth in Semi-Hydroponic System for Feed Production

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ABSTRACT

Corn fodder have great promise as forages that contained high quality and produced in short time. The objective of this research was to study the effect of different fertilizer, light intensity and media on growth pattern, forage yield and quality of corn fodder. Research was conducted at Field Laboratory of Agrostology, Faculty of Animal Science Bogor Agricultural University, in March-April 2017. The fertilizer used were no fertilizer as control, AB mix nutrient (an organic fertilizer) and Subur nutrient (organic fertilizer). The environment factors observed were light intensity, temperature and humidity. The treatment was arranged in Split Plot Design, with three replications. Parameters in this research were plant height, leaves color, root condition, fresh and dry matter yields and forage quality. The result showed that AB mix nutrient application resulted the best plant height, fresh and dry matter yields, and forage quality. The environment factors affected plant height, leaves color and roots condition. It concluded that the best corn fodder production was used an organic fertilizer in sunny day.

Keywords: Corn fodder, Environment condition, plant growth, quality, yield

The Effect of Alfalfa Meal Supplementation in Concentrate on Feed Digestibility of Ettawa Crossbred Goat

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ABSTRACT

This research was conducted to determine feed digestibility of Ettawa Crossbred (EC) goat fed concentrate supplemented with alfalfa meal. Eleven EC goats, age 1.5 to 2.5 years, initial body weight 32.2 to 50.5 kg and milking periode 2 to 3.5 months, fed with forages consisted of king grass, *Gliricidia maculata* and concentrate supplemented with alfalfa meal by 0%, 2.6%, and 5.1% (dry matter basis). The proportion of forages and concentrate was 50:50 (dry matter basis). The diet and water was introduced *ad libitum*. Collected data were consumption of dry matter (DM), organic matter (OM), crude protein (CP), crude fiber (CF), ether extract (EE), nitrogen free extract (NFE), and total digestible nutrients (TDN) as well as digestibility of DM, OM, CP, CF, EE, and NFE. The data were analyzed variance using one way design, the differences between mean continued by *Duncan's New Multiple Range Test* (DMRT). The result showed that the supplementation of alfalfa meal in concentrate up to 5.1% had no effect on feed consumption. However, the supplementation of alfalfa meal in concentrate up to 5.1% increased the digestibility of DM 9.3% (78.34% vs 71.65%), OM 8.8% (79.44% vs 72.96%), CF 24.8% (81.95% vs 65.64%), EE 28.5% (88.74% vs 69.03%) compared with control, but didn't affect digestibility of CP and NFE. It could be concluded that the supplementation of alfalfa meal up to 5.1% increased the nutrient digestibility, and it could met the nutrient requirement of EC goat.

Keywords: Alfalfa meal, Ettawa crossbred goat, Feed consumption, Nutrien digestibility

The Inclusion Effects of *Indigofera zollingeriana* in Oil Palm Fronds Based Diet on Rumen Fermentation Kinetics and Microbial Yields *In Vitro*

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ABSTRACT

Oil palm fronds (OPF) cannot be used as a single feed for ruminants because its low rumen degradability due to low crude protein (CP) and energy content. The aim of this study was to investigate the inclusion effect of indigofera into OPF ration on rumen fermentation kinetics and microbial biomass production. The OPF and indigofera were milled through a 1 mm screen. Samples from individual OPF and indigofera and their combinations of 0.75:0.25, 0.50:0.50 and 0.25:0.75 (DM basis) were accurately weighed (1.0 g ± 0.0010 fresh weight in total) directly into Duran bottles. Samples were incubated in buffered rumen fluid at 39 ^{0}C for 72 h. Gas production was measured at 2, 4, 6, 8, 10, 12, 16, 24, 36, 48, 60 and 72 h post incubation. Cummulative gas volume (three duplicate runs) were fitted to the exponential equation $y = a + b (1-e^{-ct})$. At 8 h, microbial biomass (MBO) and microbial nitrogen (MN) were estimated. Data were subjected to ANOVA based on CRD, and data showing significance between treatment means ($P \leq 0.05$) were separated with orthogonal polynomial contrasts. The contrasts used were linear (L), quadratic (Q), or deviated from both L and Q (Dev). Significance was accepted at $P \leq 0.01$. There were highly significant effects ($P<0.01$) of feed mixtures on gas prodcution profiles and microbial yields in the rumen. Increasing indigofera levels in the diet increased (quadratic effect, $P<0.01$) the gas asymptote and fermentation rate of the mixtures. Both MBO and MN had also the quadratic effects for the mixtures of OPF and Indigofera where the highest microbial yield was found in the combination of 25% OPF + 75% indigofera. It can be concluded from the present experiment that the optimal combination of OPF and indigofera was 25% and 75%, respectively.

Keywords: Oil palm fronds, *Indigofera zollingeriana*, Fermentation, Microbial yields, Rumen

Fermentation Characteristics of Corn Stover and *Gliricydia sepium*Combination Silage with Different Presentations

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ABSTRACT

The problem on agricultural waste utilization as forage source was its low quality and perishable character. As effort to improve the utility of agricultural waste, there is need both preservation process and nutrient quality improvement. Corn stover was one of common agricultural waste with huge number of biomass for forage source. The presence of corn stover in Indonesia while harvest season need to be overcome by fermentation technique, such as silage. Meanwhile, *Gliricydiasepium*known as high crude protein content, which suitable for feed protein source. Corn stover and *Gliricydiasepium* combination silage to be expected could improve feed quality and continuity. This research was aimed to compare the fermentation characteristicsof Corn Stover and *Gliricydiasepium*combination silage with different percentation (10, 30, and 50%) of *Gliricydiasepium* as the treatments. The research variables were organoleptic (odor and color), chemical (pH and Dry Matter (DM)) and silage *Fleigh Value*. The result showed that using 10 and 30% *Gliricydiasepium* on silage have higher DM (32.51±1.68 and 34.16±4.47 vs. 27.28±0.37) and lower pH (3.34±0.07 and3.36±0.04 vs. 3.47±0.09) compare with 50%, that's make *Fleigh Value* of them was higher (136.57±4.91 and 138.91±9.55 vs.120.67±3.84) and all treatments were classified as excellent. The organoleptic variable showed that all combinations have similar green to yellow fresh color with acid fermentation odor. Based on silage fermentation characteristic in this research, theimprovement of corn stover silage quality by using *Gliricydiasepium* was recommended, and this need further research about silage crude protein content.

Keywords: Silage, Corn Stover, *Gliricydia sepium,* Characteristic, Fermentation.

The Effect Additional of Sodium Carbonate as Buffer in Utilization of Tofu Byproduct Lactic Acid Bacteria Fermentation as Basal Ration on Rumen Fermentation Bligon Goat During Lactation

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ABSTRACT

This study was aimed to evaluate the effect of $NaHCO_3$addition as a buffer in fermented tofu waste concentrate by lactic acid bacteria on rumen fermentation characteristics of Bligon goats. The experiment was conducted in Jetak Village, Sidokarto, Godean, Sleman for 8 weeks. The experiment used eight lactating weight of bodyat 21 to 25 kg. The goats were divided into two treatments: control and treatment groups.The goats in control group wereoffered basal feed as much as 3% dry matter of body weight, consisted of 60% forage and 40% fermented concentrate feed. Goats were fed with the same basal feed in control group with the addition of $NaHCO_3$ as much as 3% of the fermented concentrate feed (as fed). The examination was conducted to collect data on rumen fermentation characteristics of the collection-0 (t0) and 3 (t1) hours after feeding include: pH, VFAproduction, NH_3 concentration, and microbial proteins producs. Data were analyzedstatistically with T-test. The results showed that the addition of buffer to the concentrate feed fermentation LAB significantly affect ($P<0.05$) pH, total VFA production (t0), and NH_3 concentration (t1), but no significant effects were detectedon total VFA production (t1), microbial protein, and NH_3 concentration (t0). It is concluded that $NaHCO_3$addition as a buffer in fermented tofu waste concentrate able to maintain rumen pH in normal conditions, that the bio-fermentation process in the rumen optimally.

Keywords: Bligon Goats, Fermented concentrate, $NaHCO_3$, VFA, NH_3, Protein microbes

Nutritional Value and In Vitro Digestibility of Shrimp Waste Fermented with Isoptericola sp. A10-1

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ABSTRACT

The study was aimed at indentifying the nutritional value and in vitro digestibility of shrimp waste fermented with *Isoptericola* sp. A10-1 bacteria. This types of bacteria was capable in degrading chitin chitinolytic contained in shrimp waste. Chitin has a polymer structure that turned into a monomer structure that was digestible for poultry animal if it was degraded by bacteria. In vitro digestibility was a representation of the poultry digestive system. Samples of 45 fermented shrimp waste were prepared for the content identification of crude protein (CP) and crude fiber (CF). The identifications were conducted by proximate analysis according to the AOAC method. The data obtained in the fermentation results were analyzed by analysis of variance using a randomized block design factorial (5x9) (3 substrate water content, 3 concentration isolates). The next test was Duncan's Multiple Range Test (DMRT) to determine the difference between mean values. The samples used were 10 of the fermented shrimp waste with moisture content of 30% and isolates 15%, compared to the non-fermented shrimp waste. In vitro digestibility conducted was on dry matter, organic matter, crude protein, crude lipid, crude fiber and carbohydrates digestibility. The digestibility analysis results were statistically tested by T test. Shrimp waste fermentation nutrient values were: DM was 61.95 to 73.25%, OM was 55.99 to 56.50%, CP was 26.87 to 27.68%, CF was 20.56 to 21.29 %, and CL was 1.65 to 2.80%. Fermentation with water content of 30% and 15% of isolates decreased 20.30% of crude fiber. Shrimp waste fermentation with *Isoptericola* sp. A10-1 enhanced the in vitro digestibility of crude fiber and organic materials, but the digestibility of protein, glucose, dry matter and crude protein was the other way around.

Keywords: Nutrien, Isoptericola sp., Fermentation, Shrimp Waste

In Vitro Nutrients Digestibility of the CombinationTitonia (*Tithonia diversifolia)* and Napier Grass (*Pennisetum purpureum*)

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ABSTRACT

The objective of this study was to evaluate the effects of the combination *Tithonia diversifolia* and napier grass (*Pennisetum purpureum*) on *in vitro* digestibility.This research was carried out using a randomized block design with 4 treatments of the level combination of*Tithonia diversifolia*andnapier grass and 4 replications. The following treatments were performed: T1 = 20% *Tithonia diversifolia* + 80% napier grass; T2 = 40% *Tithonia diversifolia* +60% napier grass; T3 = 60% *Tithonia diversifolia* + 40% napier grass; T4 = 80% *Tithonia diversifolia* + 20% napier grass. The data were subjected to an analysis of variance (ANOVA), and differences between the treatment means were tested using Duncan's multiple range test (DMRT). The parameters measured were as follows: dry matter digestibility (%), organic matter digestibility (%), crude protein digestibility (%), neutral detergent fiber (NDF) digestibility (%) and Acid Detergen Fiber (ADF) digestibility (%).The results revealed that dry matter digestibility, organic matter digestibility, crude protein digestibility, NDF digestibility and ADF digestibility were significantly ($P<0.05$) increased by the combination in T1. The combination of 20% *Tithonia diversifolia* +80% napier grass resulted in the highest *in vitro*nutrients digestibility.

Keywords: In vitro, Tithonia diversifolia, Pennisetum purpureum, Digestibility

The Effect of Cumin (*Cuminum cyminum*) Addition as Source of Essential Oils on Nutrien Digestibility, VFA, Amonia and Methan Production

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ABSTRACT

In vitro gas production technique was used to evaluate the effects of different doses of cumin (*Cuminum cyminum*) on rumen in vitro nutrient digestibility, VFA, ammonia and methane production. Addition of cumin correspond to essential oil levels of 0, 25, 50, 75 and 100 mg/L of fermentation medium, Fermentation was conducted according to Menke and Steingab methode for 24h. After 24 h, incubation was stopped and gas produced in each fermenter were collected to measured methane production, then fermentation broth was filtered to determine nutrient digestibility from the residual feed. Filtrate was used as sample for VFA and ammonia determination. Addition of cumin did not has detrimental effect on rumen fermentation. It did not alter pH, dry matter and organic matter digestibility, VFA and methane production. However ammonia concentration, crude protein and crude fiber digestibility were changed by cumin addition. Crude protein digestibility at cumin level 75 and 100 mg/L lower than control and cumin levels 25, 50 mg/L groups. Ammonia concentration reduced as effect of cumin addition. Crude fiber digestibility was higher at all level of cumin addition. In conclusion, cumin have capability to alter rumen fermentation and it has been potency to be used as additive.

Keywords: Cumin, essential oil, digestibility, methane, fermentation

Calliandra calothyrsus as Tannins Source for *In Vitro* Methane Production Inhibitor Agents

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ABSTRACT

An *in vitro* study was conducted to investigate the effect of *Calliandra calothyrsus* as a source of tannin on *in vitro* methane production and rumen parameters. Two sheeps were used as donor of rumen microbes. Four experimental diets (grass:concentrat, 60:40) supplemented with *Calliandra calothyrsus* leaves equal to tannin level of 0%, 2%, 4% and 6% based on dry matter (DM) were used as substrate for *in vitro* fermentation by Menke and Steingass gas production method for 48 hours of incubation. Methane production, DM and organic matter (OM) digestibility, and parameters of rumen fermentation were measured at the end of incubation. Data obtained were analyzed by one way analysis of variance (ANOVA) continued by DMRT. Degradation of DM and OM decreased ($P<0.01$) when supplemented by *Calliandra calothyrsus* leaves with increasing of tannin level. The significant decreasing occured at tannin level of 4%. The supplementation of tannin did not affect ($P>0.05$) number of microbial proteins, ammonia, VFA and pH, but increasing protozoa population. Moreover, the treatment also decreased methane production. These result suggest that supplementation of *Calliandra calothyrsus* can be useful to reduce methane production without any negative effects on rumen fermentation parameters.

Keywords: Methane, Tannin, *Calliandra calothyrsus*, Sheep, *In vitro*

Effect as Feed Supplement Wafer the Nutrient Consumption and Digestibility of Pasundan Cattle

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ABSTRACT

The research was conducted of lamtoro wafer suplement on the feed intake and digestibility of pasundan cattle. Total samples of 20 cattle were taken from population of pasundan cattle were collected from Balai Pengembangan Perbibitan Ternak Sapi Potong in cijeungjing/ciamis, west java. The treatments were to P0 = conventional feed, P1 = conventional feed + 5% lamtoro wafer suplement, P2 = conventional feed + 10% lamtoro wafer suplement, and P3 = conventional feed + 15% lamtoro wafer suplement. The results showed that the addition of wafer containing lamtoro wafer suplement with a significant effect level 15% ($P<0.05$) consumption of dry matter (3404.69 g/head/day), consumption of crude protein (436.12 g/head/day), consumption of crude fat (250.91 g/head/day), and consumption of crude fiber (651.89 g/head/day). However, the addition of lamtoro wafer suplement was not significant effect ($P>0.05$) to digestibility of dry matter (68.54%), and digestibility of organic matter (72.40%). In conclusion, the addition of lamtoro wafer suplements into the rations could increase the feed and *L. leucocephala* wafer at 15% showed the best nutrient consumption of pasundan cattle.

Keywords: pasundan cattle, digestibility, lamtoro wafer suplement

Nutrient Composition and In Vitro Digestibility of *Brachiaria decumbens* Cv. Basilisk with Different Level of Fertilizer

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ABSTRACT

This research was aimed at identifying the quality of *Brachiaria decumbens* cv. Basilisk including the nutrient content and digestibility of dry and organic matters planted with different level of NPK fertilizer. The *in vitro* method of Tilley and Terry (1963) modified by Utomo (2010) was used to analyze the samples. The fertilizer treatment were (P0) 0 kg/ha, (P1) 150 kg/ha, and (P2) 300 kg/ha. The harvested *Brachiaria decumbens* cv. Basilisk was then put in an oven with 55ºC temperature and grinded to create samples to be analyzed with proximate and *in vitro* digestibility analysis. The analyzed variables were the grass' chemical composition and the digestibility of dry and organic matters. The obtained data were then analyzed by using Completely Randomized Design (CRD) and the difference between means was then analyzed by using *Duncan's Multiple Range Test* (DMRT). The result showed that crude protein and fat was affected ($P<0.05$) by addition of NPK fertilizer of *Brachiaria decumbens* cv. Basilisk grass. Crude protein P0 (9.504%), P1 (9.836%) and P2 (12.032%), crude fat P0 (7.584%), P1 (9.101%) and P2 (10.867%). The digestibility of dry matters P0 (50.75%), P1 (52.77%) and P2 (53.89%) and the digestibility of organic matters P0 (46.33%), P1 (48.69%), P2 (49.95%). Dry matters, organic matters, crude fiber, the digestibility of dry matters and the digestibility of organic matters were not affected by the addition of NPK fertilizer. Based on the result, it can be concluded that the addition of NPK fertilizers 150 kg/ha and 300 kg/ha of *Brachiaria decumbens* cv. Basilisk grass affected the crude protein and crude fat.

Keywords: *Brachiaria decumbens cv. Basilisk, in vitro* digestibility

In Vitro Gas Production of Lemongrass Leaves as Essential Oil Source and its Effect on the Kinetics of Gas Production

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ABSTRACT

The research was aimed to evaluate the effect of lemongrass leaves (C*ymbopogon citratus*) supplementation as essential oil (**LL**) in the ration toward total gas production and kinetics of gas production. The ration used in the study contained 9.94% crude protein and 88.5% total digestible nutrient. Essential oil (**EO**) was added in the following levels: 0 (**control**), 25, 50, 75, and 100 mg/L and each treatment are replicated 3 times. Two cannulated Ongole crossbreed cows were used as inoculum donors. In vitro gas production was analyzed using Menke and Steingass (1988) method and the gas produced was recorded every hour for 48 h. The kinetics of gas production was analyzed using Fit Curve. The collected data were analyzed using one way variance analysis and the difference between mean was tested by Duncan's New Multiple Range Test (DMRT). Total gas production at 48 h decreased ($P<0.01$) 25.14; 21.19; 16.06% with LL supplementation 50, 75 and 100 mg/L compared to control, whereas LL supplementation 25 mg/L did not affect total gas production. LL supplementation did not affect initial gas production (**a**). Lower potential gas production ($P<0.01$) was observed with LL supplementation 50, 75 and 100 mg/L compared to control and greater LL supplementation showed lower potential gas production. Increasing LL supplementation did not affect the fractional rate of gas production (**c**). In general, based on this study, increasing EO supplementation from lemongrass leaves affected total gas production at 48 h and the kinetics of gas production.

Keywords: essential oil, lemongrass leaves, beef cattle, in vitro gas production

Effects of Carbon: Nitrogen Ratio on Quality of *Chromolaena odorata* Silage

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ABSTARCT

The main problem arises in silage making using protein source forages is decomposing process due to buffer activity of proteins that causing higher pH than that recommended values for a good ensilage process. Until recently, researches in silage processing merely focused on levels of carbohydrate source as additive, and lack of efforts to examine the efficacy of nitrogen: carbon (C/N) ratio in ensilage process. The present study was designed to test the effects of increasing carbon: nitrogen ratio on quality of *Chromolaena odorata* (an alternative protein source forage) silage. Four treatments with four replicates were tested namely **CoN**= Chromolaeana without additional carbon source (C/N ratio of 14,9); **CN20**= Chromolaeana + additional carbon source for a C/N ratio of 20; **CN25** = Chromolaeana + additional carbon source for a C/N ratio of 25; **CN30** = Chromolaeana + additional carbon source for a C/N ratio of 30. The carbon source used was *Corypha gebanga* meal. Variabel measured were organoleptic profiles, proportion of rotten fraction, nutrient composition, and *invitro* digestibility. Analysis of variance for completely randomized designed was employed in statistical analysis. The results showed that increased C/N ratio by up to 30 significantly improved silage organoleptic profiles, organic matter and crude protein content, yet reduced crude fiber content. Dry matter (DMD) and organic matter digestibility (OMD) indexes were significantly improved by up to 15% and 14% for DMD and OMD respectively. It can be concluded that increasing C/N ratio by up to 30 in ensilage process of protein source forage such as *Chromolaena odorata* will improve organoleptic profiles, nutrient content and digestibility of the silage.

Keywords: chromolaena odorata, C/N ratio, silage, protein source, nutrient content

In Vitro Digestibility of Timor-Leste Native Grass Supplemented with *Leucaena leucephala* and *Corypa elata Robx.*

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ABSTRACT

This research was aimed to study the effect of supplementing *lamtoro* (*Leucaena leucephala*) leaves and/or *putak* (*Corypha elata Robx*.) on *in vitro* dry matter and organic matter digestibility of native grass of Timor-Leste. Native grass used in this study was collected from natural pasture in Balibo sub-district, Bobonaro district, Timor-Leste. In this study, a 3×3 factorial design was used, with the type of supplement (native grass + *Leucaena*, **G+L**; native grass + *putak*, **G+P**; or native grass + *Leucaena* and *putak*, **G+L+P**) and level of supplement (10, 15, or 20%) as the main factors. All dietary treatments were incubated in rumen fluid mixture collected from two fistulated Bali cattle using a 2-stage *in vitro* technique. The supplements (*Leucaena* and/or *Corypha elata Robx*) were added into grass samples at 4 h after the grasses were incubated. Results showed that the *in vitro* dry matter and organic matter digestibility of the G+P treatments were greater than those on the G+L and G+L+P (43.4 vs. 40.8, 36.6% and 49.9 vs. 46.5, 40.1%, respectively; $P<0.05$), with the greatest values on the G+P treatment. No significant effects were detected among treatments with different levels of supplement, as well as on the interaction between the 2 factors. It can be concluded that supplementing *putak*/*Corypha elata Robx* at 4 h after feeding can improve the dry matter and organic matter digestibility of native grasses.

Keywords: Native grass, *Leucaena leucocephala*, *Putak*, *in vitro* digestibility

Nutrient Intake and Digestibility of Kacang Goat Received Rations Containing Solid Waste of Herbal Industry

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ABSTRACT

This study was aimed to determined the effect of substitution of king grass with solid waste of herbal industry (SWHI) in the rations on nutrient intake, digestibility and average daily gain (ADG) of kacang goat. The diet was basal ration for Kacang goat with forage to concentrate ratio (F:C)= 50:50. The experiment was designed in completely randomized design with 3 treatments: R0 = 50% king grass: 0% SWHI (control treatment), R20 = 30% king grass: 20% SWHI, and R30 = 20% king grass: 30% SWHI. The *in vivo* experiment showed that no differences of dry matter intake among treatments (P<0,05) but organic matter intake of kacang goat increased significantly (P <0.05) in line with the increasing of SWHI concentration. The ration containing SWHI decrease the digestibility of dry matter (DM), organic matter (OM) and crude protein (CP) (P <0,05) but no differences found in ADG between control. It was concluded that SWHI could be used as king grass substitution up to 30% in ration without decreasing nutrient intake and weight gain of kacang goat, although the level of ration digestibility was lower with the increasing of SWHI concentration.

Keywords: Solid waste of herbal industry, nutrient intake, digestibility.

The Effect of Gamma Irradiation on Nutrient Profiles and Total Gas Production *In Vitro* of Two Sorghum Straw Variety

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ABSTRACT

The aim of the current work is to investigate the effects of some levels of gamma irradiation doses on nutrient composition and total gas production *in vitro* of two sorghum straw variety. The level doses 0, 50, 100 and 150 kGy from cobalt-60 gamma rays irradiator was used to treate sorghum straw. Variables measured were nutrient composition, *in vitro* total gas production, *in vitro* gas characteristics and rumen fermentation products after 72 h incubation times. Experimental design of this study was 4 x 2 factorial design with irradiation dose as the first factor and sorghum variety as the second factor. All treatments were analyzed in three replicates. The results show that gamma irradiation doses of 150 kGy reduced neutral detergent fiber (NDF) of Pahat and Samurai 2 sorghum straw by 5.10 and 3.01% ($P<0.05$). Gamma irradiation doses of 150 kGy also reduced acid detergent fiber (ADF) of Pahat and Samurai 2 sorghum straw by 12.56 and 8.74% ($P<0.05$). The dose of 100 and 150 kGy increased total gas production at 72 h incubation of Pahat straw ($P<0.05$). Gamma irradiation had no effect on the total gas production of Samurai 2 straw. Gamma irradiation pretreatment was capable of improving sorghum straw nutrient profiles. Further study is needed to determine degradability and economically benefits.

Keywords: Gamma irradiation, *In vitro*, Nutrient profiles, Sorghum straw, Total gas production

The Effect of Rhizobium Inoculation and Harvesting Time on the Quality and Biomass Productivity of Peanut Straw (*Arachis hypogea*) in Sandy Soil

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ABSTRACT

This study was aimed at determining the effect of rhizobium inoculant addition and harvesting time on the nutrient quality and biomass productivity of peanut straw (*Arachis hypogea)* as feed stuff in sandy soil area. The planting was conducted by using twelve polybag filled with sandy soil from Berbah, Sleman, Yogyakarta. The experimental design was 2x2 Factorial design with 3 replications. The two treatment factors were: harvesting time factor (HT), it consisted of harvest at 80 days after planting (HT1) and harvested at 90 days after planting (HT2), the second factor was rhizobium inoculation (R) consisted of not inoculated (R0) and inoculated (R1). The result of the research showed that harvesting time and inoculation were not affecting the vegetative and generative stage of growth. Harvesting time had significant effect ($P<0.05$) on chemical composition of peanut straw; crude protein 12.45% (HT1) and 11.21 (HT2), crude fiber 21.52% (HT1) and 22.83% (HT2) and ash 11.87% (HT1) and 13.83 (HT2). Rhizobium inoculant addition had effect (on nodulation, value for effective nodule for R0 was 78% and for R1 was 89% ($P<0.05$). Interaction between harvesting time and rhizobium inoculant addition yielded significant and were not different on dry matter and organic matter production. It could be conclude that inoculant and harvesting time factor had affect on vegetative stage of growth, nutrient quality and nodulation but did not have affect on biomass straw production.

Keywords: *Arachis hypogea,* Harvesting time, Rhizobium, Productivity

Feed Evaluation based on Gas Production of Twelve Tropical Feedstuffs

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ABSTRACT

This study was conducted to determined the chemical composition and production of gas by fermentation in the rumen of twelve tropical feedstuffs commonly utilized which are fodder trees and shrub species, namely red flower *turi* (*Sesbania grandiflora* L) leaves and stems skin, white flower *turi* (*Sesbania grandiflora*) leaves and stems skin, leucaena (*Leucaena leucocephala*) leaves, Calliandra (*Calliandra calothyrsus*) leaves, ketapang (*Terminalia catappa* L.) leaves, walnut (*Canarium indicum* L.) leaves, *teh-tehan* (*Duranta repens*) leaves, tea (*Camellia sinensis*) leaves, bamboo (*Bambusa arundinacea*) leaves, and mahogany (*Swietenia mahagoni*) leaves. Measurement of gas production was performed by *in vitro* at 2, 4, 8, 18, 30, 48, 72 h of incubation. Tannin activity was measured in each sample at the time of measurement of gas production by dividing into two groups: the one with polyethylene glycol (PEG) and the other one without PEG. Result showed that the Crude protein (CP) of the samples studied ranged from 11.33 - 32.42% the lowest was found in mahagony (*Swietenia mahagoni*) leaf and highest was obtained in *sesbania grandiflora* (red flower). The content of fiber (CF) ranged from 10.31 to 32.58%. While the total tannins showed ranging from 0.22 to 12.07%, the lowest total tannin concentration was found in *sesbania grandiflora* (white flower) stems skin of 0.22% and the highest obtained at *Terminalia catappa L* is 12.07%. Measurement of gas production in vitro shows that In all samples, gas production increased when PEG was given. Based on tannin activities measurement in present study, the use of PEG improved rumen microbial degradation. The measurements of tannin content showed that condensed tannins were varied from 0.05% (DM) in white Turi stem to 3.34 % (DM) in Mahogany leaves.

Keywords: Evaluation, Tropical-feedstuffs, Gas-production

The Effect of Starter Addition on Digestibility Value of Complete Feed Fermentation-Based Kumpai Minyak grass (*Hymenachne amplexicaulis*)

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ABSTRACT

The aimed of this study was to determine the effect of starter addition in complete feed fermentation based on Kumpai Minyak grass. Materials used in this study were Kumpai Minyak grass, palm kernel oil, tapioca waste, rice bran, and SBP® starter. The materials were mixed and kept in the plastic bag and storage until the day of length fermentation time. The data were analyzed using a two-way ANOVA based on completely randomized design (CRD). The main treatments was levels of inoculants (I0 = 0; I1 = 0.01; I3 = 0.03; I5 = 0.05%) with 7 days of fermentation. Dry matter digestibility (DMD) and organic matter digestibility (OMD) variables were measured. The results showed that the addition of different levels of inoculant (SBP®) had the highest digestibility on 0.05% level ($P<0.05$). The addition of 0.05% level of inoculant capable of increasing the DMD and OMD of complete feed fermentation based on Kumpai Minyak grass.

Keywords: complete feed, digestibility, fermentation, Kumpai Minyak grass

Digestibility and Ruminal Fermentation Characteristic of Native Grass Silage Supplemented with Different Levels of *Leucaena leucocephala*

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ABSTRACT

This study was conducted to determine the digestibility of native grass silage supplemented with different levels of *Leucaena leucocephala*. The study was designed using completely randomized design with 3 levels supplementation of *Leucaena* (10, 20, and 30%) and each treatment was done in 6 replications. All of the silage treatments were inoculated with 4% *Lactobacillus plantarum*, and stored in mini-silos for 21 days. The results showed that supplementing native grass with 20% *Leucaena* resulted in the greatest ($P<0.05$) dry matter and organic matter digestibilities. However, the greatest digestibility of crude protein obtained at 10% *Leucaena* supplementation and that digestibility decreased linearly with the increasing levels of supplementation ($P<0.05$). Although there were no effects was detected due to *Leucaena* supplementation on culture rumen pH and VFA concentration, a significant decrease of NH_3-N concentration and significant increase of rumen microbial protein were noticed ($P<0.05$) as the level of *Leucaena* supplementation was increased. These data indicate that supplementing native grass with 30% *Leucaena* is the best treatment in term of microbial protein yield, although nutrient digestibilities were lower than the other treatments.

Keywords: Native grass, *Leucaena leucochepala*, supplementation, *Lactobacillus plantarum*, silage

Quality of Sorghum Silage Fermented with Starch of Gebanga Flour (*Corypha gebanga*) and Lactic Acid Bacteria as Additives

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ABSTRACT

The carbohydrate-rich feed was commonly used as an additive in ensiling process. However, there has been lack of scientific reports on the usage of starch of gebanga (*Corypha gebanga*) flour as additive combined with lactic acid bacteria (LAB). The objective of this study was to determine the quality of sorghum silage treated with the starch of gebanga flour and LAB as additives. Twenty units of mini silos (5 treatments × 4 replicates) were examined for chemical characteristics of sorghum silage after 21 d of ensiling period where every four mini silos contain sorghum without additives (control), and with either the starch of gebanga flour at a level of 4% (G4), 4% + 0.1% LAB (G4LAB), 8% (G8), or 8% + 0.1% LAB (G8LAB) of total dry matter of silage. Results of the study showed that the quality of sorghum silage were influenced by gebanga flour additive with or without *Lactobacillus plantarum* ($P<0.05$). Inclusion of 8% gebanga flour with or without LAB increased dry and organic matters of the silage. All treatments resulted in acidic condition and lower the pH of silage. The greatest lactic acid concentration was recorded for G8 (6.01 g/kg). In summary, the inclusion of the gebanga flour and *Lactobacillus plantarum* as additives improved the quality of sorghum silage.

Keywords: Sorghum, Silage, Gebanga, Lactic acid bacteria, Quality

Physical Characteristics Evaluation of Kumpai Minyak Grass (*Hymenachne amplexicaulis)* Silage

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ABSTRACT

The study aimed to evaluate the nutritive value of Kumpai Minyak grass (*Hymenachne amplexicaulis*) silage. A total of 700g of *Hymenachne amplexicaulis* chopped with size 3-6 cm were used for silage by adding molasses levels (0, 2,5, and 5%) as well as the level of lactic acid bacteria (LAB) (0, 2, and 4 %). Silage inserted into a clear plastic bag and the air was removed. The silages were ripened for 21 days. Each treatment was done five times replication. The variables measured were physical quality and pH. Research data were analyzed by analysis of variance (ANOVA), if there was a significant difference between the treatments it will precede with Duncan's Multiple Range Test. The physical quality characteristics of silage were generally good. The addition of LAB did not affect (P> 005) on pH (4,10 to 4,21) but the addition of molasses gave significantly affect (P <0.05) on pH (3,69 - 4,84). The combination between LAB level and molasses level with the best physical quality was found in 4% LAB and 5% molasses levels.

Keywords: Grass *Hymenachne amplexicaulis*, Molasses, *lactobacillus plantarum*, Silage

In Vitro Digestibility of Fermented Rice (*Oryza sativa*) Straw and Cassava (*Manihot utilissima*) Leaves Basal Feed Supplemented with Cassava Tuber

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ABSTRACT

This study was done to determine the *in vitro* digestibility of basal feed consisted of fermented rice (*Oryza sativa*) straw and cassava (*Manihot utilissima*) leaves supplemented with various levels of cassava tuber. Fermented rice straw was made by mixing 4 kg urea and 1 kg Starbio® into 2000 kg freshly harvested rice straw. As dietary treatments, fermented rice straw was mixed with 15% cassava leaves and added with cassava tuber in various levels (0, 5, 10, or 15%). All the dietary treatment samples then incubated for 48 h according to 2-stage *in vitro* technique. Results showed that the *in vitro* digestibility of dry matter, organic matter, and crude protein were increased by the increasing level of cassava tuber added ($P<0.05$), with the greatest digestibilities on the 15% cassava tuber supplementation (41.2, 57.1, and 47.4%, respectively; $P<0.05$). No significant effects were detected on pH of rumen culture due to cassava tuber supplementation. It can be concluded that supplementing feed consists of fermented rice straw and 15% cassava leaves with cassava tuber can improve its nutrient quality without giving negative effects on the rumen pH.

Keywords: Fermented rice straw, Cassava leaves, Cassava tuber, *In vitro* digestibility, Supplementation

Physical and Organoleptic Quality of Pellet with Different Tubers Type as Binder

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ABSTRACT

The research was conducted to determine the physical and organoleptic quality of pellets using different tubers (taro, potato, and sweet potato) as binder. Pellets were produced using double crane small flat die pelletizer and without instrument of conditioning. Pellet ingredients consisted of corn (16.89-17.38%), soy bean meal (9.47-10.08%), copra meal (5.63-5.79%), cassava leaves meal (45.86-45.90%), molasses (2.75%), limestone (3.00%), and salt (0.75%). The pellet ingredients and binders were formulated to produce three type of pellets with the same crude protein and energy level. Samples of pellets were tested for their hardness, Pellet Durability Index (PDI), texture, color, and odor. Pellets using taro binder was higher (95.57%) on PDI than potato (94.87%) and sweet potato (94.67%). Texture, color, and odor of pellets showed no difference between treatments. It could be concluded that organoleptic qualities of pellets were similar, while taro showed best physical quality for pellet binder.

Keywords: Binder, Organoleptic, Pellets, Physical, Quality, Tuber

In vitro Digestibility and Gas Production Characteristics of Four *Brachiaria* Cultivars as Fresh Fodder

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ABSTRACT

Brachiaria is a grass that is potentially in the development of pastures, due to have a characteristic that is resistant on heavy grazing, trampling and drought and responsive to nitrogen fertilization. The potential of this grass is also survival in the dry season (drought resistant), other than that because it has very strong roots and quickly shut the soil so that it can be reduce soil erosion. However, there is a need to have comparative evaluation of these *Brachiaria* cultivars so that definite recommendations can be made in the choice and management of the respective cultivars. The experiment was conducted to evaluate the *in vitro* digestibility and gas production of four Brachiaria cultivars namelyg *Brachiaria brizantha*, *Brachiaria Mulato*, *Brachiaria ruzinensis*, and *Brachiaria decumbens*. Grass harvested at 40 days, and dried with air dried for 3 days, then grinded with a grinding machine. Sample collection was analyzed at the Laboratory of Biochemistry Nutrition, Faculty of Animal Science, Universitas Gadjah Mada. The parameters data consists of nutritional quality of grass and dry matter digestibility and organic matter. Data of the chemical composition, in vitro digestibility, *in vitro* gas production were analysed using one way annova in SPSS version 16. The model included the fixed effect of treatment. Data are presented as least squares means with standard error of the means. Significance was declared at $p \leq 0.05$, and tendencies were considered at $0.05 < p \leq 0.10$. Significant treatment effects were detected by Duncan multiple range test (DMRT). The results showed that the digestibility of dry organic matter by *in vitro* on *Brachiaria ruziziensis, Brachiaria mulato, Brachiaria decumbens, and Brachiaria brizantha* significantly different ($P < 0.05$) in consecutive as much as 45.83%, 52.05%, 42.83%, 52.80% (Digestibility of dry matter) and 48.28%, 51.74%, 47.51%, and 54.90% (Digestibility of organic matter). Based on these results it can be concluded that dry and organic matter digestibility on the type of *Brachiaria* has the distinction of good digestibility of dry matter and organic matter.

Keywords: Nutritive quality, Digestibility of dry and organic matter, *Brachiaria* cultivars

Effect of Differences in Forage Quality on Methane Production and Ruminal Fermentation Characteristics of Hanwoo Steers

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ABSTRACT

The purpose of this experiment is to determine CH_4 production and ruminal characteristics for different quality of forages. Four Hanwoo (Korean native beef cattle) steers (initial body weight, 374 ± 40 kg) were used in a duplicated 2 × 2 Latin square design and fed either lacerated rice straw (RS) ad libitum plus 3.2kg of concentrate/d or lacerated Italian ryegrass (IRG) silage (dry matter 58.5%) ad libitum plus 3.2kg of concentrate/d. CH_4 production was measured using four confinement-type respiration chambers for two consecutive days. Rumen fluid was collected before feeding and after 1.5 and 3 h after feeding. The average OM, CP and NDF intake for steers fed IRG was around 10% (P =0.086), 19% (P = 0.059) and 30% (P=0.038) higher than those for steers fed RS, respectively. There were no statistically differences in CH_4 production (g/d) and conversion rate (%) for steers fed IRG and RS even though indirect estimates of apparent OM and NDF digestibility (g/kg DM) of IRG (0.674 and 0.635, respectively) also were higher (P = 0.009) than those of RS (0.614 and 0.557, respectively). However, CH_4 production per digested NDF (g/kg DM) for steers fed rice straw showed higher trend (35 vs 30.5; P = 0.07) compared with those for steers fed IRG. No differences were observed in total VFA and C2/C3 between treatments. Proportions of isobutyrate and isovalerate were higher (P = 0.003 and P = 0.012, respectively) for steers fed IRG than those for RS. We concluded that the laceration of forage by a TMR mixer might reduce the impact of different forage quality on CH_4 production. Therefore, further studies are required to establish the role of physical and mechanical properties when comparing the effect of different forage qualities on ruminal methane production.

Keywords: Forage quality, Italian ryegrass, Methane, Rice straw, Ruminal fermentation

Holstein and Hanwoo steers fed concentrate and forage separately emitted lower methane production than TMR

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ABSTRACT

Much more research is needed to clarify whether TMR feeding has an advantage over separate feeding of concentrate and forage (SF) in terms of methane production from enteric fermentation. Four Holstein (300 ± 47kg) and four Hanwoo (280 ± 60kg) steers were randomly allocated to two groups according to a quadruplicate 2 x 2 Latin square design, respectively. Commercial concentrates were purchased and blended with tall fescue (75:25) in a TMR mixer and fed steers as a TMR or separately to compare enteric methane production, ruminal fermentation characteristics and indirect total tract digestibilities. There were no differences in nutrient intakes and digestibilities between two treatments. The results of CH_4 measurement indicated that steers fed TMR produce significantly higher ($P < 0.05$) values of CH_4 produced per day and kg of feed organic matter intake, and energy lost as CH_4 than those for steers fed SF. However, there were no significant differences in CH_4 per kg of digestible organic matter and NDF. Numerical higher ($P = 0.173$) acetate to propionate ratio was observed for TMR during 3 hours after morning feeding than SF although acetate remained significantly higher values ($P = 0.01$) than those for SF. Feeding forage and concentrate separately or as TMR may give a different contribution to global warming even though there are little changes in ruminal characteristics and total nutrient digestibilities.

Key words: total mixed ration, separate feeding, methane, enteric fermentation

The Effect of Daily Activities Stingless Bees of *Trigona* sp. on Honey Production

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ABSTRACT

Trigona sp. is a group of stingless bees that including one of the indigenous bees from Indonesia and the bees without sting that live colonies in the trunk of trees or woods, bamboos, sugar palm stalks and on the ground. The habitat causes different daily activities in the hive, so affected production of honey. The aim of the study was to determine an effect of daily activities the stingless bees worker of *Trigona* sp. on the production of honey in the various bee hives design. This study was conducted from 16 July to 22 September 2016 in Ngrandu Katongan Village, Sub-District of Nglipar Gunungkidul, Yogyakarta. The material of research were stingless bees *Trigona* sp. was obtained from the bamboos in the KTH Madusari beekeeping. Sixty colonies were transferred to four bee hives design (35x20x15.5; 35x20x17.5; 37.5x20x20; 40x20x20 cm) with fifteen replications (number of bee hives design). Transfer of colonies was performed at night to avoid the stress that consists of the queen bee, eggs, worker bees and drones, pollen as a source of protein in the hive and placed on the nest for about two months of the beekeeping process. The research results showed that production of stingless bees *Trigona* sp. honey in various bee hives design were 62.20±20.32; 66.60±26.60; 60.60±16.53; 49.20±32.72 ml respectively that did not significantly different (P>0.05) in the daily activity. In addition, the entrance and exit hives by bees worker at 08.00 to 10.00 am and 02.00 to 04.00 pm did not significantly different. Thus, production of honey was dependent on the daily activity of bees worker especially entrance and exit hives to collect nectar as raw material to the production of honey. It can be concluded that bee hives design 35x20x17.5 cm resulting higher production of honey and daily activities than the other design.

Keywords: Stingless bees, *Trigona* sp., Daily activities, Indigenous bee and honey

Effect of Utilization of Maggot (*Hermetia illucens*) Meal Substituted FishMeal in the Diets on Broiler Chicken Performance

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ABSTRACT

The present study was designed to elaborate the effect of substituting fish meal with maggot (*Hermetia illucens*) meal in the diets on feed efficiency of broiler chicken. Eighty day old chicks (DOC) CP 707 broilers were placed in battery cages and were assigned to each dietary treatment (5 treatments) which was replicated four times in a completely randomized design (CRD) arrangement. Diets were formulated to meet or exceed starter and finisher broiler requirements as recommended by NRC (1994). Treatment diets were formulated as follow: R0 = 100.0% fish meal (15.0% in the diet) + 0% maggot meal (0% in the diet); R1 = 75.0% fish meal (11.25% in the diet) + 25.0% maggot meal (3.75% in the diet); R2 = 50.0% fish meal (7.5% in the diet) + 50.0% maggot meal (7.5% in the diet); R3 = 25.0% fish meal (3.75% in the diet) + 75.0% maggot meal (11.25% in the diet); and R4 = 0% fish meal (0% in the diet) +100.0% maggot meal (15.0% in the diet). Parameters measured were: digestibility of energy, protein, Ca and P; daily feed consumption, daily gain, and feed efficiency ratio. Research results showed that the digestibility of dry matter, energy, Ca, and P were all not significantly ($P > 0.05$) different among the treatments. Whereas feed consumption, daily gain, and feed efficiency ratio of starter and finisher broiler chicks were significantly ($P < 0.05$) decreased as maggot meal substituted fish meal at the level of 100% or 15.0% in the diet (R4). It can be concluded that maggot (*Hermetia illucens*) meal could replace fih meal up to 75.0% or 11.25% in the diet without any negative effects on broiler chicken performance.

Keywords*:* Fish Meal, Maggot (*Hermetia illucens*) Meal, Broiler Chicken, Feed Efficiency Ratio

The Use of Nano-Encapsulation of *Morinda citrifolia* Fruit Extract in Drinking Water as Phytobiotic Based Feed Additive in Laying Hens

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ABSTRACT

This study was aimed to analyze the effect of nano-encapsulation of noni fruit extract (NFE) utilization in drinking water as phytobiotic based feed additive in layer phase of laying hens. The experiment was conducted in a completely randomized design consisting of 6 treatments and 5 replicates, with 12 chickens in each replicate pen. The treatments were: P0 = drinking water without feed additive (negative control); P1 = drinking water + Tetracycline 50 mg/hen (positive control); P2 = drinking water + 0.5% extract of noni fruit; P3 = drinking water + 0.5% nano-encapsulation of NFE; P4 = drinking water + 1% nano-encapsulation of NFE; P5 = drinking water + 1.5% nano-encapsulation of NFE. The observed parameter was productive performance of laying hens, which include: daily feed intake, egg production, feed conversion ratio, and egg mass. Data were statistically analyzed using Oneway ANOVA. Results showed that supplementation of nano-encapsulation of noni fruit extract in drinking water with the level of 1.5% did not affect productive performance of laying hens, such as: feed intake, hen day production, egg mass, and feed conversion ratio. Supplementation of antibiotic in low level in current study did not also give any significant effect. It can be concluded that supplementation of 1.5% nano-encapsulation of noni fruit extract via drinking water administration did not influential for maximizing productive performance of laying hens. The use of NFE gave the same result as antibiotic use.

Keywords: Laying hens, Nano-encapsulation, Noni fruit extract, Productive performance

Utilization of Skin of Mung Bean Sprouts for Weaning Rabbits

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ABSTRACT

Skin of mung bean sprouts (SMBS) is the waste production of mung bean sprouts are available every day in many traditional markets. Nutrient content SMBS supposedly good enough to be used as animal feed, especially rabbits. Two experiments were conducted to investigate the use of SMBS in rabbits. The first study to study the dry matter digestibility (DMD), every treatment consisted of 3 replications with 3 NZW weaning rabbits each, for 2 weeks experiment. The second study was to study the effect of various levels of SMBS (0, 10, 20 and 40%) in the ration on the performance of growth for 4 weeks, each treatment has 6 replicates @ 3 weaning rabbits. All data were subjected to analysis of variance and differences between treatments were analysed by LSD. The results obtained showed that DMD of SMBS was quite moderate, 58.9%. It is interesting to note that the use of SMBS up to 40% can improve daily body weight gain (DBWG) 19-25 g /h /d, even up to 3rd week of observation pf DBWG can reach 29-35 g /h / d, almost equal with results in sub- tropical countries. Inclusion of 40% in the diet lowers DMD of SMBS and FCR, but did not reduce the consumption and DBWG. Feed conversion of inclusion up to 20% ranged from 2.2 - 2.52 at the beginning of the week and 2.93 – 3.10 at week 4. Inclusion of SMBS at 10, 20 and 40% in the diet lowered approximately 6, 12 and 26% of feed price.

Key words: skin of mung bean sprout, performance, weaning rabbits

Production of Chicken Carcass and Non Carcass of Kampung Chickens Who Received Rations Skin Dragon Fruit Flour (*Hylocereus Polyrhizus*) Fermented

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ABSTRACT

The research aims to study the production of carcass and non carcass Kampungchicken who received rations of flour skin dragon fruit (Hylocereuspolyrhizus) has been implemented for 3 months. The design is completely randomized design (CRD) with 4 treatments, 5 replications with each replication consisted of 10 chicken used for a total of as many as 200 birds. The treatment is given as follows: R0: no flour diet dragon fruit skin, R1: 5% ration with dragon fruit peel flour, R2: 7% ration with dragon fruit shell flour and R9: 9% with dragon fruit shell flour.Variabel : production of carcass and non carcass chicken. Data were analyzed by analysis of variance, if significantly different between treatments ($P < 0.05$), then continued with Duncan range test (Steel and Torrie, 1993).Results showed treatment R0; R1, R2 and R3 are significantly different ($P < 0.05$) on the production of carcass, carcass weight than R0 treatment whereas non carcass weight of abdominal fat Kampung chicken was not significant ($P > 0.05$) on the R0. These studies conclude dragon fruit peel flour 5% , 7% to 9% in the ration affect the production of carcass and non carcass does not affect the appeal of Kampung chicken in the ration without dragon fruit skin.

Keywords: chicken, non carcass weight, skin dragon fruit (Hylocereuspolyrhizus), flour, fermented

The Effect of Dietary Violet Roselle Flower and Moringa Leaves Meal Supplementation on Blood Profile of Broiler Chickens

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ABSTRACT

The study was conducted to observe the effect of dietary violet roselle (*Hibiscus sabdariffa*) flower and moringa (*Moringa oleifera*) leaves meal supplementation on blood profile of broiler chickens. A hundred and twenty-day old male broiler chickens were fed commercial CP 511 feed with violet roselle (VRM) and moringa leaves meal (KLM) in different levels. Four treatment diets were: commercial feed without VRM or KLM supplementation (basal diet; control; T_1), basal diet with 3.0% VRM supplementation (T_2), basal diet with 3.0% KLM supplementation (T_3), and basal diet with 1.5% VRM and 1.5% KLM supplementation (T_4). Each feeding treatment was replicated 6 times, with 5 birds in each pen. The collected data were statistically analyzed using Complete Randomized Design in the One-way arrangement. Result showed that 3.0% dietary VRM supplementation or 3.0% dietary KLM supplementation had no effect on blood profile (leukocytes, erythrocytes, hematocrits, hemoglobin, and cholesterol) with average of ($26.4x10^3$ cell/µl, $2.6x10^6$ cell/µl, 32,5%, 10,8 g/dl, and 79 mg/dl). It indicates that the blood profile was normal and the used of violet roselle flower and moringa leaves meal were still safe for broilers chickens. It can be concluded that the dietary supplementation of violet roselle flower meal or moringa leaves the meal in the diets, separately or in combination in 3.0% level had no adverse effect on blood profile of broiler chickens.

Keywords: Blood profile, Broiler chickens, Moringa leaves, Phytobiotics, Violet roselle flower

Growth Performances of Broiler Chicken Fed Diets Supplemented with Graded Levels of Neem Leaf Meals

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ABSTRACT

A hundred and twenty five-days-old unsexed Arbor acres broiler chickens were allotted to six dietary treatments of 20 birds, replicated four times (5 birds each) to evaluate the effects of feeding graded levels of Neem (*Azadirachta indica*) leaf meal (NLM) on feed consumption, weight gain and feed conversion. The experimental birds were arranged in a completely randomized design and managed for 5 weeks. The dietary treatments were: P1 (control), P2 (supplemented with antibiotics/sulfamix), P3, P4, P5 and P6 were respectively supplemented with 1, 3, 5 and 7% Neem leaf meal (NLM). Drinking water was always available and the feed in mash form was offered *ad-libitum*. No significant difference ($P>0.05$) in weekly feed consumption and feed conversion ratio among treatment means were observed. The weekly body weight gains of chickens fed on diet supplemented with 5 and 7% NLM were significantly lower ($P<0.05$) than those fed on diet supplemented with 3% NLM but not different from control and those fed on diet containing sulfamix. Results of our study indicate that the optimum inclusion tolerance level of NLM in broiler chicken diet is 3%.

Keywords: *Azadirachta indica*, weight gain, feed conversion ratio, broiler chicken

Effects of Dietary Turmeric and Red Ginger Meal on Broiler Chickens Performance in Tropical Area

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ABSTRACT

A study using 180 male day-old broiler chickens was conducted to observe the effect of dietary turmeric (TR) and red ginger (RG) meal as source of phytobiotics in the ration on growth performance and carcass quality in the tropics. The chicks were randomly allotted into five dietary treatments. The birds were reared in an opened-system poultry house with ambient temperature between 27-34^{o}C. The five treatments were: basal diet without turmeric and red ginger meal supplementation (control diet; T1); control diet + 5g/kg TR + 7.5 g/kg RG (T2); control diet + 10 g/kg TR + 7.5 g/kg RG (T3); control diet + 5g/kg TR + 15 g/kg RG (T4); and control diet + 10 g/kg TR + 15 g/kg RG (T5). Each treatment was replicated 6 times with six birds in each replicate pen. Data obtained in current study were statistically analyzed using One way ANOVA. Results showed that when broiler chickens were kept in high temperature environment dietary supplementation of turmeric or red ginger meal did not show any significant effect on growth performance, carcass quality, and abdominal fatness. However, there was a tendency that supplementation up to 10 g/kg TR in combination with 15 g/kg RG improved final weight (P=0.066) and average daily gain (P=0.084). It might be concluded that when broiler chickens were raised under opened-system poultry house in tropical climate, supplementation of turmeric and red ginger meal with the rate of 15 g/kg was not enough to improve poultry productivity.

Keywords: Turmeric, Red ginger, Broiler chickens, Carcass quality, Growth performance

Genetic Parameter Estimation on Pra Production Traits of Alabio and Mojosari Ducks after Selection Based on Egg Production in Two Generation

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ABSTRACT

This experiment was conducted to analyze the genetics parameter of preproduction traits of Alabio and Mojosari Ducks after two generation selection for laying line. Alabio and Mojosari Ducks were selected 20 males and 200 females, respectively, as twice generation and placed in group mating for egg production. All collected eggs were hatched to find about 450 of Alabio and 520 of Mojosari female ducklings. All birds were individually identification, based of group lines mating of the pwerents. Ducklings were rewered and weight two weekly interval of 16 weeks and old of sexual maturities. Data were collected followed on half- and full-sib nested design. Collected data were egg weight, body weight of day, 2, 4, 6, 8, 10, 12, 14, 16 weeks old ducks, sexual maturity and age of sexual maturity. Estimated genetic parameter of heritability ($h^2 \pm s_{h^2}$) was estimated based on variance components of half-sib and full sib. The result showed that on half sib estimation of the $h^2 \pm s_{h^2}$ of body weight and age of sexual maturity of Alabio (0.89 ± 0.26 and 0.35 ± 0.20) was higher than Mojosari (0.48 ± 0.21and 0.59 ± 0.23 ducks. On full sib estimation, Alabio also had a higher $h^2 \pm s_{h^2}$ on body weight of sexual maturity (0.88 ± 0.32) than Mojosari (0.45 ± 0.16), but lower on age of sexual maturity, 0.28 ± 0.25 and 0.59 ± 0.16, respectively. On egg and body weight of dod, 2, 4, 6, 8, 10, 12, 14 and 16 weeks of age, shown that $h^2 \pm s_{h^2}$ on half sib estimation of Alabio were 1.07±0.28, 0.47±0.22, 0.24±0.18, 0.25±0.20, 0.49±0.22, 0.44±0.22, 0.02±0.12 0.42±0.21, 0.43±0.21 and 0.55±0.23 compared to Mojosari 0.84±0.25, 0.41±0.20, 0.08±0.14, 0.63±0.25, 0.25±0.18, 0.10±0.17, 0.04±0.13, 0.11±0.15, 0.03±0.12 and 0.15±0.15, respectively. On full sib estimation of $h^2 \pm s_{h^2}$ of Alabio, respectively were 0.81±0.36, 0.18±0.19, 0.27±0.13, 0.52±0.29, 0.32±0.20, 0.48±0.20, -0.04±0.07, 0.29±0.18, 0.24±0.18 and 0.36±0.22 its lower compwered to Mojosari, respectively, 0.85±0.30, 0.31±0.17, 0.14±0.07, 0.28±0.30, 0.23±0.13, 0.12±0.11, 0.05±0.06, 0.09±0.09, 0.001±0.06 and 0.13±0.10.

Keywords: Alabio and Mojosari Ducks, Genetic parameter, Heritability, Preproduction

Effect of Using Jackfruit Leaf (*Artocarpus Heterophyllus*) As Disinfectant on Decreasing Number and Genus of Fungi in Poultry Incubator

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ABSTRACT

The purpose of this study was to determine the effect of jackfruit leaf juice as a disinfectant to decrease the number and type of fungus in poultry incubator. The method used in this study was laboratory experiments using a complete randomized design with three treatments and six replications. Three treatments used were: P1 = juice jackfruit leaf with concentration 25%; P2 = juice jackfruit leaf with concentration 50%; P3 = juice jackfruit leaf with concentration 75%. Data were analyzed by variance analysis and Duncan test was used to know the difference of treatment. The results showed that the jackfruit leaf juice contains flavonoid compounds, saponins and tannins which are antimicrobial substrates. The use of jackfruit leaf juice extract with 25-75% concentration reduces the number of fungi by 68.27 - 74.77% and the identified fungi genus are *Aspergillus terreus, Aspergillus glaucus, Aspergillus. versicolor* and *Mucor sp.*

Keywords: Jackfruit leaf, Fungi, Poultry incubator

Effects of Sago Waste as Local Feed Resource That Gives Cellulose Enzyme in Feed on Carcass and Organ Characteristics of Broiler Chickens

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ABSTRACT

This study aims to determine the effect of using sago waste as a local feed ingredient with cellulase enzyme addition to wards carcass and organs characteristics of broiler chickens. Broiler with chickens mix sex grouped in into five different treatment groups with 6 replications. Each replication consisted of 10 heads that were randomly distributed. The treatment used sago waste with cellulose enzyme addition of 0.75 g/kg of sago waste with usage level of 0.00%, 5.00%, 10.00%, 15.00% and 20.00% of total basal feed. The parameters observed were the characteristics of carcass and organ digestive of broiler chickens. Data were analyzed by Completely Randomized Design (CRD) with unidirectional pattern. If there was a significant mean difference between treatments, then proceed with Duncan's New Multiple Range Test (DMRT). The results showed that the addition of the sago waste with cellulose enzyme addition in feed gave a significant difference ($P < 0,05$) to broiler characteristic (slaughter weight, abdominal fat weight and abdominal fat percentage), but not significantly different to the organs digestive of broiler. The research concluded that the effect of using sago waste with enzyme cellulose addition of 0.75 g/kg were able to improve broiler carcass characteristic and more effective at the use of 15% level in broiler ration by not affecting the internal organs of broiler chickens.

Keywords: Sago Waste, Cellulose Enzyme, Broiler, Carcass and Internal Organs

Effects of a Natural Preparation Based on Kaolin, Olive Leaf, Turmeric and Mild Paprika on the Performance of Laying Hens

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ABSTRACT

The effects of 3% of a natural preparation based on 1.8% of kaolin, 1% olive leaf and 0.2% of mild paprika or turmeric were studied on 96 H&N strain laying hens from 35 to 42 weeks through an experimental design consisting of three treatments (control group without supplementation, kaolin-olive leaf-mild paprika group and kaolin-olive leaf-turmeric group). Per treatment, 8 replicates of 4 laying hens each were assigned to each of three treatments. Egg laying performances, egg qualities, egg shell strength and dry matter of droppings were recorded. Results showed that the experimental diets did not make any significant changes in laying performances. However, the kaolin-curcuma preparation improved slightly the egg mass (+3.1%), the feed consumption ratio (-2.4%) and the egg weight (+1.4%). Moreover, the kaolin-mild paprika diet significantly improved the yolk color intensity (+11% ; P=0.001), the shell thickness (+7.9% ; P=0.003) and decreased the rate of eggs large caliber by 38%. Experimental diets significantly improve the welfare by an increased dry matter content of droppings (+25.8% and + 15.1%, P=0.01), respectively for the preparation based on kaolin-turmeric and kaolin-paprika. Results of this experiment highlight the value of the clay and phytobiotic substances to improve the egg qualities and the welfare of laying hens.

Keywords: Kaolin, Turmeric, Mild Paprika, Olive Leaf, Laying Hens

Effect of Four Dietary Lysine Concentration on Body Weight Gain of Broiler Breeders (29-50 weeks of age) Kept at Four Different Temperatures

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ABSTRACT

Broiler breeders have a much greater body weight in relation to their egg output; also they are restrictedly fed in commercial practice. These differences with egg laying strains could result in significant differences in response. The specific objectives of the experiment were first to examine and explain the effects of four different ambient temperatures 21, 26, 29 and 32oC on the response of the breeders body weight gain. Second, to examine their response of four dietary lysine concentrations (35, 50, 65 and 90 g/kg crude protein). Third, to examine whether there were temperature x lysine concentration interaction in the responses of broiler breeders. 224 (308 Ross Breeder) at 29 week old hens were randomly allocated to 16 identical pens within eight controlled rooms. Two male birds were chosen at random and also placed in each pen. Single wheat based, lysine deficient diet that contained 151 g/kg CP was formulated. The body weight change of each pen of birds was recorded at the end of each period and expressed as g/bird day. A split-plot design was used in which four main plots (rooms). Throughout the experiment the allocated amounts of feed were always eaten. Male body weight gain was decreased linearly ($P<0.001$) by increasing temperature, but not ($P>0.05$) for female body weight gain. There were no significant differences ($P>0.05$) between the different lysine concentration levels in body weight gain, similarly there were no consistent ($P>0.05$) temperature x lysine concentration interactions.

Keywords: Broiler Breeders, Lysine, Temperature, Weight Gain

Addition of Feed Additive Binahong (Anredera *Cordifolia* (Ten.) Steenis) Leaf Meal into Diets on Growth Performance of Broiler Chickens

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ABSTRACT

This study aimed to determine the effect of binahong leaf meal as a feed additive on growth performance of broiler chickens. One hundred and ninety two DOC male broiler chickens were divided into 6 treatments with 4 replications and each replication consisted of 8 chickens. The treatment 1: basal diet (T0); treatment 2: basal diet+ tetracycline 50 ppm (T1); treatment 3, 4, 5, and 6 (T2, T3, T4, and T5) is a basal diet with binahong leaf meal as much as 1.0; 2.0; 4.0; and 8.0%. The data collected was feed intake, weight gain and feed conversion ratio of broiler chickens. The results showed that the binahong leaf meal up to 8% level had no significant effect on feed intake, but it had a significant effect on weight gain and feed conversion ratio of the broiler. Feed intake were 2883.48; 2870.35; 2955.53; 3015.76; 3008.06; and 2997.27 g/head/35 days for T0, T1, T2, T3, T4, and T5 respectively. Weight gain T0, T1, T2, T3, T4, and T5 were 1577.70; 1787.25; 1628.50; 1754.78; 1492.63 and 1294.25 g/head/35 days while feed conversion ratio were: 1.83; 1.61; 1.82; 1.72; 2.02 and 2.32 to T0, T1, T2, T3, T4, and T5. Utilization of binahong leaf meal at 2% increased weight gain and lower feed conversion of broiler compared to the control and were be able to give the same results when compared with the provision of 50 ppm tetracycline, addition of binahong leaf meal level 4 and 8% decrease weight gain and improve feed conversion of broiler chickens. It can be concluded that utilization of binahong leaf meal 2% can increase weight gain and lower feed conversion and had no effect on feed intake so that it can be used as an alternative to replace the use of antibiotics in broiler chicken feed.

Keywords: *Anredera cordifolia*, Feed Additive, Growth Performance, Broiler Chickens

Growth of Merawang Chicken with Arab Chicken Crossing andits Reciprocal at 1 to 10 Weeks of Age

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ABSTRACT

The diversity of local chickens in Indonesia is considerably high and very potential to be developed. Arab chickens are well known for their high egg production. Meanwhile, merawang chickens produce lower egg than arab chickens. Concerning their production capacity, arab and merawang chickens are crossed to evaluate the genetic potency through the heterocyst effect. A total of 147 MA DOC and 63 AM chickens were used and observed for bodyweight, growth rate, feed intake, and feed conversion in growth phase from 1 to 10 weeks of age. This experiment was randomized complete block designed with hatching periods as block. The average of bodyweight of MA chickens was higher than AM chickens. Meanwhile, the growth of MA and MA males was the same. At 10 weeks the average of bodyweight of MA and AM males were 846.5 g and 818.2 g, respectively, and not significant different ($P>0.05$). Meanwhile, at weeks 6-8 there was significant different ($P<0.05$) on bodyweight of MA and AM females but did not differ at 10 weeks. The average of bodyweight of MA and AM females at 10 week were 748.50 g and 733.73 g, accordingly. Meanwhile, bodyweight of AM and MA females differed only in week 6 to 8. Feed intake and conversion was the same between these two chickens. Growth rate of MA and AM chickens was the same. MA chickens were much efficient in converting feed than AM chickens. However, it was not significantly different as well as feed intake. In general, growth rate of MA and AM chickens was the same.

Keywords: Arab Chicken, Growth, Merawang Chicken, Reciprocal

Effect of *Curcuma domestica* Stock Solution on Layer Performance, Egg Quality, and Antioxidant Activity

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ABSTRACT

The aim of this research was to evaluate the effect of *Curcuma domestica* stock solution on layer performances, egg quality, and antioxidant activity of egg yolk. A total number of 32 *Lohman LSL-lite* white laying hens were divided into 4 treatments; there were 8 replication birds in individual cages. Laying hens were fed with 4 experimental diets, basal diet and diets with 1%, 2%, and 3% of *Curcuma domestica* 10% stock solution. Eggs were collected daily and analyzed of the eggs which were divided into three age stages, namely stage 1 (week 22 - 25), stage 2 (26 - 29), and stage 3 (30 - 33), respectively. The respective layer performances and egg quality were determined every week at every age stage. Antioxidant activity and color stability were determined every week at second age stage. The data was analysed using GLM in a windows-based software package, SAS version 9.1. Data was obtained from a different level, age stage, and interaction among level and age stage. The differences were tested by LSM. Significant level used in the group comparisons was set at $p<5\%$. The addition of *Curcuma domestica* 10% stock solution did significantly improve laying performances, egg quality, and antioxidant activity. Addition of 3% *Curcuma domestica* stock solution increased layer performances including water consumption, hen day egg production, and egg weight as well as antioxidant activity including FRAP, iron chelating, and DPPH on egg yolk. Moreover, the addition of 2% *Curcuma domestica* 10% stock solution increased egg shell thickness and egg shell strength. In summary, the use of 3% addition of *Curcuma domestica* 10% stock solution had ability to improve layer performances and antioxidant activity of egg yolk on laying hens.

Keywords: Antioxidant activity, *Curcuma domestica*, Egg quality, Laying hen, Performance

The Effect of Fermentation on the Nutritional Content of *Amorphophallus sp*. as Poultry Feed

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ABSTRACT

Amorphophallus is one of the underutilized aroid of Araceae family, which is not a cultivated plant, but high in productivity. The tuber contains a large amount of starch, but has antinutritional factors like oxalic acid leading on problems in palatability. This experiment was conducted to evaluate the effect of fermentation by *Bacillus subtilis* on nutritive values and oxalate content of *Amorphophallus* tuber. The *Amorphophallus* tubers were cleaned, sliced, dried, milled and then fermented with different level of *Bacillus subtilis*. This experiment used Completely Randomized Design with four treatments and three replicates. The treatments were 0, 10, 20, and 30% level of *Bacillus subtilis* inoculum. The parameters observed were dry matter, crude protein, crude fiber and oxalate content of *Amorphophallus* tuber. Results showed that dry matter, crude protein, crude fiber were not affected by the treatments but oxalate content of *Amorphophallus* were decreased along with increasing level of *Bacillus subtilis*. The lowest oxalate content of *Amorphophallus* was found on treatment with 20% of *Bacillus subtilis*.

Keywords: Fermentation, *Amorphophallus*, Nutritive value, Oxalate

Potency of Persimmon Fruit (*Dyospiros kaki*) As an Organic Antibiotic, Antifungal and Anthelmintic on the Livestock: an Analysis

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ABSTRACT

Indonesia has an abundant of plants which are potential to be used as natural medicine. An effort must be made to help maintain those potential medicinal plants in Indonesia. One method is to carry out researches on Indonesian medicinal plants to support the health of livestock so that the nutritional needs of the community are fulfilled. Previous Researches reported that Persimmon fruit (*Dyospiros kaki*) has a strong potential as a substitute for antibiotics, antifungal and anthelmintic use in livestock. This research was conducted to analyze the microbiological content of Persimmon fruit after going through the process of auto fermentation. Auto fermentation was carried out for 2 weeks in an anaerobic stainless tank. Microbiological identification was done at Bogor Veterinary Research Center. Identification of worm's eggs was carried out using Mc. Master Method. The results showed that *Dyospira kaki* fermentation was rich in *Bacillus sp* as much as 1.05 x 10^3 cfu / ml which is useful as an antibiotic and organic antifungal. The content of pathogenic bacteria *E coli* and *Staph aureus* were negative. The research on the use of herbs to reduce worms was done with 20% *Curcuma mangga*, 20% C*urcuma domestica*, 20% *Curcuma xanthorrhica*, 40% *Dyospiros kaki* fermented, This research showed that cows supplemented with 60 ml OSE from laboratory test, decreased the number of worm eggs. The percentage of decrease was 73%, from 220 worm's eggs to 60 eggs.

Keywords: *Dyospiros kaki*, autofermentation, *Bacillus sp*, antibiotic, antifungal, anthelmintic

Physical-Chemical, Microbial and Sensory Characteristics of Buffalo and Cattlegrinding Dry Cured Meat at Sunlight and Oven Drying Methods

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ABSTRACT

This research was aimed to determine and to compare the physical-chemical, microbiological and sensory characteristics of beef and buffalo jerky dried by sun drying and oven drying methods. This research used two treatment of dried beef and buffalo meat jerky (sun drying and oven drying methods). Each treatment consisted of three replication. Sun drying was did during 7 hours per day in 3 days, while oven drying was did during 15 hours at temperature of 50oC . The collected data were analyzed using Randomized Complete Block Design and the difference was tested by factorial method (2x2). The for analysys was software Statistical Package for the Social Sciences (SPSS). Ground beef jerky research results that show significantly different ($P<0.05$) in terms of drying methods on physico-chemical characteristics (pH, tenderness, fat content and protein content) and sensory (color). Judging from the type of meat physicochemical characteristics (levels of protein and ash content) and sensory (color, texture, and tenderness). Judging from the interaction between the method of drying the meat is kind of physico-chemical characteristics (protein content) and sensory (color and texture), while the test results showed no significant difference ($P>0.05$) was observed from drying methods physico-chemical characteristics (ash content, water content, and water activity), microbiological (total plate count) and sensory (taste, aroma , texture, tenderness and acceptance). Judging from the type of meat physico-chemical characteristics (tenderness, fat content, water content, and water activity), microbiological (total plate count) and sensory (taste, aroma, and acceptance). Judging from the interaction between the different types of meat drying method is physico-chemical characteristics (pH, tenderness, water content, ash content, fat content, and water activity), microbiological (total plate count), and sensory (taste, aroma, tenderness and acceptance).

Keyords: Buffalo Meat and Beef Jerky, Drying, Physico-Clams Characteristics, Microbiological and Sensory

Isolation and Identification of Fungi Type from Juice of Cabbage Waste as Probiotic Agency

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ABSTRACT

The aim of research is to identify type of fungi that isolated from fermented juice cabbage waste as a probiotic agent. The research design is descriptive research. The study began by isolating fungi from fermented juice cabbage waste with *Saboroud Glucose Agar (SGA)* media added by 0,1 g/liter tetracycline antibiotic to prevent growth of bacteria and incubated for 72 hours in an incubator at 37 ° C temperature. Purification of fungi colony is done by observing fungal colonies that grewth with different characteristics, isolated and re-inoculated repeatedly until the pure culture was obtained. Fungi identification is done by macroscopic morphology observed in each colony. Morphological observations of fungi include color observation, surface of colony, texture and the edge of the colony. Identification of fungi characteristics was based on identification book. Identification results obtained 2 types of fungis which are first the mold *Rhizopus oryzae (R. oryzae)* and second the yeast *Saccharomyces cerevisiae (S. cerevisiae).* According to growth characteristic, both of types of that fungis are resistant to acid with the pH range 2-5, then can be made as probiotic agent for poultry. Conclusion of study that this study obtained 2 types of fungis which are mold *Rhizopus oryzae* and yeast *Saccharomyces cerevisiae* that potential as a probiotic agent.

Keywords: waste cabbage, fungi, isolation, identification, probiotic

Provision of Bangun-Bangun Leaf (C*oleus Amboinicus Lour*) on the Feed Pregnance Sow to Increase Productivity

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ABSTRACT

In Bali, pig livestock that is maintained by the community, especially people in rural areas. There are two types of maintenance to produce seeds and meat (fattening). Pigs are prolific animals, which capable to produce many piglets in every birth. Constraints that often arise are the limited amount of milk produced that often interfere the growth of piglets. *Bangun-bangun* leave is one of million plants that have many benefits and one of them can launch milk during sows breastfeeding. The study was conducted in Puhu village, Payangan district, Gianyar, using 24 pregnant sows divided into three treatments. P0: started from pregnant sows and breastfeeding sows was feed as the same as farmers do (control). P1: feed was added with bangun-bangun leaves by 1% of the weight of the feeds. P2: like P1 plus Bio B 2 cc/l drinking water. The results showed that the birth weight of each treatment (P0, P1 and P2): 0.78, 1.36 and 1.50 kg/head, respectively and between P0 and P1 and P2 were significantly different (P< 0.05), while weaning weight achieved from each treatments were: (P0): 8,35, (P1): 9,53 and (P2): 10,8 kg/head also significantly different among treatment (P< 0,05). Piglet mortality between control (P0) and other treatments each P1 and P2 were 18.43%, 17.39% and 14.58%, respectively.

Keywords: Bangun-bangun leaves, milk, pigs, birth weight, weaning weight

Utilization of Cattle Waste for Replaced Rice Bran on Native Chicken Feed to Reduce Feed Convertion Ratio (FCR)

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ABSTRACT

The main problem faced by laying chicken breeders is the rising price of food consistently while the price of eggs tends to be stable and often decreases. To anticipate this condition it is needed to be a breakthrough in overcoming the feed issues, especially bran. Utilization of cattle waste as livestock feed has been done by several people, but the product given is in the form which has not been processed or just dried it. Cattle fermented livestock wastes as poultry feed is expected to reduce feed costs incurred. The research was conducted in Jehem village, Tembuku District of Bangli Regency used laying hen as many as 250 tails divided into 5 treatments namely (P0) control = as usual standard feed ; P1: bran replaced by 5% livestock waste; P2: bran replaced by 10% of livestock waste; P3: P1 + probiotic Bio L 2 cc/litre of drinking water and P4: P2 + probiotic Bio L 2 cc/litre of drinking water. The average egg production after 180 days of production was 105.8 (P0), 109.1 (P1), 102.6 (P2), 106.3 (P3) and 108 grains (P4), those treatments were not significantly different (P> 0.05). Also Henday's results (%) where P0; P1; P2; P3 and P4 yield 58.79; 60,60; 56.98; 59.05 and 59.57%, respectively and among those treatments were not significantly different (P> 0.05). While FCR for P0 is (77,52); P1: (79,60); P2: (78,45); P3: (73.75) and P4: (74.45) gr/head, and between P3 and P4 had a lower FCR (P <0.05) when it is compared to the FCR of P0's treatment, P1 and P2. This means the use of Bio L probiotics can reduce the consumption of feed (FCR), and the use of livestock waste up to 10% as a substitute of bran does not affect productivity.

Keywords: native chicken, cattle waste, productivity, feed conversion ratio

Effect of Cage Densities and Betaine Supplementation on Nitrogen Retention in Quails

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ABSTRACT

Application of a high cage density would save the space but has many negative impacts such as causing stress, leads to digestion, absorption, acid-base balance and osmotic disturbances. Betaine is a compatible osmolyte which exerts beneficial functions in assisting the birds encountering the osmotic stress and has been shown to improve nutrient digestion and absorption. The objective of the experiment was to investigate the effect of cage density and betaine supplementation on N (N) retention in Japanese quails (*Coturnix coturnix japonica*). A total of 408 laying quails aged 23 weeks (average body weight of 154.6±5.0 g) was used in this experiment and subsequently 48 quails were used in the measurement of N retention. The experiment was designed to completely randomized design of factorial 3×2 with 4 replicates. The quails were allocated to 24 cages with three cage densities consisted of 40, 45, and 50 birds/m2 equivalent to 250, 222 and 200 cm^2/birds, respectively, which were represented by 15, 17, and 19 birds per cage (cage area of 0.375 m^2). The birds were fed a diet without or with supplementation of 0.12% betaine. The N retention was measured by a total collection method using 2 quails from each replicate. The data were subjected to analysis of variance, and when the treatment indicated significant effect, it was continued to Duncan's test. There was no interaction between cage density and betaine supplementation on N retention. Furthermore, increasing cage density from 40 to 50 birds/m^2 did not decrease N consumption, excretion and retention, indicating that N was absorbed according to the birds' requirement. Betaine supplementation did not affect N consumption, excretion and retention. It can be concluded that cage density 50 birds/m^2 can be applied to quails, while betaine supplementation did not affect N retention in quails.

Keywords: Quails, cage density, betaine, nitrogen retention

Growth Performance of Broiler Chickens fed with Crude Glycerin from Large and Medium Scale Biodiesel Producers in Thailand

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ABSTRACT

The aim of this study was to understand the effect of crude glycerin from different sources on growth performance of broilers. Crude glycerins were derived from medium (38.36% glycerol and 23.91% crude fat) (CGM) and large (88.49% glycerol and 1.73% crude fat) (CGL) scale Thailand's biodiesel producers. A number of 180 male Ross-308 day old chicks were randomly allocated into 3 treatments group consisting 4 replication each. One way ANOVA in a completely randomized design with post-hoc tukey was used in this experiment. The treatments diet were: basal diet (T1), diet with 5% CGM inclusion (T2), and diet with 5% CGL inclusion (T3). The growth performances, such as, feed intake, body weight gain, and feed conversion ratio (FCR) were observed every week in 6 weeks rearing period. During 1 to 21 days, broilers received T2 had the highest feed intake and body weight gain, meanwhile, T3 had the lowest feed intake and similar body weight gain to the T1, consequently, T3 had the best FCR. In 22 to 42 days, crude glycerin did not give any effect to the growth performances. Overall result from day 1 to day 42, crude glycerins did not give any significant effect ($P > 0.05$) to the feed intake, body weight gain, and FCR, however, it tended to give better feed efficiency as it had lower FCR than those received control diet. In conclusion, both crude glycerins did not give any negative effect to the growth performance and it could be applied in the broiler's diet.

Keywords: Broiler chicken, Crude glycerin, Growth performance

Study of Nutrient Requirement of Native Chicken Fed by Free Choice Feeding System at a Grower Phase

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ABSTRACT

The aim of this study was to determine the basic of nutrient requirement and the performance of native chicken of grower phase (6 to 14 weeks) by free choice feeding system. Ninety-two day old chicks were randomly divided into 4 cages and 23 chicks each. The chicks fed by free choice feeding system with: corn meal, rice brain, soybean meal, fish meal, lime stone, vitamin premix available separately. The parameter collected were feed consumption, nutrient consumption (energy, crude protein, methionine, lysine, calcium, phosphor, crude fiber) and the performance of chicken (body weight and percentage of carcass). The result showed that feed consumption was 2684.36 g/bird/8 weeks; ME 2990.55 kcal/kg; crude protein 15.53%; methionine 0.02%; lysine 0.05%; Ca 1.60%; P 0.60%; and crude fiber 7.30%. The performance of chicks on body weight at 14 weeks was 659.23 g/bird; gain weight 436.95 g/bird/8 weeks; FCR 6.14; carcass weight 388.63 g; and carcass percentage 57.57%. It can be concluded that native chicken was able to fulfill nutrient requirement as same as white or brown layer nutrient requirement based on NRC (1994) except methionine and lysine.

Keywords: native chicken, free choice feeding, nutrient consumption, chicken perfomance

Formulation and Characterization of Cinnamon Bark Essential Oil (*Cinnamomum burmanii*) Nanoemulsion as Poultry Feed Additive Candidate

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ABSTRACT

This study was conducted to formulate and to characterize nanoemulsion of cinnamon (*Cinnamomum burmanii*) bark essential oil (CBO). The compositions of cinnamon essential oil were qualitatively analyzed using Gas Chromatography-Mass Spectrophotometry (GC-MS). The formulations which consisted of CBO, virgin coconut oil (VCO), surfactant (Tween 80), and co-surfactant (PEG 400) were investigated to prepare emulsion in nano-meter size. The nanoemulsion was developed using low energy emulsification method. The transmittance value was carried out to choose the best nanoemulsion formulation. Droplet size, polydispersity index (PI), zeta potential, and morphology were studied to characterize the nanoemulsion formulation. Based on the transmittance value after dispersion into aqueous phase, formulation consisting of CBO, VCO, Tween 80, PEG 400 (0.75:0.25:4:1 v/v) was chose. The formulation of nanoemulsion having mean droplet diameters of 20.2 nm with polydispersity index (PI) 0.463 and potential zeta -0.8 mV. The nanoemulsion morphology using transmission electron microscopy (TEM) imaging was demonstrated the oil droplets in nano-scale. This study showed that nanoemulsion of cinnamon bark essential oil could be applied as poultry feed additive.

Keywords: Cinnamon, Essential Oil, Nanoemulsion

Growth Performance of Male Mojosari-Alabio Crossbred Ducks Fed Diets Containing Green Algae (*Ulva fasciata delile*) in Tropical Area

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ABSTRACT

This study was aimed to investigate the effectiveness of feeding green algae (*Ulva fasciata delile*) as alternative feed additive to maximize the growth performance of local ducks in tropical area. Forty eight male day old ducks of Mojosari-Alabio Crossbred ducks were allocated to four dietary treatments, with three replications with four ducks per replicate pen, in tropical-opened poultry house. The ducks were given one of four experimental diets: basal diet without feed additive supplementation (UF-0; control) or control diets with *Ulva fasciata delile* (UF) supplementation with the levels of 10 g/kg (UF-1), 20 g/kg (UF-2), or 30 g/kg (UF-3). The diets and drinking water were provided *ad libitum* for 8 weeks. Variables that observed were: feed consumption, body weight gain, feed conversion ratio (FCR), slaughter weight, and income over feed and duck cost. The obtained data were statistically analysed using Oneway ANOVA. Duncan's new Multiple Range Test was subsequently used to separate data with significant difference. Results showed 30 g/kg GA supplementation increased ($P<0.05$) body weight gain and slaughter weight, reduced feed conversion ratio ($P<0.05$), improved income over feed and duck cost ($P<0.05$), without affecting feed consumption. These results suggest that green algae might be potential as an alternative feed additive to maximize growth performance of male local Mojosari-Alabio Crossbred ducks.

Keywords: Mojosari-Alabio crosbred ducks, Green algae, Growth performance, Tropical area

The Quality of Salted Egg Using Kemangi Leaf (*Ocimum basillicum L.*)

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ABSTRACT

The objective of this research were to determine the optimal percentage of kemangi leaf addition on salted egg. The method used in this research were using laboratory experiment consisted 5 treatments and 3 replications. The used of kemangi leaf in salted egg formulation were 0%, 5%, 10%,15%, and 20%. The data were analyzed using analysis of variance (ANOVA) and continued by Duncan Multiple Range Test. The result showed that the addition of kemangi leaf gave highly significant($P<0.01$) on the quality of salted egg including reduced level of moisture content, reduced level of pH, and increased antioxidant activity of salted egg. The conclusion of this research was the used 20% kemangi leaf gave the best quality of salted egg with water activity 0.94, moisture content 84.83%, pH 7.11 and antioxidant activity 7.73%

Keywords: Salted egg, kemangi leaf, antioxidant activity

Isolation of Bacteria Producing Enzyme Collagenase from Waste of Pufferfish (*Arothon reticularis*) Skin

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ABSTRACT

Puffer fish is one of the waste fisheries catch. It is not only can be a waste of fisheries that is difficult to degrade, but also can be used as a source of collagenolytic bacteria.The objective of this research was to obtain bacterial isolates from the waste of puffer fish skin (*Arothon reticularis*) as one of the sources of collagenases. Sample from puffer fish skin waste was inoculated in enrichment media and colonies producing clear zone in skim milk agar were selected and identified as *B. cereus* BRAW_KM. Medium optimization to grow the selected collagenase producing bacterial strain was checked with various parameters such as temperature (at 31 and 33^{o}C), pH (8 to 9), substrate concentration (15 g/L), osmotic pressure (4%), inoculum concentration (8%), and agitation speed (100 to 120 rpm). The bacteria produced extracellularly collagenase enzymes in enrichment media and its collagenase activity was 1,029 U/mg.

Keywords: Bacteria, Collagenase, Isolation, Puffer fish skin, Waste

Effect of Heating on Antioxidant Activity on Edible Bird Nest

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ABSTRACT

Edible bird nest (EBN) is a traditional Chinese food that is nutritious and therapeutic since ancient times. This study found that raw EBN has crude protein content of 58.28%. The aim of this research is to study the effect of heat treatment with different time (30 min, 60 min, 120 min and 180 min) and temperature (60°C, 80°C and 100°C) on the protein solubility, degree of hydrolysis (DH), peptide content and also the antioxidant activity of EBN analyzed through DPPH, ABTS and FRAP assays. According to the results obtained, protein solubility (3,302.56 μg/ml), DH (0.95%), peptide content (820.33 μg/ml), DPPH (46.15%), ABTS (94.21%) and FRAP (3.581 mgTEAC/g) activities of EBN hydrolysates showed the highest values at temperature 100°C for 180 min. This study showed that the positive results increased when the heating time and temperature applied were increased until the optimum level had reached at 100°C with duration time of 120 min- 180 min.In conclusion, EBN has the potential to be used in the production of innovative product from the point of its fucntional antioxidant properties that can benefit the consumer's health.

Keywords: Edible bird's nest, heat treatment, antioxidant

Physical and Sensory Properties of Gluten-Free Modified Cassava Flour-Based Cookies

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ABSTRACT

Recently, food nutritionists and technologists have been challenged to develop gluten-free bakery products, namely cookies, cakes and breads. This study was performed to assess the physical and sensory properties of gluten-free cookies. Composite flour based on modified cassava flour (MCF) has been used to replace wheat flour (WF). The addition of isolated soy protein (ISP) and hydrocolloids such as xanthan gum (XG) or guar gum (GG) were previously reported to improve sensory quality of gluten-free cookies. The blending of MCF with rice flour (RF), ISP and XG or GG in different percentage to produce choco-chips cookies was reported in this study. Five formulations of cookies were prepared from: (a) control (100% WF), (b) MCF 70%, RF 25%, ISP 5%, XG 2% flour based, (c) MCF 70%, RF 25%, ISP 5%, XG 3% flour based, (d) MCF 70%, RF 25%, ISP 5%, GG 2% flour based, and (e) MCF 70%, RF 25%, ISP 5%, GG 3% flour based. Cookies were evaluated for physical analysis (diameter, thickness, spread ratio, breaking strengh and color analysis) and subjected to consumer acceptance by sensory analysis (color, flavor, texture, taste, and overall acceptability). Cookies prepared from 70% modified cassava flour, 25% rice flour, 5% isolated soy protein and addition of 2% xanthan gum were more acceptable than cookies prepared from other formulations and significantly different ($P \leq 0.05$) from control-wheat-flour cookies.

Keywords: Cookies, Gluten-free cookies, Modified cassava flour, mocaf

Food Safety on Meat Products Based on Coliform Contamination

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ABSTRACT

Meats commonly consumed by the Indonesian people are derived from cattle, buffalo, sheep, goats, chickens, ducks and rabbits. Meat is needed to fulfill nutritional needs. Meat can be processed into products such as minced meat, nuggets, corned beef, meatball, sausage and crispy fried chicken. Consumers interested in buying crispy fried chicken sold by street vendors without paying attention into sanitation aspects. Minced meat and corned beef can be obtained in traditional markets. The purpose of this research is to investigate the presence of coliform bacterial contamination on meat products (crispy fried chicken, corned beef, chickens carcass) sold in traditional and modern markets. This research is an explorative study. The sample of crispy fried chicken was obtained from street vendors, while minced meat and corned beef in sachets were obtained from modern market with five replications of each samples. Parameters of this research were the number of coliforms using MPN and observation on fecal and non-fecal colonies. The data obtained analyzed descriptively and compared with Maximum Limit of Microbial contamination of BPOM in 2009 The results showed that the amount of coliform of crispy fried chicken, corned beef and chicken carcass were safe to consume which were lower than the requirement of BPOM 2009 that was 10 MPN/g. However, non-fecal and fecal colonies found were needed to be anticipated.

Keywords: Meat, Sanitation, MPN, Fecal, Non-fecal

Chemical and sensory quality of milk fermented by starter combination of *Lactobacillus plantarum* Dad 13, *Lactococcus lactis*, and Yeast

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ABSTRACT

Lactobacillus plantarum Dad 13 is a typical of bacteria from "Dadih" (traditional fermented milk from West Sumatra, Indonesia). The purpose of this study was to evaluate the effect of starter combination of *Lactobacillus plantarum Dad* 13, *Lactococcus lactis* and yeast (*Saccharomyces cerevisiae* and *Kluyveromyces marxianus*) on the chemical and sensory quality of fermented milk. The nine combinations of starter to produce fermented milk were: 1) *L. plantarum* Dad 13, 2) *L. plantarum* Dad 13 + *L.lactis*, 3) *L. plantarum* Dad 13 + *S. cerevisiae*, 4) *L. plantarum* Dad 13 + *K. marxianus*, 5) *L. plantarum* Dad 13 + *L. lactis* + *S. cerevisiae*, 6) *L. plantarum* Dad 13 + *L.lactis* + *K. marxianus*, 7) *L.lactis*, 8) *L. lactis* + *S. cerevisiae*, 9) *L. lactis* + *K. marxianus*. The evaluated chemical quality of fermented milk included total solid, fat and protein, whereas the sensory quality included taste, aroma, texture and hedonic test. The results showed that combination of starter had no effect on total solid, fat, and protein of fermented milk. However, the combination of starter could affect on taste, aroma, texture and hedonic test of fermented milk ($p<0.05$). Fermented milk from the a single starter of *L. plantarum* Dad 13 had the lowest score ($p<0.05$) for the taste, aroma, texture and hedonic test, while other product from the combination of *L. Plantarum* Dad 13 + *L. lactis* + *K. marxianus* had highest score in taste ($p<0.05$). In conclusion, the combination of starter had no adverse effect on the chemical quality but may affect on the sensory quality of fermented milk.

Keywords: Fermented milk, Chemical quality, Sensory quality, Starter combination

Application of Carrageenan on Quail Nugget without Seasoning Stored At Room Temperature

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ABSTRACT

The instability of dough emulsion system has been a problem that often occurred in meat processing. Preventative measures for the emulsion system to be non-breakable and durable were the addition of stabilizers or binders. One of the natural binding agents and also having antibacterial activity that can be used in nugget processing is carrageenan. The purpose of this study was to determine the effect of carrageenan in processing quail nugget stored at room temperature to the early detection of rottenness. The experiment was conducted using Orthogonal Polynomial Test with five treatments of the addition of carrageenan on quail nuggets: (P1 = 0% carrageenan); (P3 = 1% carrageenan), (P4 = 1.5% carrageenan), (P5 = 2% carrageenan) with four replications. Parameters in this study were total bacterial, initial rottenness, and pH. The results showed that P4 yielded the best quail nugget with total bacteria $40x10^5$ CFU/gr, initial time of decay 251,25 minutes, with pH 6,42.

Keywords: Carrageenan, Quail nugget, Bacteria, Initial rottenness, pH

Effects of Addition of Seaweed (*Kappaphycus alvarezii*), Fish Gelatin and Chicken Feet Gelatin on the Quality Characteristics of Chicken Sausages

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ABSTRACT:

The objective of this study was to investigate the effects of the addition of seaweed (*Kappaphycus alvarezii*), fish gelatin (FG) and chicken feet gelatin (CFG) on the quality characteristics of chicken sausages. Two optimum formulations from the Response Surface Methodology (RSM) T1 (10% seaweed, 3.81% FG, 7.63% CFG) and T2 (2.57% seaweed, 5% FG, 7.63% CFG) were studied and the quality characteristics were evaluated against control chicken sausage (C). The quality aspects of chicken sausage were analysed included texture profile analysis (TPA), proximate analysis and sensory characteristics. Lower TPA values ($P<0.05$) were recorded for T1 and T2 in comparison to C during storage time. The addition of seaweed, fish gelatin and CFG increased ($P<0.05$) ash and protein but reduced ($P<0.05$) fat content. No significant differences ($P>0.05$) were observed between all samples for colour and taste in sensory evaluation. This study showed that addition of seaweed, fish gelatin and chicken feet gelatin mixture at optimum level produced better quality chicken sausages.

Keywords: *Kappaphycus alvarezii*, Fish gelatin, Chicken feet gelatin, Sausage, Optimization

Properties of Goat Milk Kefir Supplemented with Glucomannan from Porang (*Amorphophallus oncophyllus*) Tuber

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ABSTRACT

Properties of kefir depends on the kinds of milk as raw material, grain sources and other components which to be added within the fermentation process. Glucomannan is known as stabilizer and thickener that to be added in food processing. The objectives of this study were to evaluated the effect of glucomannan supplementation in fermentation process on microbiological, chemical and physical characteristics of goat milk kefir. Goat milk kefir were prepared by goat milk; goat milk+whey protein concentrate (WPC); goat milk+ glucomannan; and goat milk+WPC+glucomannan. The results showed that there were no effect of WPC, glucomannan or combination of WPC and glucomannan supplementation on kefir characteristics including the total lactic acid bacteria, yeast and total count, moisture and alcohol contents, acidity, pH and viscosity. The viscosity of kefir supplemented with combination of WPC and glucomannan tend to have a lower viscosity compared to kefir supplemented with WPC or glucomannan individually, although it was not significantly different. In conclusion, supplementation of WPC and glucomannan from porang tuber in fermentation process had no adverse effect on microbiological, chemical and physical characteristics of goat milk kefir.

Keywords: Goat milk kefir, Microbiological quality, Chemical quality, Physical quality, Porang glucomannan

The Use of Manure from Cattle Fed Different Level of Concentrate for *Musa domestica* Larvae Production and Its Utilisation as Chicken Feed

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ABSTRACT

Utilizing cattle manure for house fly larvae production before composted may provide additional income for cattle farmer since larvae can be used as chicken feed. Larvae production, however, is highly dependent upon the quality of cattle manure. Two consecutive experiments have been conducted with the purpose to investigate : 1) the use of manure from cattle fed two levels of concentrate with or without combination of other growth media for house fly larvae production, and 2) the effect of feeding different levels of house fly larvae on egg production of native chicken. In the 1st experiment, as many as 12 Ongole heifers weighing 236 ± 17 kg were grouped into two groups of six heifers to receive either 1 or 2% BW of concentrate containing 15 CP. Manure from each heifer was then used as growth media for house fly larvae with or without combination either with chicken manure or discarded fish cut. Larvae production was recorded and thereafter used as chicken feed in the 2nd experiment in increasing level of larvae proportion in the diet, i.e. 0, 5, 10, 15 and 20% of the total feed offered to five groups of 20 native chicken. The basal feed was commercial complete feed for layer given after larvae was completely consumed. Egg production and weight were recorded. Result showed that larvae production was in the range 10.23-18.01g per kg manure and manure from Ongole cattle fed both 1 or 2% BW were not improved ($P>0.05$) when combined with discarded fish cut and significantly reduced ($P<0.01$) when combined with chicken manure. Egg production and weight did not differ ($P>0.05$) with the inclusion of larvae in the diet up to 15%, but reduced at 20%. It can be concluded that manure of concentrate-fed Ongole cattle can be used as growth media for house fly larvae without a need to be combined with other growth media and the larvae produced is prospective to replace as much as 15% of commercial feed for layers.

Keywords: Native chicken, Egg production, Manure quality

The Effect of Merapi Volcanic Ash Addition on the Quality of Liquid Organic Biofertilizer Made from Goat and Sheep Feces

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ABSTRACT

The liquid manure from livestock feces that made for biofertilizer is one of the alternatives way of organic agriculture that has to be increased the efficiency and due to the cheaper labor purposes. Moreover, it can increase the content of plant nutrient such as Nitrogen, Potassium, and especially Phosphor. Ash gives a positive effect on the plant through indirect influence on the ground by increasing the availability of Phosphor content. Goat and sheep feces contain an amount of plant nutrients and can be utilized as liquid organic biofertilizer. Due to containing some minerals, Merapi Volcanic ash has a potential to improve the quality of liquid organic biofertilizer. This research was conducted to determine the effect of Merapi volcanic ash on the improvement of quality for liquid organic biofertilizer made from goat and sheep feces. This research was performed at the Faculty of Animal Science, Universitas Gadjah Mada. The data were statistically analyzed using Randomized Complete Design (CRD) pattern of factorial with the parameter of the volcanic ash proportion (0%, 1%, 3% and 5%), and the feces type (goat and sheep). This research was described the physical, chemical, biological, and microbiology aspects of the biofertilizer product. The data showed that the addition of volcanic ash to the liquid organic biofertilizer had given a good effect on the levels of organic carbon and phosphor contents of the product. Moreover, stem diameter of Ipomoea reptans, the number of leaves, dry weight, and the length of the root which added by the product has showing increased. Biofertilizer with the addition of 5% with volcanic ash in goat feces gave a better effect on the plant growth.

Keywords: Goat feces, Sheep feces, Liquid organic biofertilizer, Merapi volcanic ash

Optimization of Indonesian Goat Satay Gridiron with Velocity Airflow Control at 40 Skewers Capacity

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ABSTRACT

Effects of different airflow velocity at 2 m/s, 4 m/s, and 6 m/s on the quality characteristics of Indonesian goat satay were investigated. The purpose of this study was to prevent the quality deterioration caused by overcooking process on traditional satay machine which depend on it airflow velocity by using a new design of satay machine with 40 skewers capacity. The results of this study indicated that the use of new machine with controllable airflow can minimize textural quality loss caused by high airflow velocity than that of the conventional satay machine. The use of new satay machine with controllable airflow velocity at 2 m/s showed lower tenderness on the goat meat satay than that of the control ($P<0.05$). Airflow velocity at 2 m/s for 10 min resulted in the highest scores of lightness (CIE L*), lowest texture ($P<0.05$) among all treatments and better preference sensory evaluation than those of conventional method ($P<0.05$). Moreover, this study indicated that the higher airflow velocities apply to the Indonesian goat satay could result in harder texture of meat, darker colour, and also lower overall sensory scores in consumer acceptance.

Keywords: Goat satay, Velocity airflow, Tenderness, Colour, Overall sensory evaluation

Physical and Sensory Characteristics of Broiler Chicken Sausages with Addition of *Spirulina* (*Arthrospira Platensis*)

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ABSTRACT

This study aims to determine the physical and sensory characteristics of broiler chicken sausage with the addition of *Spirulina* (*Arthrospira platensis*). The main ingredients of sausage were broiler chicken meat, tapioca flour, skim milk powder, angkak, *Spirulina*, tapioca flour, and spices. The additions levels of *Spirulina* were: 0, 250, and 500 ppm. The observed variables were physical characteristics including pH, water holding capacity, and tenderness, and sensory characteristics including color, taste, aroma, texture, firmness, and acceptability. The pH test of sausage was performed with pH meter. The water holding capacity was analyzed by using the modification of Hamm method, while the tenderness test of sausage was measured by penetrometer. The sensory characteristics test of sausage was performed by panelist method. The data of physical characteristics were analyzed statistically using analysis of variance. The data of sensory characteristics were analyzed by using nonparametric test with Kruskal-Wallis test. The addition of *Spirulina* at the levels of 250 and 500 ppm increased significantly the water holding capacity and tenderness of broiler chicken sausage, but it did not effect on the pH, taste, aroma, and texture of broiler chicken sausage. The conclusions of this study were the addition of *Spirulina* influenced physical characteristics (water holding capacity and tenderness) and sensory characteristics (color, firmness, and acceptability) of broiler chicken sausage.

Keywords: Broiler chicken sausage, *Spirulina*, Physical characteristics, Sensory characteristics

Increased Physical and Morphological Properties of *Edible Film* Bovine Split Hide Gelatin With The Addition Of SPI And Transglutaminase

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ABSTRACT

Edible films are made of a thin layer of edible material, used as a food coating that to inhibit migration of air and extend the shelf life.The aim of this study was to determine differences in the nature of edible film from bovine split hide gelatin with supplemented soy protein isolate (SPI) and the enzyme transglutaminase. The materials used bovine split hide gelatin (BSHG), Soy protein isolate (SPI), enzyme transglutaminase (TGase) and glycerol. The materials were divided into three treatments T0, T1 and T2 (BSHG + Glycerol 20%, BSHG 80% + SPI 20% + glycerol 20%, BSHG 80% + SPI 20% + TGase 20U + glycerol 20%). Research using the Completely Randomized Design unidirectional pattern. The results showed the treatment effect on elongation and tensile strength and WVTR values edible film. The addition of SPI and transglutaminase enzyme and glycerol caused the film becomes more elastic and more homogeneous film surface and compact.

Keywords: Bovine split hide, Edible film, Enzyme transglutaminase, Soy protein isolate

The Effect of Kinds of Sugar on Chemical and Physical Quality of Ground Beef Jerky with Sun Drying

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ABSTRACT

Sugar is one of food preservatives. There are kinds of sugar source in Indonesia, namely coconut tree, palm tree and sugar cane. Each sugar has different characteristics, including color, taste, and sweetness. This study was conducted to determine the effect of kinds of sugar on chemical and physical quality of ground beef jerky with sun drying. The materials used were ground beef, sugars, and spices which include salt, garlic, coriander, belching and galangal. There were 3 kinds of sugar as a treatment, namely coconut sugar, palm sugar and sugar cane. Ground beef was mixed with sugar and spices until being homogeneous. The dough was cured for 24 hours, then placed on a baking sheet, coated with aluminum foil and flaked with a thickness of approximately 2 mm. The dough was then dried in the sun drying for 6 hours per day for 3 days, with a temperature of approximately 50^0C. The variables observed were chemical composition including moisture, protein and fat contents, and physical quality including pH value and tenderness. The data were analyzed by using a oneway classification of Completely Randomized Design and continued by Duncan's Multiple Ranges Test. The results analysis showed that the kinds of sugar had no significant effect on moisture, protein, and fat content of ground beef jerky flesh ($P>0.05$). The kinds of sugar also gave no significant effect on pH value and tenderness of ground beef jerky ($P>0.05$). The results of this study could be concluded that the three kinds of sugar can be used as a material of making ground beef jerky without affecting the chemical and physical quality of ground beef jerky.

Keywords: Ground beef, Jerky, Kinds of sugar, Chemival quality, Physical quality

Analysis of Component and Water Holding Capacity from Distillate Waste of Citronella (*Cymbopogon nardus*) as A Litter Material

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ABSTRACT

This study aimed to examine the components and water absorption of distillation waste of citronella essential oil. The method used for water content from the waste of citronella essential oil was a proximate method, the method used for the capacity to absorb water from the waste of citronella essential oil was a vacuum method. Furthermore, the method used for experimental bioactive content was densitometry method. Data were analyzed using descriptive analysis. The results showed that the water content and water holding capacity of the waste from citronella essential oil was 11.25% ± 0.007 water content and water holding capacity 50.25% ± 4.870. While the water content of rice husk was 9.87 ± 0.423 and water holding capacity was 65.98 ± 0.325. Based on the qualitative analysis from the waste of citronella essential oil obtained the *Geraniol* content. the waste of citronella essential oils have higher water content and lower water holding capacity than rice husks.

Keywords: distillate waste of citronella, litter, water content, water holding capacity, bioactive compounds

The Quality of Processed Eggs Produced by Tenant of the Iptek for Poultry Agribusiness Entrepreneurship

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ABSTRACT

The purpose of this study was to determine customers preference. There was three product of tenant, *goji* chips (GC) , shredded egg (*abon* chicken egg/ACE) and *matra* egg (salted/ME), produced by tenant of the IPTEK for poultry agribusiness entrepreneurship programs . All products tested by 100 panelists . The variables measured is the shape, taste, color, crispness / texture, and smell. With hedonic scale 1-7: very not like, dislike, rather dislike, neutral, somewhat like, like and very like. All data were analyzed descriptively. Average assessments on GC are 5.40; 5.67; 5.33; 5.97 and 5.12. Average assessments on ACE : 5.25; 5.15; 5.36; 5.13 and 5.21. Average assessment on ME are 5.35; 4.96; 5.26; 4.89 and 4.94. Of the 100 panelists were very like of the **design** GE 20 %, 16 % ME 25 %. Very like of the **taste** of GC 21%, ACE 18 % and ME 19 %. Very like of the **colour** of GC 18 % , ACE 17% and ME 24%. Very like of the **texture** of GC 35%, ACE 14% and ME dimension of 17%. Very like of the **smell** GC 14 %, ACE 17 % and ME 21%. The conclusion of this study are, all processed of egg products , need to be improved for more favored by customers.

Keywords: Customer, preference, processed eggs, tenant

Effect of Particle Size of Egg Shell Mash with Treated Phosphoric Acid in Feed on Performance, and Status of Blood Plasma

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ABSTRACT

This research aimsis to study the effect of particle size of egg shell mash was treated with different levels of phosphoric acid on egg shell waste as a source of minerals in laying hens on performance, eggs production, and levels of Ca & P blood plasm of laying hens. Eggshell waste was collected from bakery, and separated into three treatments (K0/control) eggs shell washed with hot water of 80°C; (K1) eggs shell washed with hot water of 80°C + 3% phosphoric acid, (K2) eggs shell washed with hot water of 80°C + 6% phosphoric acid. Egg shell was grounded into two particle mamely sizes 1 mm and 3 mm. Completely randomized design factorial (3x2) is used in biological tests used 72 chickens laying pullet phase. Chickens were randomly divided into 3 groups of phosphoric acid treatment and two measures of particle size. Each treatment was repeated three times using four laying chickens. The data was collected are feed consumption, body weight, egg production, and Ca and P levels in the blood plasm. Data were analyzed with analysis of variance according to completely randomized factorial design (3x2) in the form (3) treatment of phosphoric acid x (2) treatments particle size followed by Duncan's different test to determine the effect of treatment. Results showed that greater levels of phosphoric acid used to wash the egg shell mash has effect significantly ($P<0.01$) on chicken body weight, blood plasm levels of calcium, phosphorus content of blood plasm. And not affected on feed consumption, calcium intake, and egg production. Difference particle sizes of egg shell mash is not affected on feed consumption, calcium intake, body weight, phosphorus content of blood plasm, and egg production, but significantly different ($P<0.01$) on blood plasm calcium levels. There was no interaction between phosphoric acid treatment with particle size of egg shell mash on performance, and levels of Ca & P blood plasm of laying hens.

Keywords: Egg shell powder, Phosphoric acid, Performance laying hens, Levels of Ca and P blood plasm

Vegetable Tanning Process Of Starry Trigger Fish (*Abalistes Stellaris*) And Its Plotting To Leather Products

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ABSTRACT

The aim of this study was to obtain a optimum concentration of vegetable tanning agent which good for starry trigger fish tanning process, to find out the characteristic of the starry trigger fish leather and to make a plotting of their leather products. The process was done by using three vegetable tanning agents, those were mimosa, quebracho and chestnut. Concentrations of the each tanning agents were varied to 12%, 15% and 18%. The physical characterization of the leather products were tested by using Universal Testing Machine (UTM). The results showed that the highest tensile strength, elongation and tear strength achieved by 18% concentration of each tanning agents. The plotting of leather products for the tanned starry trigger fish skin based on its physical characteristics were leather goods and leather crafts products.

Keywords: Starry trigger fish, Vegetable tanning, Leather products, Eco-friendly

Utility of Biogas Sludge as Media for White Oyster Mushroom (*Pleurotus Florida*)

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ABSTRACT

The aim of this research was to determine the effect of chicken manure in sludge biogas as substitute material for bran on oyster mushroom media to the productivity and to oyster mushroom produced. In each treatment, the media, biogas sludge, chicken manure, and mushroom produced were tested to define their chemical content, including water content, organic matter, crude fiber, organic C, total-N, total P, total K, C/N ratio, and microbiological test. The observed parameters included the time to start harvesting, fresh weight, number of mushroom caps, stem length, and diameter of the caps. The data was processed using the analysis of Variance-Completely Randomized Design Unidirectional and the average difference was tested using Duncan's Multiple Range Test (DMRT). The result of the chemical tests showed that the best quality of the media was obtained with 15% chicken manure addition as substitute for bran in biogas sludge (P4) with crude fiber content, organic-C level, P level, and K level were 15,14% , 49,1%, 0,54%, 77,56%, 1,42% and 0.94% respectively. The best results in biological test parameters such as age to start harvesting, fresh weight, stem length, diameter of caps, and number of caps were obtained in treatment P2 (50% bran and 50% sludge) because it could increase the fresh weight of the mushroom into 95,63 g. The results of proximate analysis showed that the quality of the oyster mushroom was most excellent in treatment P3 (25% bran and 75% sludge) because it could increase the level of water and organic materials into 82,86% and 79,60% respectively.

Keywords: Chicken Manure, Biogas Sludge, Oyster Mushroom Media, White Oyster Mushroom

The Effect of Volcanic Ash Addition to the Chemical Quality of Excreta Organic Fertilizer

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ABSTRACT

This research aims to know the effect addition of volcanic ash to the chemical quality of excreta organic fertilizer. This study consists of five treatments, the first treatment 0%(T0) addition of volcanic ash as control, the second treatment 5%(T1), the third treatment 10%(T2), the fourth treatment 15%(T3), and the fifth treatment 20%(T4). Parameters that were observed covering the chemical quality are temperature of composting, N total, P total, K total. The data were tested analysis variance of completely randomized design of one way anova, and the mean differences were analyzed with Duncan's New Multiple Range Test (DMRT). The results showed that the addition of volcanic ash on the treatments was not significally different to the control (T0) of N total. The contents of N total that contained in organic fertilizer on the addition of 0, 5, 10, 15, and 20% volcanic ash were 0.81, 0.71, 0.89, 1.02, and 0.52%, respectively. Treatment T1 and T4 gave significally different ($P<0.05$) to the control (T0) of P total. The P total that contained in organic fertilizer on the addition of 0, 5, 10, 15, and 20% volcanic ash was 1.52, 1.01, 1.48, 1.45, and 0.8%, respectively. Treatment T1 and T4 gave significally different ($P<0.05$) to the control (T0) of K total. The contents of K total that contained in organic fertilizer on the addition of 0, 5, 10, 15, and 20% volcanic ash were respectively 1.56, 1.18, 1.64, 1.53, and 0.82%. The dose addition of volcanic ash in treatment 10% (T2) and 15% (T3) was the best improved the chemical quality of organic fertilizer.

Keywords: Organic fertilizer, Excreta, Volcanic ash, Chemical quality

The Case of Helminthiasis on Beef Cattle at Slaughter House in Indonesia

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ABSTRACT

A healthy and prosperous Indonesian society is the goal of our nation. Healthy Indonesian nation will be achieved when eating nutritious food. One of the most nutritious and important foods is food products of animal origin such as eggs, milk and meat. Meat health is obtained if the slaughterhouse meets the hygienic requirements and the animal is also healthy. The main problem of people's livestock is helminthiasis, so this research is done to know the case of helminthiasis in beef cattle in slaughter house in some cities in Indonesia. The method used in this study is a survey to collect data helminthiasis in Batembat RPH Cirebon City, West Java and study of research results in some RPH in big cities in Indonesia. The results indicated that RPH in several cities in Indonesia such as Jakarta, Medan, Pontianak and Palembang showed that cattle were infected lightly. The meaning that the meat provided for the community was good enough and the supervisory function. The veterinary public health order had been good. Only in Middle of Tapanuli cases of serious infected pharamphistomiasis category. It needs a serious effort to break the *Paramphistomum sp* life cycle so that people can consume meat that is safe, healthy, whole and halal (ASUH).

Keywords: Helminthiasis, Beef Cattle, Slaughter House, ASUH

Strategy of Business Development Based on Potential Area of Livestock in Gianyar Regency

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ABSTRACT

The zoning area of livestock based on the diversity of local resources, have relationship and mutually support one others in order to strengthen the economic of rural communities. This study are held in order to provide guidance to develop the area of livestock commodities as prescribed by the Minister of Agriculture Number: 43/Kpts /PD/410/1/, 2015. This study is a survey research, conducted in cattle, pigs, and goats farming in Gianyar. Locations were selected by purposive sampling, and respondents (farmers) are selected by stratified random sampling. Expert respondents are determined by purposive sampling method. This study aims to identify the concept of regional development of livestock commodities in each district based on the potential area, and create strategies to develop livestock business in Gianyar. This study used quantitative and qualitative data, sourced from primary and secondary data. Data were collected by interview using a structured questionnaire, in-depth interviews, observation, study literature and document searches. Data were analyzed by LQ, IE, SWOT, and QSPM analysis. The results of this study are: 1) Pig farming are potential to develop in Payangan (LQ 4.78), Gianyar (LQ 1.41), Tampaksiring (LQ 1.29) and Ubud (LQ 1.09); 2) Cattle farm are potensial to develop in Tegallalang (LQ 6.25), Payangan (LQ 4.41), Tampaksiring (LQ 4.06), Ubud (LQ 2.46), and Blahbatuh (LQ 1.47); 3) Goat farming are potential to develop in Gianyar (LQ 2.46) and Sukawati (LQ 1.47); 4) There are six alternative strategies that can be applied in the development of farming business in Gianyar, namely: a) develop the farming based home industry, b) develop the farming based tourism, c) build a small scale of animal feed factory, d) create an effective and efficient feed formulation to develop productivity of livestock, e) intensify the planting of horticultural which their waste can be used as qualified animal feed, and f) create an agribusiness system based on potential area in order to develop the livestock business in Gianyar; and 5) The priority strategy recommended in this study is create an agribusiness system based on potential area in order to develop the livestock business in Gianyar.

Keywords: Zoning area, Potential area, Alternative strategy, Priority strategy

Canvassing the Complexity of Beef Cattle Farming; an Entry Point to Qualitative Modelling

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ABSTRACT

In Indonesia, most of the beef farming are embedded in a larger agricultural system. Beef farming becomes one activity among various activities which commonly managed by farmers household. This multifaceted roles makes beef farming a complex systems. Studying complexity requires an approach which designed to deal with such complexity. One of the alternative approach is qualitative modelling using Causal Loop Diagram (CLD). The entry point to develop a model is identifying the everyday flux of beef farming activities. However, this often constrained by the hesitance of farmers to engage in the discussion. Researcher need to build an engagement design which should be able to promote discussion and encourage people to start talking. This article aimed to discuss the methods and protocols required to engage people participation as an entry point to develop a qualitative modeling. A series of observation and interviews has been conducted to undertake the study. The research target were beef farmers in Kabupaten Banjarnegara. The study was initiated by undertaking separated preliminary discussion with beef farmers. This step was aimed to engage farmers' participation as well as harnessing their everyday activities related to beef farming and marketing. Then, second discussion was undertaken to identify potential problematic situations i.e. situation considered as uncomfortable. This was conducted by identify the activities, resources, and pressures of the systems. As a result, a Causal Loop Diagram (CLD) was generated describing the beef farming systems. The behavior underneath these CLD was then further discussed to analyze as an effort to tame the complexity of beef farming.

Keywords: Qualitative modelling, Causal Loop Diagram, Beef farming, Systems thinking, Systems modelling

Studies Institute Capital PT PNM Branch Cirebon against Cattle Development in the Sub District Cibingbin Dukuhbadag Village District Kuningan

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ABSTRACT

The aims of this study were conducted to determine the role and procedure of PT PNM Cirebon branch in proposing Micro, Small, Medium And Cooperative Enterprises (UMKMK). The method of selecting the location by purposisve sampling, for data collection with observation and interview, while for data processing with descriptive method. The results of this study stated that the capital of PT PNM branch of ULAmm service product is not only for a business capital loan but also to provide training on cattle breeding business by cooperating with educational institutions (Universitas Muhammadiyah Cirebon) and marketing the results.The conclusion of this research is the work program of PT PNM Cirebon branch has a good service product of Ulamm shown by increasing the number of borrowing capital customers and participate in the development of cattle business in Dukuhbadag Village, Cibingbin Sub District, Kuningan Regency through training and mentoring program.

Keywords: Capital nstitution, Cattle business, Dukuh badag village

Beef Cattle Farmers' Group Cohesion in Bantul and Sleman Regencies Yogyakarta Special Region

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ABSTRACT

The study was aimed to analyze the cohesion level of beef cattle farmers' groups of Bismo in Bantul and Sido Makmur in Sleman Regencies Yogyakarta Special Region. The analysis was based on the components forming group cohesion including farmers' attractiveness in group goals, group activities, membership of the group, and interpersonal relationship among the members of the group. All the active members of the groups were selected as respondents. Data were gathered by interviewing the respondents directly using questionnaire. Descriptive analysis was used to describe the level of cohesion. The results showed that there was a difference kind of components being the highest score achievement percentage in forming group cohesion between Bismo and Sido Makmur Groups. Bismo group had group activities attraction (95.98%) as the main indicator for its member to commit to the group, while the membership of the group was the main attraction indicator (97.33%) for the member of Sido Makmur to stay in a group. Although the attractions indicator of cohesion including interpersonal and farmers' group goal were in high score achievement percentage for both of the Groups of Bismo (89,81% and 88.21%) and Sido Makmur (88.98% and 86.67%), but they had not been used optimally yet as the main reference by the farmers' member of the group to commit to the groups. The conclusions of the research were that there was a high category level of beef cattle farmers' group cohesion for both Bismo and Sido Makmur groups. The farmers' group activities and membership of the group was the main attractions indicator of beef cattle farmers' group cohesion.

Keywords: Attraction, Beef cattle farmers' group, Cohesion

Farmers' Individual Potential in Different Sizes of Local Beef Cattle Farming in Kebumen, Indonesia

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ABSTRACT

The increasing size of beef cattle breeding farming pattern encourages farmers to have higher individual potential. This study aims (1) identify the farmers'individual potential in different farming sizes and (2) analyze factors which influence the farmers'individual potential in different farming sizes. 100 respondents from 6 sub-districts known as Kebumen PO beef cattle development centers are selected using a purposive sampling method based on the available breeding records. The results of Kruskal Wallis Test shows that the increasing size of Kebumen PO beef cattle farming requires higher farmers'individual potential ($P < 0.01$). Based on the Spearman rank correlation, the availability of technological potential and the provision of production input potential are considered as the important elements regarding to the farming size differences ($P < 0.01$). The increasing size of beef cattle breeding farming patterns should be followed by the increasing availability of technology and provision of production inputs.

Keywords: farmers' potential, farming size, technology

Allocation of Expenditure for Livestock Products Foods in Indonesia: Working-Leser Approach

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ABSTRACT

The paper deals with the dependence of the share of households' livestock products food expenditure on the total expenditure and the household's size. This problem is important in applied welfare economics. In the study, the Working-Leser model was applied to household's expenditure data for year 2011, 2012, and 2013. The results of the analysis reveal that basic characteristics of households, such as the household's size, have direct effects on the consumption patterns of households. Estimated expenditure elasticities for food groups are positive and less than one except for beef, as they moved up to the necessity commodities in 2011-2013. The estimated expenditure elasticities for food groups have decreased significantly over the time, caused by an increase of total expenditure. Consistent with Engel's law, households with lower total expenditure make bigger changes in food expenditure than those with higher total consumption expenditure. These indicate that income has a positive effect on the diversity of these foods group. Share of expenditure for food generally increased with the household's size. In most samples demand for beef, poultry meat, egg, and milk is expenditure and own-price elastic. On average all food groups investigated are found to be normal goods.

Keywords: Consumption expenditure, Expenditure elasticity, Livestock products

The Motivation of Sheep Farmers in the Villages around the IPB Campus to Improve Livestock Productivity

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ABSTRACT

Sheep have a significant role to help the government supply of food from animal protein for Indonesian people protein needs. The problems nowadays in Indonesian sheep farm is deficiency of productive ewes, decreasing in livestock production and low in business competitiveness. Therefore, increasing the sheep productivity is needed by motivating local farmers with their potential area and characteristics of their livestock production system. The present study was aimed to measure the level of a local farmer's motivation and evaluate factors affecting it in Cibanteng and Cikarawang Village Bogor District West Java. The analysis of data was done by descriptive statistical analysis and correlation analysis using Spearman rank test (r_s). The study revealed that the external factor of Cibanteng village which had a relationship with the motivation of farmers was stimulating the production to fulfill the basic needs (score: 0494). While in Cikarawang village the internal factor which had relationship with the motivation of farmers was the level of the business development (score: 0532), and external factor that had relationship was stimulating the production of the basic necessities and social status (score: 0519).

Keywords: farmers, motivation, productivity, sheep

Adoption of Animal Husbandry Innovations by Dairy Farmers in Pasuruan Regency, East Java Province

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ABSTRACT

The aim of this study was to determine the type of innovations in dairy technologies adopted by dairy farmers in Pasuruan Regency, East Java Province. The object being observed was the dairy farmers in Pasuruan Regency. This research was a descriptive quantitative research with survey method. The collection of data through observation, questionnaires, and interviews. The level of adoption of innovation seen by the continuation of the use of these technologies by farmers until the time of research. The results showed that innovation such as concentrate feed, artificial insemination (AI) and biogas were the innovations that still used by most farmers in the amount of 95.0% (feed concentrates), 78.3% (Artificial Insemination) and 33,3% (Biogas). While innovations such as ammoniation and fermentation of hay, concentrate feed, complete feed, the selection of superior cattle seeds, feed barn, compost making, recording, good cowshed, Milking machine, chopper engine and coffee skin fermentation on average 80% have never been used by dairy farmers in Pasuruan Regency. This innovation can be used as extension materials in the area.

Keywords: Adoption, Innovation, Dairy farmers

Assistance Technology of Livestock Development Area in East Nusa Tenggara

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ABSTRACT

Technological mentoring for beef cattle production had been held on East Nusa Tenggara from 2015 to 2016 on four districts: (1) South Timor Tengah; (2) North Timor Tengah; (3) Belu; and (4) Malaka. Study object are: (1) farmers raising livestock and cattle, (2) business partners, and (3) local governments as policy makers in overcoming problems in the livestock subsector. Mentoring in four district is not the same, because it is need to be adjusted for each of area demand and farmer condition with several steps: (1) livestock technical training; (2) technological innovation demonstration through demonstration plot, including pilot unit for disseminating technology; (3) initiators and facilitators group meetings; and (4) dissemination media dissemination in the form of posters. There had been 13 farmer groups with 20 to 25 people each in nine villages from seven sub-districts originally from four districts following mentoring program for 2 years. The More area can be handled, the better because it will imply more farmer to adopt technology for beef cattle production.

Keywords: Livestock area, Mentoring, East Nusa Tenggara

Evaluation of Perception and Preference of Milk Consumption Among Elementary School Age Children in Low Income Household

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ABSTRACT

This exploratory research was intended to assess (1) perception and preference of children and mother in low-income household in urban and rural area toward drinking milk (2) identify key factors in increasing children milk consumption. The research was conducted in Gadjah Wong urban communities in Umbulharjo Subdistrict, Yogyakarta City and Candibinangun in Pakem Subdistrict, Sleman Regency which were two villages with the highest number of low-income family. Data were collected with questionnaires to measure perceptions and preference of respondents, who are mothers and elementary school-aged children. The results showed that in regard of perception to the milk's health benefit, 96.40% of respondents agreed that the while 3.60% disagreed. Then, 80.10% of children agreed that the consumption of milk could prevent them from being sick while 19.90% disagreed. However only 60.60% of children admitted they like to consume milk as oppose to the other 23.30% that claimed they dislike to consume milk. Children's perception and the level of likeness didn't significantly create an incentive for children to save up their pocket money to buy milk in both urban and rural area. On the other hand, according to the result of Chi-square assessment, mothers' perception in regard to sufficiency of milk consumption was the contributing factor to the frequency of milk consumption for children in urban and rural areas ($p \leq 0{,}001$). Mothers' role in determining children's level amount of milk consumption was significant only in rural area, ($p \leq 0{,}05$). However, mothers' ability to determine the level of children's consumption it is still contingent upon the provision and allocation of cash for household needs. Thus, in low income family not only mother but father should be included as a target audience in milk consumption promoting the program.

Keywords: Milk consumption, Low income family

The Effect of Innovation on Increasing Productivity and Goat Farming Income in Cocoa-Goat Integration System

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ABSTRACT

The productivity and farmers income fromgoats farming is currently low.The aim of this study is to determine the effect of innovation on improving goat productivity and the increase of goat farming income in the cocoa-goat integrated system. This study was conducted at "Andum Rejeki" farmer groupin Banjarharjovillage, Kalibawangsub-district, KulonProgoregency.The number of farmers involved in this studywere 30 people divided into 2 models, namely modelA and B.Each model consisted of 15 people.Model A is a farmer who apply goat farming using innovation, while the technology used in farmers model B based on farmers' experiences, without innovation.Innovations in farmers model A include the use of slatted floor, mating calendars and optimization of goat feed by utilizing cocoa biomass. The variables observed in models A and B were goat productivity. Goat productivity was observed for 7 months (May to November, 2014) using farm record keeping. The productivity of goats between models A and B were analyzed using independent T-test. The income analysis of goat farming was done on each model. The results indicated that the average number of goats for 7 months on model An increased from 4.8 to 5.7 head, whereas in model B the number of goats at the beginning and end was the same, 3.3 head.The birth of a kid for 7months on model A was 1.8 ± 2.1 heads higher than model B of 0.1 ± 0.4 head. Income from goat farming per year on farmer model A (IDR3.34 million) was higher than farmermodel B (IDR0.55 million). The study concluded that goat productivity and income of goats on farmers using innovation are higher than those without innovation.

Keywords: goats, income, innovation, productivity

Determining the Cost of Beef Production from Cattle Fattening in the Smallholder Farming

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ABSTRACT

Cost of production is a key piece of information needed to make the best of economic decision when selling the animal. The objective of this research was to determine the cost of production of beef that was produced by the smallholder farming. The research was carried out from October 2016 to February 2017, with the method of case study on fattening cattle at two of farmers group at Sleman Yogyakarta who directly sell to the livestock market. Thirty cattle fattening that ready to sale for slaughter from the two groups of farmers taken as a sample. Data collecting related of cattle price, fixed costs and variable costs during fattening period using survey method with deep interviews to farmers with questionnaires, as well as cattle body weight was estimated using a tool of measure tape. Cost of production analysis by using full costing method performed in this study. The results showed, (1) the cost of production for fattening cattle was IDR 40,509.00/kg live weight, and (2) the selling price of live cattle from farmers were IDR 44,579.00, farmers have got profit from cattle fattening amount of IDR 4,070.00/kg live weight. Farmers will suffer losses if the price of cattle under market condition drops below of production costs.

Keywords: Cost of production, Cattle fattening, Full costing method

Feasibility of Introducing Feeding Technology on Beef Cattle Fattening in Timor Island, East Nusa Tenggara

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ABSTRACT

This activity was part of the acceleration programs in order to support the improvement of beef cattle beef self-sufficiency in East Nusa Tenggara which was held in South Central Timor in the period of 2010-2014. The materials used in the assessment were natural grasses, herbaceous legume, and concentrates derived from agricultural byproduct such as bran, cassava fractions, skin pod green beans, corn, husks and cobs of corn, pith of *Corypha elata robx*, and *Gliricidia sepium* leaves. The study purpose was to know the feasibility of feeding technology made from herbaceous legume and concentrates which created based on local ingredients. Financial Analysis results showed that this feeding technology gave additional revenue compared the existed technology in nominal value (Rp 9,504,600; Rp 9,303,200; and Rp 3,875,400) and R/C (1.84; 1.23; and 1.17) point of view. The quantity, quality and continuity of forage is still a major obstacle until now. This is due to availability depends on the season, while many alternative technologies that can be applied by farmer, one of which is herbaceous legumes and concentrates derived from local raw materials. In conclusion, concentrate feeding technology was highly feasible to be developed as a low cost alternative feeding as well as utilizing crop byproduct.

Keywords*:* Fattening, Feasibility of technology, Timor Island

Factors Influencing Smallholder Farmer's Decision to Adopt Artificial Insemination as A Cattle Reproduction Technology in Yogyakarta

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ABSTRACT

Artificial Insemination (AI) for reproduction technology has been promoted as a national policy to increase the productivity and improve the genetic quality of cattle. Recently, Government had launched the new national policy of SIWAB (*Sapi Indukan Wajib Bunting*) which encourages to a cow to be pregnant at farmer level. In this policy, AI program will be the backbone for a massive and efficient reproduction at farm. However, with the dominant small-scale mixed cattle farming practice in Indonesia, information on how smallholder farmers decide to adopt AI technology instead of natural breeding should be provided. This paper aims to determine the influence factors of farmer's decision to adopt the AI for their cattle. A cross-sectional survey was conducted by involving 188 smallholder farmers who are practicing mixed crops and livestock farming in Yogyakarta. Decision to adopt the technology was coded as binary dependent variable that will be analyzed by applying Logit regression. The results show that the smallholder decision on adopting AI is influenced by the cattle ownership, the membership of farmer's group, the knowledge of the technology's utility, and the active seeking of the relevant information about the technology. Prior to decision, the household resources such as the cattle ownership are considered as a farmers' constraint in adopting the AI. Moreover, smallholders require the prior knowledge about the technology which can drive to better understanding about the technology's utility.

Keywords: Artificial Insemination; Cattle Production; Decision Making Process; and Information Access

The Potential of Livestock Farming in the Agricultural Income Structure of Rural Farmers

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ABSTRACT

In addition to foodstuff farming by most Indonesian farmers are also raise livestock whether cattle, goats, sheep or even poultry. While agricultural areas decrease over time, livestock should play greater role in improving the welfare of farmer's household. The aims of this study were to determine the contribution of livestock farming income and the potential of livestock farming in the agricultural income structure of rural farmers. The research was conducted in rural areas at Yogyakarta Province. Survey methods were used in this study and interviews were conducted on 211 farmers. Data were analyzed by income and cost analysis and multiple linear regression analysis. The result showed that the income of livestock rising contributed 31.58 % to the total of agricultural income. Based on multiple regression analysis showed that the total of agricultural income jointly ($P \leq 0.01$; $R^2 = 0.630$) was influenced by controlled land (X_1), length of education (X_2), number of family member (X_3), the number of the livestock raised (X_4) and the income of livestock raising (X_5). Partially the controlled land (X_1), the number of the livestock raised (X_4) and the income of livestock raising (X_5) were to have positive and very significant influence ($P \leq 0.01$) on the agricultural income of the farmers. It can be concluded that livestock farming was a branch of agriculture farming and has a very real potential to increase agricultural income of the farmers.

Keywords: The potential of livestock farming, Agricultural income of farmers, Foodstuff farming, The welfare farmer's household

Optimizing Farm Inputs of Maize Silage Production Integrated With Small Scale Dairy Farming

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ABSTRACT

The study aim is to identify a model of smallholder dairy production that which the farmer could control feed resources and its supply in order minimizing feed risk for their cattle, as well as to identify the most efficient of using inputs (minimized cost) in producing the silage. The reseach is a case study on the farm activity. Farm record, such as farm output, inputs and their price, were collected and selected to meet the analysis requirement. Improving feeding system based on maize silage, in practice, can be adopted by the farmer who ccupy a hectare arable land. With doubled yielding in one plant season, the silage fulfils 40% of the daily forage requirement for feeding 7.6 animal unit of dairy cattle over a year regularly. The integrated farming system can be considered by the dairy farmer who attempts scaling up their farming within limited labor availability.

Keywords: Whole crop, Linear programming, Feeding system

Financial Analysis of Minister of Agriculture Regulation no 49 / permentan/ pk. 440/10/2016 About the Ratio of Import Cattle

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ABSTRACT

This study aims to analize the effect of minister of agriculture regulation No 49 / PK. 440/10/2016 for the feedlot beef cattle company. This regulation is about pattern of ration import with the ratio of imports of feeder cattle and heifer is 5: 1 for the feedlot company and 10: 1 for farmers cooperatives. This study used financial analysis with price and cost production obtained from interviews with 9 companies in Java islands and Lampung province. Sampling was determined by purposive sampling study of 9 cattle companies respondents. Financial analysis of uses some parameter such as Net Present Value (NPV), Benefit per Cost Ratio (B/C ratio), Internal Rate of Return (IRR) and Payback Period with 12% per year of discount factor. The surveyed companies have a housing capacity between 5000 - 30,000 heads of cattle. The result of financial analysis is obtain with the simulation of housing capacity for 10,000 heads cattle. The results of financial analysis in accordance with the regulation No. 49 / PK. 440/10/2106 is NPV 3.555.255.292, IRR - 2,91%, BCR 1,04 and payback period 19,31 cyclus (6,44 years) years. It's mean that the regulation is not feasible for the feedlot cattle company that using intensive system for rearing cattle.

Keywords: Minister of agriculture regulation, Financial analisys, Import ratio, Cattle

Corn and Cattle Integration to Support NTB's One Million Cattle Program in Lombok Island

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ABSTRACT

Nusa Tenggara Barat (NTB) has launched competitive program called PIJAR (ab. Cattle, Corn and Seaweed). Corn development program will not only improve its main production but also its by-products such as leaves, stems, cobs and husks. On the other hand, its by-products are limitedly used for livestock feeding while farmers have difficulty in getting feeds during dry season. Several studies on corn and cattle integration have been conducted, especially outside NTB, but no one has provided data on their contribution to livestock productivity and farmer income with group systems. The research findings in year 1 were, (1) The daily weight gain of fattening cattle with fresh rice straw mixed ration fed 12.5 kg with bran 2.5 kg/head/day for 49 days was an average of 0.37 kg per head per day, (2) The production of fresh corn straw, harvested at the age of about 80 days was 47,67 kg per ha or in dried form 9,53 kg or 20% of fresh straw weight, (3) With harvested area of 76,447 ha, the production of fresh corn straw in NTB could reach 3,643,999 tons and 1,267,656 tons in Lombok island, (4) With fresh corn straw of 13 kg and additional feed of 2.5 kg per head per day each hectare of corn planted land can accommodate about 10 cattle, and (5) Farmers have not implemented a model of optimal integration of corn and cattle farming. The results of the second year research were: (1) farmer group-livestock management was not optimal yet, livestock farming was still conducted traditionally, (2) livestock breeders were relatively more responsive to technological innovation, (3) feed technology had crucial role in development group, (4) giving of silage as much as 22 kg per day to the weighted average cow 167 kg could produce daily weight gain 0,42 kg; (5) cattle with an average body weight of 191.5 kg produce wet dirt 11.43 kg per day and become dried manure 2.61 kg per day. The research concludes that corn crops in NTB have the potential to accommodate around 700,000 heads of cattle and in Lombok around 267,156 heads. In addition, group system can further improve productivity and hence farmers' income.

Keywords: Integrated farming, Corn and cattle, Straws based feed ration, Farmers' income

The Influence of Social Capital on the Effectiveness of Farmers' Group Functions

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ABSTRACT

The aim of this study was to analyse the influence of social capital on the effectiveness of farmers' group functions. It was conducted in the Ettawah Crossbreed farmers who joined farmers' group in Turi district, determined purposively which has several conditions and certain provisions. The method was surveyed with a questionnaire as a tool to collect data, then analyzed by regression analysis. Most farmer respondents stated that the social capital (trust = 92.31%; norm = 73.08%; and network = 57.69%) and the effectiveness of the farmers' group function (as a class to learn = 73.08%; as a place to cooperate = 88.46%; as a production unit = 69.23%; and as a business unit = 65.38%) were in the middle category level. The regression analysis result showed social capital was significantly influencing the effectiveness of farmers' group functions ($P<0,05$) with $R^2=0.508$; $\beta=0.327$; $F=24.742$; $t=4.974$. Social capital allowed the farmers to do social interaction, work together and have a resource as a group. Joining the same group made the farmers know and trust each other. Trust helped the farmers to feel secure to do group functions as a class to learn, as a place to cooperate, and as a production unit and as a business unit. Norms that were formed by trust, could strengthen the network between the farmers. Thus, a group could be more flexible while implementing the functions, so that the farmers could achieve their individual goals as well as the group goals.

Keywords: Social Capital, Effectiveness, Farmers' Group, Group Functions

Financial Analysis of Medium Scale Pig Farming Livestock in The Gianyar District

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ABSTRACT

This study aims to analyze how much the production costs and profits as well as the break-even point a pig farm in Payangan District, Gianyar. Survey method with case study approach. The middle-class of pig farms have an average of 166 pigs consisting of 3 males, 30 breeding, 20 head finisher phases, and 33 grower phases and 80 starter phases (piglets). The results showed the composition of costs during the production process per period, which amounted to 49.53% of feed costs, 11.60% labor costs, and 31.03% breeding costs, depreciation cage / equipment 1,01%, electricity / water 0.86% , transport 5.25% and tax on businesses by 0.72% of the total cost of production. The average cost of production of a pig farm in Payangan District Rp. 2.094.461 / head / production period consisting a fixed cost of Rp. 113.9 million and variable costs of Rp. 233.780.500 / production period. The use of capital (cost of production) has been efficient which could be seen from the ROI of 2.72. A pig farm in Payangan District is likely more profitable illustrated with the average profit earned Rp. 770.660 per head per production period and average profit per month is Rp. 10,660,792. Pig farmers in the district of Payangan, Gianyar has already producing above the breakeven point at 78.18 the production volume or 78 head unit with the acceptance rate of Rp. 475.610.000 per period of production.

Keywords: Ranch pork, benefits, costs, BEP

Participation of Jabres Cattle Farmers in the Development of Jabres Cattle Rising at Barokah Farmers Group Kebandungan Bantarkawung Brebes

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ABSTRACT

This research aimed to analyze the level of Jabres cattle farmers' participation and analyzed the influence of farmers' demography characteristic to the high and low level of participation in the development of Jabres cattle rised at Barokah Farmers Group Kebandungan, Bantarkawung, Brebes. This research was conducted in Kebandungan Village, Bantarkawung Sub-districts, Brebes Regency. The research was conducted from May to August 2016. The numbers of respondents in this research were 68 farmers. Respondents were Jabres cattle farmers, members of Barokah Farmers group. All respondents owned and raised Jabres cattle. The sampling method used in the research was Sensus method. Data were collected by direct interview and involving valid and reliable questionnaires. The data analysis used Multiple Linear Regression. The result of the research showed that the participation of most farmers was classified as high (60.52%). Participation level of farmers during planning stage was classified as low (63.15%). Participation level of farmers during implementation stage was relatively low (55.26%). Participation level of farmers during monitoring and evaluation stage was classified as high (55.26%). Participation level of farmers during the benefit sharing stage was classified as low (68.42%). Farmers' demography that affected the level of farmer's participation was 72.1 percent. This research also showed the independent variable that significantly affected the participation level that was the education level of farmers ($P \leq 0.05$). The conclusion of this research was that the higher the level of farmers' education level the more positive the participation level of farmers.

Keywords: Farmer group, Jabres cattle, Participation

Income Analysis on Capital Assistance Model through the Revolving Ettawa Crossbred Goat in Yogyakarta Indonesia

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ABSTRACT

One of the main models of government aid capital sources commonly applied to the farmer's is help through the revolving goat. Revolving goats helpful to increase the population and the poverty alleviation programs in developing countries. This research aims to identify the kind of revenue and costs as well as additional income farmer's goat through revolving livestock aid capital sources. The study was conducted in Kulon Progo Regency as the center of goats in Yogyakarta. The method used was survey with respondents taking as many as 40 farmers with purposive sampling method based on consideration of farmers who have received aid revolving livestock during the last three periods. Analysis to calculate the additional income for their assistance with using partial budget. The results showed that farmers received additional revenue in the form of goats and additional costs in the form of health and mortality of livestock without the cost of purchasing livestock and capital interest. With the assumption that the doe first mating that at the age of 1.5 years, 4 months and the weaning period Kidding Interval for 8 months with a maintenance period of 2.5 years, the average farmer's obtain as many as 4 additional goats are 2 young goats and 2 kids aged 6 month. In accordance with the agreement that the beneficiaries are required to roll kid female with 2 to 3 years of maintenance so that farmer's have been able to roll out kid females. Partial budget analysis showed presence of additional revenue for grant of IDR 8,732,549.00 /year so that the program can be continued is recommended to increase the population and income of farmers.

Keywords: Ettawa crossbred goat, Poverty alleviation, Revolving livestock, Partial budget

Developing Strategy for Dairy Cattle Business in Boyolali Regency, Central Java, Indonesia

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ABSTRACT

This study was conducted to determine what factors are influential in the development of dairy cattle business and to formulate strategies that can be applied to the business in Boyolali. This research is using mixed methods qualitative and quantitative SWOT analysis. The sampling of the research was done by purposive sampling with 60 respondents dairy farmers and 10 respondents from relevant government agencies and the private sector. Analysis of the data used is *Location Quotient* (LQ), analysis of internal and external factors, and SWOT analysis of qualitative and quantitative. LQ analysis results showed four villages including the basic area of 13 villages in the district Mojosongo. SWOT analysis diagram showing the results of the analysis of the internal factors of 0.33 (x) and external factors of 0.49 (y). The appropriate strategy in the development of dairy farming are in quadrant I, so the focus of the strategy adopted is the strategy of *Strength Opportunity* (SO), using strength to obtain business opportunities and profits in dairy cattle. The strategy applied in these circumstances is to support aggressive growth policies *(Growth Oriented Strategy).* SWOT analysis showed that the strategy for developing the dairy cattle business is to optimize and develop the internal capability of farmers, utilizing the natural resources available to increase business scale dairy cattle, in cooperation with other agencies in the development of feed by utilizing the existing land and provide knowledge and technology to farmers to develop dairy cattle business.

Keywords: Strategy Development, Dairy Cattle Business, LQ Analysis, SWOT Analysis

Financial Feasibility Study of Establishment of Poultry Feed Mill in Bintuni District West Papua Province

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ABSTRACT

This study was conducted to determine the financial feasibility of establishing poultry feed mill in Bintuni Regency using local raw materials compared to using raw materials from Surabaya. Primary data were obtained from key respondents including poultry farmer, Head of Agriculture and Livestock Service, Head of District, Head of Village, and Head of Tribe, and suppliers who became poultry products suppliers. Secondary data were obtained from the Office of Agriculture and Animal Husbandry of several districts, Animal Quarantine Office, Department of Industry and Cooperative. Indicators of financial feasibility were measured by Net Present Value, Internal Rate of Return, and Net Benefit/Cost. Data were analysed with descriptive method using tabulation. The results showed that the establishment of feed mill using feed ingredients from Surabaya had a higher feasibility value than using local materials. The NPV, IRR and Net Benefit/Cost of feed mill from Surabaya were IDR 4,388,875,361,47, 28,68% and 1,09 while local ingredients were IDR 3,699,625,972,96, 26,07%, and 1,07, respectively. The result of study recommends to the local government to increase agricultural production by expanding cultivation areas of corn, soybean and paddy, thus the function of local farmers can be improved as a permanent supplier.

Keywords: Financial, Feasibility, Feed mill, Poultry, Papua

The Quality of Chilled Fat Tail Sheep Ram's Semen with Antioxidant Addition, Vitamin C and Vitamin E In Citrate Egg Yolk Extender

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ABSTRACT

The study was conducted to compare the effect of antioxidant supplementation in citrate egg yolk (CEY) extender on quality of chilled fat tail sheep (FTS) ram semen under field condition. This study used Citrat egg yolk (CEY) extender with the addition of antioxidant Vitamin C (0.5 gr/100 ml) and Vitamin E (0.4 gr/100 ml). Semen was collected from FTS ram using artificial vagina. Only semen has motility 80% and abnormality under 20% were used for frozen semen process. Collected semen was divided into three tubes and extended with CEY (PO), CEY+Vitamin C (P1), CEY+Vitamin E (P2). The extended semen samples were chilled to 4°C, and observed four hours after stored in refrigerator. The result indicated PO had a greater quality than other treatment ($P<0.05$) on the motility, abnormality and viability of chilled ram semen, but no significant different in membrane integrity. In conclusion, Citrat egg yolk added with antioxidant Vitamin C and Vitamin E has not provided a protective effect in early hours of storage. Moreover, the addition of antioxidants could a slightly decreased the semen quality after dilution process.

Keywords: Citrate egg yolk, Antioxidant, DEG, Chilled semen

Sensitivity and Specificity of ELISA Using Excretory/Secretory of *Fasciola Gigantica* for Detection Fasciolosis In Cattles

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ABSTRACT

Fasciolosis is one of the diseases caused by *Fasciola hepatica* and *Fasciola gigantica* which attacks livestock especially ruminants. This disease can be acute and chronic and causes a big loss to farmers due to a decrease in cattle's weight gain as well as death. Generally, the disease could be determined by egg examination on faeces. However, this method poses some drawbacks, such as the excretion of eggs that is irregular, and the number of eggs excreted in faeces is very low, thus affecting the result of diagnosis. Another drawback is inability of eggs examination method to detect infection on pre-paten period (8-10 weeks post infection) and it's low sensitivity due to eggs production that is relatively limited on pre-paten period. Alternatively, Fasciolosis could be detected using serologic tests such as ELISA test. This study aimed to determine sensitivity and spesificity of ELISA in detecting Fasciolosis on cattles using Excretory Secretory (ES) component of *F.gigantica.* The ELISA results showed that all sera samples tested (n = 16) using 3 different antigens gave a sensitivity of 100% while its specificity could not be determined as all sera samples tested showing positive OD 405nm value (above cut off value) though eggs examinations on faeces gave a negative result.

Keywords: *F. gigantica*, *Fasciolosis,* ES Antigen, ELISA, Sensitivity

Characteristics of Morphological Performance Murung Panggang Chicken

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ABSTRACT

Murung Panggang chicken is one of the Indonesian local chicken and the germplasm at the province of South Kalimantan. Data on Murung Panggang chicken is still limited, especially basic data of quantitative and qualitative characteristics. The aim of this study was to obtain information qualitative characteristics (the feather color, shank color, eyes color, comb shape and color of lobe) and quantitative characteristics (body weight and body size) of Murung Panggang chicken. This study was conducted in Hulu Sungai Utara District, South Kalimantan Province. The method used was a survey method. Observation the qualitative and quantitative characteristics were made directly and the data were analyzed descriptively. The results showed that for qualitative characteristics Murung Panggang chicken showing the dominant color was the color of feathers, colors of lobe, and color of eyes (males and females = 100%), the dominant color of black shank (male = 57.14% and female = 72.73%), pea comb shape males (71.43%) and single females (59.09%). The coefficient of diversity for quantitative characteristics Murung Panggang chicken supreme male was the length of the chest (16.09%) and the lowest was chest circle (5.39%), while for hens highest of shank of circle (20.22%) and the lowest was a long of half-life (5.34%). For the purpose of selection for meat production, the criteria for body size that could be used for Murung Panggang chicken were the length of the chest (male) and the shank circle (female) because the two criteria had the highest coefficient of diversity.

Keywords: Murung Panggang chicken, quantitative characteristics, qualitative characteristics

Association of GH|*MspI* and GHRH|*HaeIII* Genes with Milk Components of HF Dairy Cows under an Intensive Management in West Java

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ABSTRACT

Growth hormone (GH) and Growth Hormone Releasing Hormone (GHRH) genes control on growth tissues and lactation trait in dairy cattle. This study was aimed to evaluate genetic polymorphism and association of Growth Hormone (GH|*MspI*) and Growth Hormone Releasing Hormone (GHRH|*HaeIII*) genes to daily milk components of HF cows maintained intensively at a dairy cattle station in Lembang District, West Java. Genotyping of the two genes were done for 55 HF lactating cows using PCR-RFLP method. Association of variant genotypes to each daily milk component (milk, fat, SNF, Protein and DM) were analyzed by GLM considering lactation length (months), lactation period and the two growth genes as the fixed factors. Genotyping the GH|*MspI* gene resulted C allele (0.4052) and T allele (0.5948); while for GHRH|*HaeIII* gene produced A allele (0.2931) and B allele (0.7069). The GH|*MspI* gene affected significantly on protein and SNF ($P<0.05$), whilst the GHRH|*HaeIII* gene had no significant effect ($P>0.05$) on milk components. HF cows with CC and CT genotypes of the GH|*MspI* gene produced milk (11.03, 10.15 lt.), fat (3.24, 3.21%), SNF (8.31, 8.27%), protein (3.11, 3.12%), and DM (11.55, 11.47%). Those cows with AA, AB and BB genotypes of the GHRH|*HaeIII* gene produced milk (9.00, 10.06, 11.14 lt.), fat (3.41, 3.23, 3.19%), SNF (8.18, 8.30, 8.29%), protein (3.07, 3.10, 3.13%), and DM (11.58, 11.51, 11.48%). It was concluded a fairly good control of the GH|*MspI* to SNF and protein contents in HF cows.

Keywords: dairy cattle, growth gene, milk component

Phenotypic Characterization of Angus Grade - Black Cattle from Sragen District

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ABSTRACT

Angus Grade - Black Cattle is one result of the artificial insemination (AI) program that is able to grow and adapt to tropical conditions, particularly in Sragen district. The aim of this study was to identify the relationship among body measurements in Angus Grade - Black Cattle. We analyzed the phenotype of Angus Grade - Black Cattle which as a result of a crossing between possibly consists of some Indonesian local cattle and Abeerden Angus Cattle. A total of 100 cows were used. The parameters recorded were: body length (BL), withers height (WH), rump height (RH), rump length (RL), rump width (RW), heart girth (HG), shoulder width (SW), chest depth (CD), hips width (HW), face length (FL), face width (FW), ear length (EL), ear width (EW) and tail length (TL). The results showed that the mean body weight (BW) was 407,742 kg while the body measurements were 129,213 cm (BL), 125,131 cm (WH), 133,940 cm (RH), 34,235 cm (RL), 13,854 cm (RW), 170,287 cm (HG), 41,228 cm (SW), 68,382 cm (CD), 47,377 cm (HW), 46,624 cm (FL), 21,676 cm (FW), 24,473 cm (EL), 15,744 cm (EW), 120,207 (TL) respectively. The highest correlation was obtained between HG-BW while the correlation between WH-BW was observed to be the least. There were six models of equation for predicting live body weight, the components were extracted explaining for the total variation of each model were 88,6 %, 1,7 %, 0,9 %, 0,8 %, 0,7 %, 0,6 % respectively of the variability in live body weight when all the body measurements were used in the equation. The body measurements could be used as selection criteria for improving body weight of Angus Grade - Black Cattle. Angus Grade - Black Cattle can be used for the breeding program as beef cattle.

Keywords: phenotypic characterization, body measurements, Angus Grade - Black Cattle

Phenotypic Characteristics Of Doro Ncanga Swamp Buffalo Reared Extensively on the Native Savannah of Tambora Dompu Regency

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ABSTRACT

Phenotypic characteristics are important in breed identification and classification. This study was undertaken to characterized phenotypically Doro Ncanga swamp buffalo on the native savannah of Mt. Tambora. A total of 3 measurements, i.e. body length (BL), height at withers (HW) and heart girth (HG) were collected on 693 female and 279 male buffaloes kept extensively in Manggelewa, Kempo and Dompu District, Dompu Regency. The data were classified on the basis of age group and sex. The morphometric characteristics observed in the present study suggested that for female buffaloes: no significant different ($p>0.05$) of BL, HW and HG of calves in the three districts was observed. The BL of heifers in Dompu was longer ($p>0.05$) than that in Kempo. Similarly for cows, BL recorded in Manggelewa was longer ($p>0.05$) than that in Dompu. However, the differences in HW for cows reared in all districts were not significant ($p>0.05$). Except for HG, cows in Manggelewa were greater than that of Kempo and Dompu ($p<0.05$). Measurements of BL, HW, HG in both old and aged cows did not indicate any significant differences ($p>0.05$) among the three locations. For male buffaloes, the study recorded that BL and HW in calves were found to be non significant ($p>0.05$). Conversely, HG of calves in Dompu was greater ($p<0.05$) than that in Kempo and Manggelewa; the differences in HG in the two latter districts were also significant ($p<0.05$). In the case of young bulls, BL noted in Manggelewa was significantly ($p<0.05$) longer than in Dompu. The study also found higher ($p<0.05$) HW of young bulls in Kempo and Manggelewa than that in Dompu. In conclusion, the parameters examided varied both across the age groups and locations. It seems that the more age of the animals the greater their body size.

Keywords: Swamp buffalo, Characterization, Morphometric Measurements

Phylogenetic Tree Analysis for Ongole Grade (Kebumen Cattle) Based on Partial SRY Gene

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ABSTRACT

Ongole grade (PO Kebumen cattle) has been registered and regarded as a valuable animal genetic resources in Indonesia. As an initial step in assesing the genetic relationship to other breeds, therefore phylogenetic analysis and calculation of genetic distances have been conducted using partial SRY gene. To perform a phylogenetic tree, a total of 14 Kebumen cattles were fistly aligned to 43 Madura cattle and 12 genbank references *(Bubalus bubalis, Bos javanicus, Capra hircus, Bos taurus, and Bos indicus)* of 928 bp SRY gene sequences using MEGA ver.7.0 software and the phylogenetic tree was performed using Neighbor-Joining and UPGMA (Unweighted Pair Group Method with Arithmetic Mean) methods. All of the alignment sequences of Kebumen cattle, were in monomorphic as well as in Madura 1 and Madura 2. The main results indicated that Kebumen cattle have a close relationship to both *Bos indicus* and Madura cattle (Madura 1 and Madura 2) with the closest genetic distance 0.000, indicating no different sequences. Hence, it can be implied that they shared a common ancestor. Moreover, the Kebumen cattle shared a distant relationship to both *Bubalus bubalis* (0.030) and *Capra hircus* (0.065). In our suggestion, these result will provide useful information for preservation and conservation strategies for Kebumen cattle as an Indonesian animal genetic resources.

Keywords: Ongole grade (Kebumen cattle), SRY gene, Phylogenetic tree, and Genetic distance

Intercorrelation of Cow Length Pregnancy, Birth Weight and Sex Ratio of Calves In Madura Cattle

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ABSTRACT

Optimization of beef cattle breeding is a systematic effort to improve productivity and population. The aim of this study is to determine the birth weight and sex ratio of calves and its association with length of pregnancy estrus synchronization program. The research was conducted in Pamekasan district, Madura Island, including three sub-districts; i.e.: Waru, Batumarmar and Pasean from July 2012 until August 2013. The total of 80 cows and their calves were divided into three treatment based on the dose and the type of hormone. The average of length pregnancy of Madura cattle was 287.49 days. For the birth weight in all treatments ranged between 16-20 kg, with an average of 18 kg. Length of pregnancy positively correlated to birth weight and sex of calves with correlation (r) 0.213 and 0.051, respectively. Based on Spearman correlation test, there was not significantly between birth weight and sex ratio of calves in Madura cattle.

Keywords: Madura Cattle, Intercorrelations, Estrus Synchronization

Identification Single Nucleotide Polimorphism of Melanocortin 4 Receptor Gene in Madura Cattle

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ABSTRACT

Signaling by the Melanocortin 4 Receptor (MC4R) is important for mediation the effect of leptin on food intake, homeostasis energy which effects to economic traits such as body weight, EBV and carcass weight. MC4R gene plays a key role in the hypotalamic control of food intake and energy balance. The aim of this study was to identify Single Nucleotide Polimorphism (SNP) of Melanocortin 4 Receptor (MC4R) gene in Madura cattle. Twenty seven Madura cattle were used in this study. Primers were designed based on alignment 11 Genbank in both Bos taurus, Bos indicus and Bos grunniens. The forward primer: 5'-GTCGGGCGTCTTGTTCATC-3'and reverse primer: 5'-GCTTGTGTTTAGCATCGCGT-3' were used to amplify 493 bp of PCR product. Single nucleotide polymorphism was detected by means of DNA sequencing. As a result, this study detected two SNPs of MC4R in exon region (g. 1108 C>T and g. SNP 1133 C>G). In case of g. 1133 C>G was missense mutation and 1108 C>T was silent mutation. SNP g. 1133 C>G was changed of amino acid valin (V) to leucine (L). Based on restriction enzyme mapping, HpyCH4IV can recognize the SNP in region 1133 C/G. The HpyCH4IV enzyme may be used for digesting of the targeted gene using PCR-RFLP method. Next, the SNPs may be used as a marker to be associated with growth traits and feed intake in Madura Cattle in the future study.

Keywords: Melanocortin 4 Receptor (MC4R), Madura cattle, Single nucleotide polimorphism (SNP)

Proportion and Quality of X-Y Chromosome Bearing Sperm on Diluted Semen After Incubation in Different Time of Etawah Crossbreed Goat

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ABSTRACT

Sperm sexing technology is one of the alternatives to predict the sex according to the wishes of farmers, in order to improve reproductive efficiency and increase the efficiency of livestock business. There is one important factors affecting in the successfull of sperm separation especially using BSA method, that is incubation time. This research was aimed to 1) determine the effect of incubation time on the proportion and quality of X-Y chromosome bearing sperm from diluted semen of Etawah Crossbreed; 2) to get the incubation time that produce the highest proportion of X cromosom bearing sperm with highest semen quality. The research use completely randomized design (CRD) with three treatments (T1 = 45 incubation time, T2 = 60 incubation time, and T3 = 75 incubation time) with 10 replications. Parameter measured were proportion X-Y sperm, motility and Intact Plasma Membrane (IPM). Data were analyzed using analysis variance followed by Duncan's multiple range test. The results showed that the largest percentage proportion of X-Y spermatozoa in the upper fraction belongs to T1 (75.40±3.20%) followed by T2 (64.40±4.58%) and T3 (53.60±2.80%). The largest percentage of bottom fraction is at T3 (81.00±2.58%) follow by T1 (67.50±5.68%) and T2 (65.00±4.47%). The results showed that the largest percentage motility of X-Y spermatozoa in the upper fraction belongs to T1 (72.89±2.13%) followed by T2 (70.57±3.82%) and T3 (68.26±3.69%). The results showed that the largest percentage IPM of X-Y spermatozoa in the upper fraction belongs to T1 (74.05±1.86%) followed by T2 (71.75±1.46%) and T3 (67.85±2.14%). Based on the results it is concluded that incubation time affect on proportion of X-Y sperm and quality of dilute semen from of Etawah Crossbreed Goats, the incubation time of 45 minutes is the optimum time to produce highes proportion of X-Y chromosome bearing sperm and diluted semen quality of Etawah Crossbreed goats.

Keywords: Sexing sperm, Incubation time, Etawah crossbreed goat

Genetic Variation of Muscovy Ducks MC1R Gene in a Different Feather Colors Population

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ABSTRACT

This research was aimed at gene sequence variations in the melanocortin 1 receptor (MC1R) and genotype relationships with different groups of feather colors in Muscovy ducks. Two hundred Muscovy days old ducks consisted of white feather male and female duck, black-white combination color male and female ducks. Primary design used Custal X, based on database from GeneBank Cairina moschata GH gene, partial cds (KX013541.1), primary Forward sequence: 5'-GGACCGCTACATCACCATCT-'3 and Reverse Primer: 5'-TGTAGAGCACCAGCATGAGG-'3. The results of the identification of feather color of Muscovy ducks shown there are variation on white color, white-black combination with white dominance and white-black color combination with black dominance. Variations of the feather color on the head, wings, breast, tail and plumage. The sequencing of PCR products obtained nucleotide polymorphism. GG genotype was observed in 293 nt only on white-black, CC in white-black and white feather color of male and female Muscovy ducks. Conclusively, Muscovy ducks had variation feather color, it was white and white-black combination. MC1R gene polymorphism was observed in Muscovy duck.

Keywords: Muscovy duck, Feather color, MC1R gene polymorphism

Effect of Parity Order and Lactation Stage on Physico-Chemical Properties of Anglo Nubian X Etawah Grade Goat Milk

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ABSTRACT

Many crossbreeding program in dairy goat has been done to increase milk production. Knowing physico-chemical properties of goat milk is important to understand its quality. A preliminary study was conducted to investigate effect of parity and lactation stage on physico-chemical properties of goat milk in F1 Anglo Nubian x Etawah Grade goats. The study was done in the Dairy Goat Unit, Indonesian Research Institute for Animal Production. About 540 milk samples collected for 5 months of lactation from 27 does consisted of 3 parities were used in this study. Parameters of physico-chemical properties of milk observed were fat, protein, lactose, total solid, pH, density, freezing point, temperature and salt. All parameters observed were significantly affected by parity order ($P<0.05$), except temperature, density and pH. Stage of lactation affected significantly fat, total solid and density ($P<0.05$). First parity and early lactation showed lowest fat and total solid ($P<0.05$). Across parities and lactation stage, physico-chemical properties of Anglo Nubian x Etawah grade goat milk met the requirement of National Standard of goat milk.

Keywords: parity, lactation, physic-chemical, Anglo-Nubian, Ettawah

Behavior of Bali Cows at Different Reproduction Phase that Kept in Oil Palm Environment

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ABSTRACT

Cows will be productive if they live in the suitable environment. The suitability of the environment for the cows can be identified from their behavior. This study was conducted to observe the behavior of Bali cows in the area of oil palm plantations in Rokhan Hulu District, Riau Province, Indonesia, at the different reproduction phase. Twelve heads of Bali cows which were consisted of pregnant (n=4), lactating (n=4) and dry-open (n=4) cows were used in this study. The animals were observed their behaviors as long as 24 hours for 7 consecutive days. The data collected were the behavior of eating, lying down, standing, rumination, the frequency of feeding, the frequency of drinking, the frequency of lying down, urination, and defecation. The environmental parameters included light intensity, temperature, and humidity was observed at 06:00, 12:00, 18:00 and 24.00 for 12 consecutive days. Feed Consumption (intake) was too measured with ad libitum method in 7 days. The data collected were analyzed using one-way analysis of variances. The daily light intensity was ranging from 0,1 to 14.463,9 lux, the temperature was ranging from 25,1 to 38,4°C, and the humidity was ranging 46,4 to 90,5%. The eating, lying, standing, and rumination time and frequency of pregnant, lactation, dry-open cows were 8.1±0.9, 8.1±0.8, and 7.9±0.1 hours/day; 10.8±1.1, 10.5±1.4, and 10.1±1.3 times/day; 10.4±1.4, 10.3±1.0, and 9.9±1.0 hours/day, 8.5±1.2, 10.0±1.2, and 8.4±1.3 times/day; 13.6±1.4, 13.7±1.0, and 14.1±1.0 hours/day, 8.8±1.0, 10.2±0.8, and 8.7±1.4 times/day; and 6.7±0.9, 6.7±1.0, and 7.2±0.4 hours/day, respectively. The frequency of drinking, urination, and defecation of pregnant, lactation, dry-open cows were 4.4±0.7, 6.3±2.8, and 4.1±1.3 times/day; 5.4±2.7, 8.5±1.2, and 6.0±1.8 times/day; and 5.2±0.8, 6.5±0.9, and 5.5±0.4 times/day, respectively. The behavior of Bali cows at all reproduction phase was in the normal range. It is concluded that the environment of oil palm plantations in Rokhan Hulu district, Riau Province, Indonesia is suitable for the Bali cows to live.

Keywords: Behavior, Bali cows, Oil palm plantations environment

The Correlation Between Scrotal Circumference, Scrotal Volume, and Semen Quantity and Quality on Fat Tailed Rams

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ABSTRACT

This study aimed at knowing the correlation between scrotal circumference with scrotal volume, and scrotal volume with the quantity and quality of semen produced by fat-tailed rams (FTR) in Sapudi Island, Sumenep, East Java. The methods of the study include measurement of scrotal circumference and scrotal volume, data collection and data analysis. The variables observed were a scrotal circumference, scrotal volume, semen quantity and quality. The data obtained were analyzed using correlation model. The results showed that there was a significant correlation ($P<0.05$) between scrotal circumference and scrotal volume with a correlation coefficient of 0.852. While between scrotal volume and semen quantity, there was also a significant correlation ($P<0.05$) with a correlation coefficient of 0.774. Between scrotal volume and semen quality (concentration, motility, viability and abnormality) there was no significant correlation. It was concluded that there was very strong and positive correlation between scrotal circumference and scrotal volume, and there was a strong and positive correlation between scrotal volume and semen quantity, but there was no significant correlation between scrotal volume and semen quality (concentration, motility, viability and abnormality).

Keywords: fat-tailed rams, scrotal circumference, scrotal volume, semen quantity, semen quality

Heterosis Value Estimation of Hatching Weight and Growth Characteristics of Reciprocal Crossing Tegal and Magelang ducks

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ABSTRACT

The aim of this research is to estimate heterosis value of hatching weight and growth characteristic of reciprocal crossing Tegal and Magelang ducks. The cross between the male Tegal and female Magelang ducks is called Gallang (F1) and the cross between male Magelang ducks and the Tegal female is called Maggal (F1). The research material are 325 ducks consisted of Tegal and Magelang ducks with 8 males and 48 females each, also the reciprocal cross result of 112 Gallang ducks and 101 Maggal ducks. Research method is experiment. T test is used to determine the difference of the hatching weight, the weight of eight-week age, and the growth until the age of eight weeks between Maggal and Gallang ducks. The heterosis value is obtained by comparing the ability of the cross with the parent. This research has shown no heterosis in hatching weight whether in Gallang ducks (-4,94) or Maggal ducks (-11,72). The hatching weight of Gallang ducks (43.07 ± 4.77 g) was not significantly different from Maggal ducks (40.33 ± 2.89 g) and both were lighter than Tegal ducks (44.19 ± 4.77 g) and Magelang ducks (46.43 ± 4.37 g). In relative growth there wasn't good heterosis in Gallang ducks (-2.13) and Maggal ducks (-6.38). The relative growth of Gallang ducks (0.23 ± 0.016) did not differ significantly with Maggal ducks (0.22 ± 0.012) and both were lighter than Tegal ducks (0.23 ± 0.003) and Magelang ducks (0.24 ± 0.002). Heterosis was not significant in the weight of eight-week age of Maggal ducks (-4.90), but exhibit a positive value in Gallang ducks (1.60). The conclusion of this study is the positive heterosis value in weight of eight-week age in Gallang ducks showed that it can be expected to be broiler ducks.

Keywords: Heterosis, Hatching weight, Growth, Reciprocal crossing, Tegal and Magelang ducks

Phenotypic and Genotypic F2th and F3th Performances Candidate of The New Breed Ongole Croosed Agrinak Cattle

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ABSTRACT

Increasing of domestic beef production, can be done by forming a new breed of beef cattle that are low-quality feed resistant. The aim of this research to know penotypic and genotypic performance (since birth/calf until become cow/bull) of Ongole Croosed (OC) cattle, as parents who will produce candidates of the new breed OC *Agrinak* cattle that are low-quality feed resistant. The research during two generations (7 years) conducted at experimental stall in Beef Cattle Research Station, used 201 heads OC female and 28 heads OC male as its F2th, also 328 heads OC female and 29 head OC male as its F3th. Ration contain low quality nutrient (crude protein 8-9%, crude fiber 22 to 26%, organic matter 85-87%, total digestible nutrients 53 to 55%). Penotipic observation was done by weighing and measuring of cattle, while genotypic observation was done by *polymerase chain reaction* (PCR) and Sequencing analysis. Parameters observed: weight and hump high at birth, weaning, 12 and 24 months and at first mating ages; also sequence of nucleotide acid growth gene GH891. Phenotypic data is processed and presented descriptively, while genotypic data used *Bio edit* program. The results showed: weight and hump high at birth, weaning, 12 and 24 months and at first mating ages between F2th and F3th were: 24.8±3.4 kg with 68.1±5.6 cm and 25.2±3.4 kg with 71.0±3.8 cm; 113.5±21.6 kg with 100.4±29.2 cm and 126.4±30.7 kg with 104.2±6.1 cm; 140.8±33.0 kg and 105.1±7.3 cm with 157.1±28.1 kg and 107.4±6.3 cm; 206.6±46.7 kg and 117.4±5.1 cm with 227.4±36.3 kg and 128.5±7.8 cm; 252.3±51.2 kg and 130.6±2.7 cm with 274.8±31.9 kg and 131.6±3.8 cm respectively. While SNP results showed there are four major types of nucleotide acid sequences, i.e. 68.3% ACGTCGG; 10.0% ACGATCG; 6.7% ATGCCGG and 6.7% ATGTCGG from population. It was concluded that F3th performance of new breed OC *Agrinak* cattle was better than its F2th, and has four major sequences of SNP in its HG891 gene.

Keywords: Phenotypic, Genotypic, F2th, F3th, OC Cattle

Effectiveness of Guava Leaves Juice as Antibacterial in Poultry Egg Incubator Disinfection

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ABSTRACT

The aims of this study was to determine the effectiveness of guava leaves juice as an antibacterial disinfection of poultry egg incubator. The experiment was conducted using completely randomized design (CRD). Three treatments of guava leaf juice concentration were applied, namely: concentration of 25% (T_1), concentration of 50% (T_2), and concentration of 75% (T_3) with 6 replicates per treatment. The parameters tested were inhibition effect on bacteria *in situ*, reduction of the number of total bacteria and fungi on poultry egg incubator. Data obtained were analyzed by analysis of variance and the Duncan test was utilized to determine the difference between treatments. The results showed that: (1) the higher of guava leaves juice concentration resulting a wider inhibition zone, effective both in coccus and bacil bacteria, (2) concentration of guava leaves juice 75% decreased total of bacteria by 89.53 %. It reflects that the guava leaves juice effectively used as a disinfectant on poultry egg incubators.

Keywords: Disinfection, Guava leaves, Inhibition zone, Antibacteria, Poultry egg incubators

Pregnancy rate of Bali Cows following Artificial Insemination using Chilled Sexed Sperm under Intensive Management in Tropical Area

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ABSTRACT

Application of sexed sperm either in the form of chilled semen or frozen semen in artificial insemination of cattle is commonly used to produce the desired sex of offspring. In this study, 20 bali cows were used to evaluate the success rate of artificial insemination using chilled sexed sperm of bali cattle to induce pregnancy. All cows were kept in individual pens under intensive management with environmental temperature 30 to 32^{o}C and fed native grass *ad lib* plus 1.5 kg rice bran per cow per day. Semen was collected from bali bull and sperm sexing using albumin column method was performed to produce sexed sperm. All cows were performed estrus synchronization using PGF2α and artificial insemination was applied on day 3 after synchronization. Estrus detection was performed on day 2-3 following synchronization to evaluate the estrus percentage and estrus quality. Whereas pregnancy rate was determined on two occasions during sixty days following application of artificial insemination. Twenty one days after artificial insemination, pregnancy was judged by non return rate, while on day 60s following artificial insemination, the pregnancy was determined using rectal palpation methods. The results showed that only one cow (5%) showed sign of estrus again on day 21 after application of artificial insemination, while 19 cows (95%) did not show sign of estrus which expressed the early sign of pregnancy. However, on day the 60s after application of artificial insemination only 11 cows (55%) were predicted pregnant following rectal palpation. In conclusion, PGF2α could promote estrus sign with good percentage and quality while chilled sexed sperm of bali cattle could induce pregnancy with fairly success rates.

Keywords: Synchronization, Chilled sexed sperm, Bali cattle, Artificial insemination, Pregnancy

Blood Biochemical Profile of Repeated Breeding Friesian Holstein Grade Cows in the Dairy Processing Unit Faculty of Animal Science Gadjah Mada University

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ABSTRACT

The study was conducted to determine the profile of glucose, cholesterol and blood ureum nitrogen (BUN) of repeated breeding Friesian holstein grade (FHG) cows in Faculty of Animal Science, Gadjah Mada University (UGM). Eighteen heads of FHG cows were equally distribution into repeated breeding and normal cycling groups. The blood samples were collected through caudal vertebrae vein for three times a week. The blood samples were analyzed for plasma glucose, plasma cholesterol and BUN in the Research and Development Integrated Laboratory (LPPT) UGM, then the data were analyzed using T-test. The result showed that there was no significant difference of glucose and cholesterol concentration between the repeat breeding and normal cycling cows. The averages of glucose and cholesterol of repeated breeding cows were 58.53± 3.86 mg/dl and 154.81± 16.64 mg/dl, whereas of normal cycling cows were 61.47± 8.87 mg/dl and 196.06± 82.02 mg/dl. Futhermore, there was a signficant difference of BUN between the repeated and normal cycling. The averages BUN of repeated breeding and normal cycling FHG cows were 31.99±4.80 mg/dl and 28.10±3.97 mg/dl. It could be concluded that repeated breeding FHG cows have similar glucose and cholesterol concentrations in the normal cycling, however the BUN concentration of repeated breeding FHG cows is higher than in normal cycling.

Keywords: Repeated breeding, Friesian holstein grade cows, Glucose, Cholesterols and Blood ureum nitrogen

Study on Vaginal Epithelial Cells in Ongole Grade Cattle Suspected Reach Puberty

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ABSTRACT

Puberty is characterized by the time when cattle first estrus. Estrus in cattle can be seen through the cytology of the vaginal epithel (Vaginal smear). The study aimed to assess the vaginal wall cytology of Ongole Grade cattle predicted in the onset of puberty. Ongole Grade cattles were reared by a group of farmers which located in six sub-district: Mirit, Lembu Purwo, Ambal, Puring, Petanahan, and Klirong in Kebumen district, Central Java Province. The estimation of puberty was using 3 nonlinear mathematical models consisted of Gompertz (6.3 months, n = 4), Bertalanffy (7.2 months, n = 4), and Logistics (10.9 months, n = 7). Vaginal smear was done by smear wetted cotton bud using aquadest on Ongole Grade cattle vaginal wall, then it was applied to glass object. The glass objects were immersed in alcohol (70%) for 5 to 7 minutes, then it were immersed in liquid giemsa stain (5%) for 45 minutes. The glass objects were dried, then it were observed using a microscope with magnification 40 times. The vaginal smear samples were taken 8 times, and done every 3 days. The results showed that there were only parabasal and intermediates cell in all ages of cattle observed. This indicates that all the animals observed have not entered the age of puberty.

Keywords: Kebumen, Ongole, Puberty, Smear, Vagina

Selection for Bali Bull Based on Growth Traits Using Animal Model

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ABSTRACT

Bali cattle are one of the Indonesian germ plasma. The cattle have many advantages for development in the tropics. The purpose of the study was to selection for Bali cattle bulls based on animal models method. Data used comprised of 428 weaning weight, yearling weight and body weight gain derived from 28 males. Prediction of components of genetic and environment variance and co-variance, and heritability were obtained using VCE 4.2. Breeding value was estimated on the traits of production: weaning weight, yearling weight and body weight gain using PEST. The heritability of weaning weight, yearling weight and body weight gain was 0.09±0.15, 0.27±0.13, and 0.47±0.15, respectively. The AI bull coded number 4 is the best male with relative breeding value of 33.227 kg.

Keywords: Bali cattle, animal model, evaluation, growth traits

The Estimation of Natural Increase, Population Dinamics and Output of Beff Cattle in Klaten Central of Java

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ABSTRACT

The purpose of this study was to calculate the estimation of natural increase, population dynamics and output beef cattle in Klaten. This research was carried out from December 2015 until January 2016 at the District of Ngawen, Prambanan and Tulung, Klaten, Central of Java. The material used in this study was a questionnaire which contains the identity of the breeder, livestock production and reproduction data, death data, mutations, maintenance system of livestock and population data as well as the last 7 years in Klaten Regency, Central of Java.The research used census method by using the sample that is in accordance with the rules of research methodology. The selected district was the district with a high, medium and low population i.e. Tulung, Prambanan and Ngawen. From the three selected district then selected three villages which had a high, medium and low population of cattle. The numbers of respondents in this research were 951 people. The results showed that the natural increase of beef cattle in Klaten was 27.14 %. The estimation of population dynamics of beef cattle in Klaten Regency 2015 to 2019 respectively 115447, 119427, 123406, 127386 and 131365. The out put estimation of beef cattle in Klaten was 18.10% included in the low category. Total output in Klaten by 2015 to 2020 respectively 29670, 30693, 31715, 32738 and 33761. Factors that affecting the output of beef cattle was the number of cattle needs and the replacement. The natural increase and population dynamics affected by the birth, death and mutations. In conclusion, Klaten was one of the sources of beef cattle in Central of Java.

Keywords: Natural Increase, Population Dinamycs, Output, Beef Cattle

Estimate the Milk Production of Friesian Holstein (Fh) Based on Incomplete Record in Balai Besar Pembibitan Ternak Unggul-Hijauan Pakan Ternak (Bbptu-Hpt) Baturraden, Banyumas, Central Java

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ABSTRACT

This study aimed to estimate the milk production of Friesian Holstein based on incomplete record in Balai Besar Pembibitan Ternak Unggul – Hijauan Pakan Ternak (BBPTU-HPT) Baturraden, Banyumas, Central Java. The material used was secondary data of milk production records in 2014 and 2015 of 95 dairy cattles in BBPTU-HPT Baturraden. Estimated milk production based on incomplete record method used milk production data every 15th day of each month of lactation. The analysis used for the calculation of milk production on the basis of complete records and incomplete records that use the compare means t-test. The result of the calculation of the estimated average milk production FH in BBPTU-HPT Baturraden used the complete records and incomplete record is not significant, so the calculation of the milk production based on incomplete record on the 15th day of each month during lactation may be used as an alternative in the milk production record method with a percentage error of -1.34%. Milk production of FH dairy cattle in BBPTU-HPT Baturraden are above standard milk production of FH dairy cattle in Indonesia.

Keywords: Dairy Cattle, Friesian Holstein, Milk Production, Incomplete Record

Genetic Diversity of Bali cattle from several locations in Indonesia Based on Mitochondrial DNA-Cytochrome b gene

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ABSTRACT

Bali cattle are Indonesian local beef cattle as one of beef cattle gene pool in South East Asia now becoming important in supplying the national beef cattle needs in Indonesia. Bali cattle now distributed through out of Indonesia. Their genetic characteristics therefore can be evaluated for their genetic variability through cytochrome-b gene study. This study was designed to evaluate genetic diversity and genetic relationship of within species or population Bali cattle from several locations of Indonesia based on maternal line of cytochrome-b gene. Amount of 11 samples consisted of 10 Bali cattle (2 Mataram, NTB; 2 NusaPenida, Bali; 2 Bima, NTB; 2 Riau; 2 South Kalimantan) and 1 Banteng from Prigen Malang were applied in this study. A PCR method was conducted to amplify the cytochrome-b gene then sequenced. A cytochrome-b gene fragment of 1,243bp was amplified at 51oC annealing with 35 cycles. The Cytocrom-b sequence was used for phylogenetic tree analysis (neighbor-joining: bootstrap 1,000; MEGA 5.0). The result showed that all Bali cattle samples from Riau, South Kalimantan, Bima NTB, Mataram NTB and Nusa Penida Bali were in the same group of Banteng and Bos javanicus. However, the finding was different when Bison bison was compared to them which the Bison bison clustered itself group. This early finding can be used either for conservation decision or future breeding of Bali cattle.

Keywords: Genetic diversity, Bali cattle, Banteng, mt-DNA cytochorome-b

Identification of Pure Breed Bali Cattle by Using Molecular Approach

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ABSTRACT

Bali cattle are well known as local beef cattle from Indonesia and recognized as one of beef cattle gene pools in South East Asia. The Bali cattle now distributed almost throughout of Indonesia and most of them are in the status of either inbreeding or crossed breed. This recent research was intended to identify the pure breed of Bali cattle by using molecular marker approach. DNA Bali cattle samples collected from several locations in Indonesia were investigated. Amount of 24 DNA samples (23 males, 1 female) were used. Those 23 male DNAs consisted of male Bali cattle from NTB/West Nusa Tenggara (10), Riau (5), Bali (5), Kalimantan (2), and 1 male Brahman as breed control collected from Sembawa (Palembang) while one (1) DNA female was Bali cattle as sex control. An UTY gene was used in this study. All 24 DNA samples were amplified with UTY (F and R) primer for 35 cycles. Visualization of all PCR products on 1% agarose gel showed bands at 484 bp. as a right size for UTY gene, and none UTY fragment for female DNA sample (Bali cattle). Six UTY fragments were sequenced as representative of each region. The molecular analysis by ClustalW Alignment of the sequence results with reference of Genbank-NCBI showed that there was not found nucleotide different between sequenced samples to UTY reference, however there found 16 nucleotide different of sequenced samples to UTY gene reference. Similarity of UTY sequence was found 100% for sequence samples to UTY Bos Taurus and Bos indicus. This study concluded that UTY gen exists in all male Bali and male Brahman cattle. This early finding suggests that purity identification of Bali cattle needs more specific genetic marker in the Y-chromosome.

Keywords: Pure breed, Bali cattle, molecular analysis, UTY gene

Phenotypic Characterization Of Indonesian Local Ducks Based on Body Measurements

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ABSTRACT

The objective of this study is to phenotypically characterize body measurements among Indonesian local ducks. Eight body measuarements were included in this study, namely beak width (BW), beak length (BL), neck length (NL), breast width (BD), shank length (SL), teo length (TL), foot width (FW), and claw length (CL). Total 210 individuals from seven Indonesian local ducks (Alabio, Mojosari, Magelang, Rambon, Pegagan, Bayang and Turi) were analyzed and they were reared in different areas. Pearson's correlation coefficients between body measurements were analysed within each groups. BW was found to be significant ($P<0.005$) and positively correlated with BL for 4 groups (Alabio, Magelang, Mojosari, and Pegagan). The TL was significantly ($P<0.005$) correlated with FW for 3 groups (Alabio, Magelang, and Rambon). The present study may provide some basic information for characterization and future improvement strategies among Indonesian local ducks.

Keywords: Phenotypic Characterization, Body Measurements, Indonesian Local Ducks

Restriction Enzyme Mapping of MC4R Gene in Bligon Goat Using Bioedit Program

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ABSTRACT

Restriction enzymes are a fundamental tool of molecular biology for determination of diversity and in vivo function. Many research used restriction enzyme for genotyping mammals based on MC4R gene. The objective this study to map the restriction enzyme of MC4R gene in Bligon goat. The mapping of restriction enzyme on MC4R gene was carried in Bligon goat (n=10). MC4R gene was amplified using specific primer forward and reverse, resulting 642 bp of amplification products. We discovered 5 enzymes (*FatI, NlaIII, RsaI, Acc651* and *KpnI*) which recognized 2 SNPs region based on restriction mapping using Bioedit program. There were three recommended enzymes (*RsaI*, *Acc651* and *KpnI*) for genotyping the Bligon goat. In the present study, an individual with CC genotype produced 2 fragments with enzyme *RsaI* and 1 fragment with *Acc651* and *KpnI*. An individual with CT genotype produced 4 fragments with enzyme *RsaI* and 3 fragments with *Acc651* and *KpnI*. In conclusion, we suggested that restriction enzymes *RsaI, Acc651* and *Kpn1* may be used for genotyping of a targeted gene using PCR-RFLP method for Bligon goat in the future research.

Keywords: Bligon goat, Sequencing, MC4R gene, restriction mapping, Bioedit

Evaluation the Natural Proportion of X-Y Chromosome Bearing Sperm of West Java Local Ram Using Morfometric Methode

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ABSTRACT

Local Ram has a great contribution to supply of meat consumtion especially in West Java. Reproductive biotechnology was used to ensure meat production such as sperm sexing technology. As a preliminary study of Sperm Sexing technology in Local ram, we should know the natural ratio of X-Y chromosome bearing sperm to develop the sperm sexing methode. The objective of this study were to evaluate the natural ratio of X-Y chromosome bearing sperm in Local Ram. The object of this research was semen from 30 Local Ram, and then was made differential preparat for counting the size of head sperm as much 200 sperm cell. Sperm whose head size is greater than the average is categorized as X chromosome bearing sperm (X sperm), and smaller than average is categorized as the Y chromosome bearing sperm (Y sperm). Analisys data consist of percentage of X and Y chromosome bearing and then will avearage from 30 local Ram. The result of this study showed that of 30 Local Ram that were sampled had a sperm head length between 8.14 to 9.31 µm with an average of 8.66 µm; Sperm head width between 4.50 to 5.39 µm with an average of 4.93 µm; Sperm head area ranges from 22.97 - 59.30 μm^2 with an average of 36.82 μm^2. Based on the size of the sperm head, obtained the average proportion of sperm X and Y of 50.70% (X) and 49.30% (Y). Based on the research data, it is concluded that the proportion of X and Y chromosomes bearing sperm of West Java Local Ram approached the proportion of 50: 50, indicating that the birth of male and female lamb in Local Ram had equal opportunity value.

Keywords: X-Y Chromosome bearing sperm, Local Ram

Phenotypic Study Results of Crosses between Local Chickens with Layer Chicken Isa Brown

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ABSTRACT

This research was conducted to produce crossbred by cross between local chickens with laying chicken strain isa brown. This study uses 3 types of local chickens, namely sabu chicken (C1), bangkok chicken (C2), and naked neck chicken (C3) which is crossed with laying hens Isa brown. Phenotypic properties studied include egg production, egg weight, fertility, hatchability, embryo mortality and hatching weight. The results showed that mating group have not significant effect (P>0.05) on egg production as measured by HDP but had significant effect (P<0.05) on egg weight. Mating groups also had no significant effect (P> 0.05) on egg fertility. Hatchability of each mating group from lowest to highest, C3 = 45.75 ± 19.03%, C1 = 49.35 ± 15.34%, and C2 = 58.37 ± 14.17%. However, statistically found there was not significantly different (P> 0.05). Embryo mortality rate was found to be quite high for the three mating groups, i.e C3 = 54.25 ± 19.03%, C1 = 50.65 ± 15.34%, and C2 = 41.63 ± 14.17%. This study uses Completely Randomized Design with the mating group as the treatment. The treatments are C1: sabu rooster x isa brown hen, C2: bangkok rooster x isa brown hen, and C3: naked neck rooster x isa brown hen. Each treatment was repeated 3 times and each replication consisted of 5 hens. but not significantly different (P> 0.05). The resulting hatching weight ranged from 43.85 to 46.84 grams with average for each group was C1 = 44,26 ± 4,76 grams, C2 = 46,04 ± 4,59 grams, and C3 = 43,85 ± 4,30 grams. Statistical analysis showed that mating groups had no significant effect (P> 0,05) on the hatching wight. Cross between bangkok rooster and isa brown hens showed better results compared to the other two crosses.

Keywords: Phenotypic, Crosses, Local chicken, Isa Brown

Micropropagation of Banana Plant (*Musa paradisiaca*) cv. Raja Bulu through Tissue Culture for Diversification of Food and Feed

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ABSTRACT

Banana cv. Raja Bulu is a perennial herbaceous monocot plant which is one of the main fruit crops in Indonesia. Banana plant residues can be used as feed for livestock. In order to produce faster and healthier plant, it is required an efficient micropropagation method. This research was aimed to optimize initiation, multiplication, and regeneration of shoot tip culture. Shoot tips from young suckers of 40-100 cm height were used as explants. From the selected sucker a cube of tissue of about 1-2 cm^3 containing the apical meristem was excised. This block of tissue was dipped in 75% ethanol for 10 s, surface sterilized in a 1% sodium hypochlorite solution for 15 min, and rinsed three times in sterile water for 5 min. Then, a shoot tip of about 3 × 5 mm, consisting of the apical dome covered with several leaf primordial was aseptically dissected. The explant was placed on a multiplication-inducing culture medium which were Murashige and Skoog (MS) based medium supplemented with phytohormone BAP and NAA were used for culture initiation and shoot multiplication. Of various treatment combinations, MS medium + 6 mg/L BAP with 0.2 mg/L NAA showed highest multiple shoots formation. For rhizogenesis, individual shoot was transferred to MS medium + 1 mg/L NAA and 50 mg/L activated charcoal.

Keywords: Micropropagation, Banana cv. raja bulu, Initiation, Multiplication, Regeneration

Cortisol Hormones Profiles of Repeat Breeding Local Cattle

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ABSTRACT

This study aimed to determine the profile of the cortisol hormone in repeat breeding of local cattle. Twenty heads of Bali and Madura cows were used in this study. Each breed consisted of 5 with the normal cycle and 5 head repeat breeding. The cows were 3-5 years of age and had been calving at least once with normal cycle oestrus and healthy body condition. Blood sampling was collected in Bali and Madura islands. To compare the differences of cortisol hormone in both Bali and Madura cows, the statistical analyzing using t-test had been conducted. The result showed that the hormone cortisol concentration in both normal and repeated breeding condition in Madura cows (16,39±5,82 vs 18,86±5,32) was lower than Bali (43,18±30,98 vs 81,79±22,90). Conclussion, the level of hormone cortisol in the repeat breeding cattle is higher when compared with the normal cycle of both breed.

Keywords: Cortisol hormone, Bali Cattle. Madura Cattle, Repeat breeding

Effect of Extender Medium and Cooling Rate on the Quality of Frozen Semen Post-*Thawing* at Bali Bull *(Bos Sondaicus)*

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ABSTRACT

This study was aimed to analyze effect of extender medium and cooling rate on the quality of frozen semen post-*thawing* at Bali bull *(Bos sondaicus).* The experiment was conducted in a completely ramdomized design factorial of 6 threatment (2x3) and 3 replicates. Data were statistically analyzed using analysis of variance (ANOVA) and Duncan test was employed to assess statistical differences between treatment. The first factors was extender such as Tris citrat egg yolk (TCEY) and Tris citrat soy milk (TCSM). The second factors was the *cooling rate* such as: 15°C/min, 10°C/min and 5°C/min. Variables measured include: sperm motility, live sperm, sperm abnormality, and membrane integrity of spermatozoa Bali bull. The results of this study on the treatment of extender medium TCEY (A1) shows the best results with the sperm motility of 43.15 ± 4.67%, live sperm 53.78 ± 3.79%, sperm abnormality 18.89 ± 1,07% and membrane integrity 35.44 ± 3.01%. As well as the results of research on the treatment with *cooling rate* of 10°C /min (B2) showed the best results with sperm motility of 44.35 ± 5.28%, live sperm 57.17 ± 1.18%, sperm abnormality of 17.84 ± 0.23 % and membrane integrity 36.83 ± 2.12%. The interaction between extender medium and *cooling rate* was founded significant different (P>0.05). Results of analysis of variance showed that there was a highly significant difference (P> 0.01) between the two extender medium and three *cooling rate* on post - thawed of motility, live sperm and membrane integrity and had no significant (P <0.05) on the sperm abnormality, It can be concluded that the extender medium Tris-citrat egg yolk (TCEY) with *cooling rate* of 10°C / min resulted the best in sperm motility, live sperm, and membrane integrity spermatozoa.

Keywords: Frozen semen, Bali bull, *Cooling rate*, Extender medium

Chromosome Duplication of *Brachiaria decumbens* Grass Using Colchicine

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ABSTRACT

Brachiaria decumbens is one of important tropical forage grasses. This grass has exceptional adaptation to acidic soils, vigorous growth, ease of establishment, and good forage value throughout the year, but it is susceptible to spittlebugs pest. Breeding and improvement of forage grasses can be approached through cytological and genetic investigations. These research can contribute fundamental information that can be applied to the breeding of grasses. This research was aimed to optimize chromosome duplication of tetraploid *B. decumbens* (2n=4x=36) grass using colchicine. Explant of immature inflorescences were isolated and cultured in MS medium supplemented with 4 mg/L 2,4D and 0.2 mg/k kinetin for 4 weeks. The embryogenic calli were then transferred to regeneration medium MS supplemented with 4mg/l kinetin. Basal segment of the planlets then were immersed with a range of colchicine concentration (0.01%, 0.05%, and 0.1%) for 24 and 48 hours. After that, the buds were again placed in an MS medium without colchicine for regrowth. The chromosome number were confirmed by cytological analysis of root tips. The treatment of 0.1% colchicine for 48 hours can induce ploidy increase up to 15%. There was an increase in the rate of ploidy related to the increase in colchicine concentration.

Keywords: *Brachiaria decumbens*, grass, chromosome, duplication, colchicine

Pre-Weaning Growth of Etawah Grade Kids Based on Doe's Hair Color Differences

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ABSTRACT

This study was aimed to determine the effect of in hair color differences of Etawah Grade does on the pre-weaning growth of kids. Twenty eight Etawah Grade kids which born from 21 does were divided into different hair color group : 7 goats with black-white color patterns (BW), 7 goats with brown-white color patterns (BR), and 7 goats with combination of black-brown-white color patterns (CC) or mixed colors. The research data consisted of milk consumption, pre-weaning growth of kids and body size. The data was analized using anaysis of variance with one-way anova and continued with Duncan's New Multiple Range Test for significant differences. The results indicated that there was a significant differences ($P<0.05$) on daily milk consumption of Etawah Grade kids born from the does with differences hair colors ((BW: 645.84±311.76 g/days, BR: 711.23±240.22 g/days; CC: 603.54±224.97 g/days). There was no effect of hair color pattern's does on the birth weight (BW: 3.32±0.34 kg, BR: 3.44±0.30 kg, CC: 3.36±0.39 kg, weaning weight (BW: 13.39±1.72 kg, BR: 14.98±2.38 kg, CC: 14.21±2.45 kg), average daily gain (BW: 89.00±23.74 g/days, BR: 106.88±17.27 g/days, CC: 97.33±16.53 g/days), and body size's of kids (body length, shoulder height, hearth girth, chest depth, and ear length). It can be concluded that the kids of Etawah Grade goats born from the doe with difference hair color patterns have the same pre-weaning growth except for milk consumption.

Keywords: Etawah Grade goat, Hair color, Pre-weaning growth

Evaluation of Protein Protected in the Cow Beef Cattle Rations Base-on the Fermentation and Microbia Activities Ruments by In Vitro

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ABSTRACT

The purpose of this study was to evaluat the effect of protein protection in the rations of beef cattle on rumen fermentation and microbial activities in vitro. Soybean groats as a source of protein. Protection using 37% formaldehyde at 2% dry matter of feed mixture of soybean groats and lemuru fish oil was conducted. Rumen fluid were taken from the Ongole crossbred cow fistulated. Rumen fermentation was observed 48h of incubation in rumen fluid by in vitro. Feed treatments including T0 (30% fermented straw+30% elephant grass+40% control concentrate), T1 (30% fermented straw+30% elephant grass+32.5% control concentrate+7,5% protein unprotected), and T2 (30% fermented straw+30% elephant grass+32.5% control concentrate+7,5% protein protected). The results of the rumen fermentation by in vitro evaluation showed that pH, ammonia and VFA levels were not significantly affected by the treatment. The microbial activity by in vitro evaluation showed that microbial protein synthesis and CMC-ase were not significantly differenrt ($p>0.05$) but protozoa population significantly reduced ($p<0.05$). The number of protozoa in the 7.5% of protected proteins in the cow beef cattle rations was lower than in other treatments in vitro. It was concluded that are rumen fermentation and rumen microbial activity by in vitro evaluation were not affected by the formaldehyde treatment. Formaldehyde treatmentat 7.5% resulted in lower number of protozoa but this did not interfere with the continuity of in vitro rumen fermentation.

Keywords: Protein protected, The cow beef cattle rations, Fermentation ruments, Microbiaactivities ruments, In vitro

Nutrient Adequacy of Bali Cattle Fed Only Forage Derived From Palm Oil Plantation in Riau Indonesia

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ABSTRACT

An integrated system of cattle with palm oil plantations in Indonesia is potential in order to increase the cattle population in a sustainable manner. The study aims to assess the adequacy of Bali cow nutrient consumption only fed with forage derived from oil palm plantations. Five Bali cows pregnant about 5 months and 7 cows are not pregnant observed to find out their feed consumption. Cows were given only forage derived from oil palm plantations in Riau which contains dry matter (DM) 22.24%; crude protein (CP) 10.67%; crude fiber (SK) 36.85% and total digestible nutrients (TDN) 54.37%. Forage gave ad libitum. Observations consumption of cows in individual cages made for seven consecutive days, compared to the needs according to NRC (2003). The results showed that if only fed with forage of palm oil plantations did not meet the requirement of the cow; on the condition of pregnant, deficiency of DM as much as 2.76±0.20 kg/head/day (44.29±2.56 g/kgW^{0,75}/day; CP as much as 176.0±35.8 g/head/day (2.83±0.62 g/kgW^{0,75}/day); TDN as much as 1.39±0.20 kg/head/day (22.30±1.58g/kgW^{0,75}/day), while the not pregnant cows shortage DM as much as 2.01±0.41 kg/head/day (32.77±5.85 g/kgW^{0,75}/day); CP as much as 81.4±40.5 g/ head/day (1.30±0.65 g/ kgW^{0,75}/day); TDN as much as 1.03±0.22 kg/head/day (16.80±3.16 g/kgW^{0,75}/day). From the study it is concluded that consumption of Bali cow fed only forage from palm oil plantation can not meet their nutrient requirements; additional nutrients are needed, more on a pregnant cow than not pregnant.

Keywords: Level of nutrient adequacy, Bali cows, Forage on the palm oil plantation

Characteristics of Ongole Grade Cows in the Kebumen Regency, Central Java Province

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ABSTRACT

The research was conducted to explore the characteristics of Ongole grade cows. The research was held in Klirong sub-district, Kebumen regency. Two hundred thirty of Ongole grade farmers were involved in this research and interviewed on cows reproduction characteristics and breeding management, while exterior characteristics and body size were measured directly on 217 head of Ongole grade cows. Data of body size and cows performance were analyzed using mean and standard deviation, while exterior characteristics were analyzed descriptively and presented in percentages. Exterior characteristics of Ongole grade cows were white color in body and face, have a hump, big dewlap, long and hanging ears. Body size of Ongole grade cows at the three to four years old in terms of heart girth, shoulder height, body length, hip height, hip width and head index were 168.60±13.15 cm; 131.10±8.71 cm; 135.57±13.70 cm; 136.20±13.03 cm; 45.23±1.03 cm and 0.41±0.01, while at cows more than four years old were 170.97±11.02 cm; 130.10±5.61 cm; 136.00±9.21 cm; 136.67±5.83 cm; 45.27±0.99 cm and 0.41±0.01. The PPE, PPM, and S/C of Ongole grade cows were 4.07±0.18 months, 5.01±0.38 months, and 1.71±0.14. It was concluded that body sizes and performance of Ongole grade cows still in the normal range and relatively better than another research.

Keywords: Characteristics, Ongole grade cows, Kebumen regency

Blood Biochemical Profile of Bali Cattle with Repeated Breeding Condition

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ABSTRACT

The current research aims to identify the blood biochemical profile of the Bali cattle with repeated breeding condition. This research conducted in *Sege* Village, *Karangasem*, Bali Island to collect the blood sample then the analysis was conducted in the integrated research and testing laboratories or *Laboratorium Penelitian dan Pengujian Terpadu (LPPT)* Universitas Gadjah Mada, Yogyakarta. This research used 10 Bali cattle which consisted of 5 cattle having repeated breeding and 5 others are in the fertile condition. The data collected include the blood glucose level, total cholesterol and total albumin. The results showed that the glucose level of the blood serum in repeated breeding cattle category (44±6.95) was lower than the fertile cattle (44.26±5.44). The cholesterol level of the Bali cattle with repeated breeding was lower (111.72±28.81) compare to Bali cattle with fertil condition (119.92±36.38). This Result was also in line with the albumin level in Bali cattle having repeated breeding, which is lower about (4.31±0.36) compared to the fertile cattle (4.45±0.69). Moreover, the blood biochemical profile of the Bali cattle with repeated breeding was lower than the fertile cattle.

Keywords: Repeat Breeding, Bali Cattle, Glucose, Cholesterol, Albumin

Physiological Response and Blood Profile of Sheep Given Forage and Cassava Leaf Silage (*Manihot esculent*a sp.) in Petir Village, Bogor

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ABSTRACT

The study aimed to evaluate the effect of forage chopping and supplementation of cassava leaves silage or concentrate on physiological response and blood profile of sheep. Sixteen male sheep of 12 months old with average body weight of 21.55 ± 2.02 kg were placed in individual cage. Feed was offered at the level of 3.5% of body weight on dry matter basis and given three times at 0730, 1230 and 1730. Drinking water were provided ad libitum. Completely randomized block design applying four treatments and four groups were used in this experiment. The treatments were T0 (100% forage), T1 (100% chopped forage), T2 (80% chopped forage + 20% concentrate), and T3 (80% chopped forage + 20% silage cassava leaves). The variables observed were pshyiological responses (respiration rate, heart rate, and rectal temperature) and blood profile (haemoglobin, haematocrite, erythrocytes, and leucocyte). Physiological responses were measured once a week in the morning, at noon and afternoon. Data obtained were analyzed using analysis of variance (ANOVA) and any significant differences were further tested using Duncan's multiple range test. The results showed that treatment had no effects on rectal temperature of sheep. Supplementation of cassava leaves silage or concentrate increased ($P<0.05$) morning and noon respiration rate. Supplementation of cassava leaves silage increased ($P<0.05$) heart rate at noon. Suplementation of cassava leaves silage or concentrate did not affect erythrocyte, haemoglobin and haematocrite of sheep. Chopping of forage increased the number of leukosit, but supplementation of cassava leaf silage and concentrate recovered the effect of chopping on leucocite. Chopping of forage tended to give better effects on physiological responses. While, supplementation increased heat load onto sheep, even though this can still be handled by sheep thus do not cause heat stress.

Keywords: Blood profile, Cassava leaves silage, Concentrate, Physiological response, Sheep

The Effect of Starting Time of Hand Milking on Lactation Period and Milk Production of Etawah Crossedbred Goat in Smallholder

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ABSTRACT

The study was done in a group of farmers in Sleman Yogyakarta. The aims of study was to investigate the effect of starting time of hand milking on goat on their lactation period and milk production. Data were collected by interviewed farmers and observation in the farm. Number of total sample were 38 respondents. Samples were divided into group A and B. Group A consisted of farmers who began conducting hand milking in the first or second month of lactation, by separating the kids at night. Group B were farmers who began milking the doe by hand at 2 to 3 months of lactation, after the kids were completely weaned. The does in both groups were milked once every morning. Data pertaining reproductive traits data was obtained by interviews with farmers, based on the data of goats that were milked at the time of the study. The data consists of number of lactation (parity), litter size, the doe (whether it is pregnant during the lactation period), post-partum mating. The starting time of hand milking on goat has no effect on lactation period but significantly affected post-partum matting the duration of milking a goat by hand and milk production for consumption. The value in group A and B were respectively 3.15 Vs 5.18 months, 4.46 and 2.20 months, 18. 31 and 10.35 Liter. milking that was started at the 1st to 2nd months of lactation caused shorter PPM, longer milking time for commercial milk and more collected milk production, so that more efficient to produce kids and milk for commercial purposes.

Keywords: Weaning methods, lactation period, milk production goat

Effects of Level of *Chromolaena odorata* in Complete Feed on Intake and Rumen Fermentation of Cattle: *Pellet Diets*

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ABSTRACT

Chromolaena odorata (CO) is a potential cheap protein source for livestock in dryland areas of Indonesia due to it is abundant availability and high crude protein content (21-36 %). However, it could hampers livestock productivity as it contains various secondary metabolic compounds which possibly act as antinutritional agents. Pelleting is one of the physical treatments aimed at diminishing these anti-nutrition associated effets. The present experiment designed to assess the efficacy of incremental level of CO in pellet diet for fattened cattle. Four growing Bali bulls (aged ±*2* y.o) were allotted into four dietary treatments using Latin Square Experimental Design principles. The treatments were pellet diet containing 10% CO (**COP10**) or 20% CO (**COP20**) or 30% CO (**COP30**) or 40% CO (**COP40**). The pellet was offered at 2% liveweight, while kume grass (*Sorghum plumosum*) were offered *ad libitum*. The treatment diets were iso in crude protein (18%) and metabolisable energy (12 MJ) content. Variables measured were intake, digestibility, rumen fermentation, and rumen microbial crude protein (MCP) supply. The results showed that level of CO in pellet diet significantly reduced feedintake but not nutrient digestion, rumen fermentation and rumen MCP supply. It might be concluded that inclusion of CO as protein source up to 40% in the pellet diet for fattened cattle but care should be taken since there was a tendency toward a decline in feed intake.

Keywords: Chromolaeana odorata, protein, intake, digestibility, cattle

Performances of Pregnant-Crossbred Ettawa Goats Given Pellet Concentrate Containing *"Sesbania grandiflora"*

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ABSTRACT

The use of by-product of fried-snack industry as a main material of mash concentrate and supplemented with fresh "*sesbania grandiflora*" for crossbred Etawa goats could maintain the productivity. But the mash concentrate intakes were decreasedby increasing the levels of the fresh "*sesbania grandiflora*" leaf. This study was conducted to evaluate the performances of pregnant crossbreed-Ettawa goats given pellet concentrate containing "*sesbania grandiflora*" leaf. Sixteen pregnant-crossbreed Ettawa goats with the initial body weight of 34,6 ± 3,4 kgwere divided into 2 groups of eight does each and placed in metabolic individual cages and given one of 2 type concentrates treatments (T_1: mash + fresh sesbania grandiflora leafand T_2: pelletconsist of mash and dry "*sesbania grandiflora"* leaf). The goats were fed basal diets of fresh field grass and banana peel,and concentrate consisted of rice bran, by-product of fried-snack industry, urea and mineral mix with the proportions of 47,5% : 47,5% : 3% : 2%.The variables observed were concentrate, field grass, total DM andwater intakes;ADG and thebirth weight of kids. The results showed that there were significant increase ($P<0.05$) on pellet concentrate intakes, total dry matter intakes,ADG of does, and water intakes, but thefield grass intakes and birth weight of kids were not significantly influenced ($P>0.05$) by feeding pellet concentrate. There were tendencies, however, the field grass intakes of the goats fed pellet concentrate and thebirth weight of kids were higher than thoseon the goats fed mash concentrate.It is concluded that feeding of pellet concentrate containing dry "*sesbania grandiflora"* leaf to pregnant-crossbred Etawa goats is more efficient than that of feeding mash concentrate with fresh "*sesbania grandiflora*" leaf. It is suggestedthat if the pregnant crossbred-Etawa goats were fed pelletconcentrate containing dry *sesbania* leaf, drinking water must be available ad-libitum.

Keywords: Pregnant-crossbred-Ettawa goats, Pellet concentrate, Dry matter and water intakes,ADG and Birth weight of kids

Impact of Dairy Cow's Comfort Using Zero-Flies Fence on Feed Intake and Nutrient Utilization

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ABSTRACT

Uncomfortable condition such as flies' invasion may prevent cows in providing sufficient precursor for milk synthesis because of limited time for prehension, laying down for rumination and nutrient metabolism. An experiment to study the impact of zero-fly fence on feeding behavior, intake and nutrient utilization have been conducted. Twenty two lactating cows were used in an unbalanced experimental design. The experiment to test with (T1) or without (T2) zero-fly fence treatments. Fly population, cattle behavior, milk production and feed and nutrient intake were observed. The result showed that zero-fly fence reduced fly population, increase feed intake and milk production. It is suggested to use the fence in area affected by flies' invasion.

Keywords: Dairy, Zero-flies, Flies' invasion, Cow's comfort, Milk production

Performance of the Simmental Ongole Crossbred Cow Estrus In To Use PGF2α and GnRH Hormone Injection

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ABSTRACT

The purpose of this study was conducted to determine the effect of the hormone PGF2α and GnRH in the onset of estrus Simmental Ongole crossbred cow. This research has been conducted in the Jatikuwung Farm, Department of Animal Husbandry, Faculty of Agriculture, Universitas Sebelas Maret. The experiment uses design Complete randomized design (CRD) treatment was repeated 3 times using nine cows. Treatment consisted of P1= PGF2α 0.5 doses and GnRH 1.50 doses, P2 = PGF2α 1 doses and GnRH 1 doses, and P3 = PGF2α 1.5 doses and GnRH 0.5 doses. After the first injection of hormones PGF2α all visualizations observed estrous cow once every 07.00 a day for 11 days. The second PGF2α injected simultaneously on all cows after the eleventh day of the first PGF2α injection. Observations visualization estrous done eight times a day. Estrus detection was done by using heat detector. GnRH injection performed on the second day after the second PGF2α injection and estrous observations made every two hours interval. Cows are showing signs of estrous directly mated with artificial. The second injection of PGF2α implemented 11 days after the first PGF2α injection and three days later injected GnRH. Both of them is done intra muscular injection. The results of this study indicate that all cattle estrus (100%), the average onset of estrus P1, P2 and P3 were 18±19.05, 21±12.49 dan 18±19.05 hours after the second injection PGF2α. Estrus detection results using a heat detector P1 = 253.33 ± 40.42, P2 = 276.67 ± 15:28, and P3 = 300.00 ± 10,00. The mean erectile uteri is P1 = 3:00 ± 0:00, P2 = 2:33 ± 1.15 and P3 = 2.66. ± 0:57. Conclusion of the study is the difference in dose of PGF2α and GnRH response estrus appearance the same. The most economical is the use of injection PGF2α 0.5 doses and of GnRH 1.5 doses.

Keywords: Simmental-ongole crossbred, Estrus, PGF2α, GnRH, Heat detector

Comparison of Calving Rates with Two Oestrus Synchronization Protocols in Doro Ncanga Buffalo Cows Raised Extensively In Tambora Savannah

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ABSTRACT

This study was undertaken to compare two estrus synchronization protocols in Doro Ncanga buffaloes. Twenty four cows were divided into two groups of 12 cows. Animals in Group 1 were treated with two injections of $PGF_{2\alpha}$ (Estron; Dinoprost thromithamine) 25 mg each intramuscularly at 11 days apart. Animals in Group 2 received 100 µg GnRH (Fertagyl; Gonadorelin acetate) on Day 0 and $PGF_{2\alpha}$ on Day 7. Each animal in the two gropus received one timed artificial insemination 72 h after the last $PGF_{2\alpha}$ administration. In Group 1 and Group 2, calving rates to the first service were 50% and 33%, respectively. Though the percentages of calving rate per synchronization were numerically higher in Group 1 than Group2, the difference was not significant ($p>0.05$). The findings indicated that synchronization of estrus with $PGF_{2\alpha}$ alone resulted in a higher calving rate compared with synchronization of estrus using a combination of $PGF_{2\alpha}$ and GnRh.

Keywords: Buffalo, Oestrus Synchronization, Fixed-Time AI, Calving

Performance of Local Thin Tailed Sheep Fed Sweet Potato (*Ipomoea babatas L*) Biomass as A Substitute for Concentrate Feed

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ABSTRACT

This experiment aimed to analyze the potency of sweet potato biomass as a local feed resource for substituting concentrate feed in supporting the performance of local thin tailed sheep. The experimental design was completely randomized block design (3 x 3) using 9 sheep of 9-12 months old with average body weight of 14.34 ± 1.32 kg. They were placed in individual metabolic cage provided with buckets for feed and drinking water. Feeding level was 3.5% of their body weight on dry matter basis and given at 0630 and 1600. Drinking water was provided ad libitum. The treatments were T1 (70% Napier grass + 30% concentrate), T2 (50% Napier grass + 50% sweet potato veins), and T3 (70% sweet potato veins + 30% sweet potato tubers). Parameters measured were feed/nutrients intake, feed digestibility, body weight gain, and feed efficiency. Data were analyzed using analysis of variance and any significance different results were further tested using Duncan's multiple range test. The results showed that feed intake, feed digestibility, body weight gain and feed efficiency were significantly affected by the treatment ($P<0.05$). Daily gain and feed efficiency of sheep in T1 group (70% Napier grass + 30% concentrate) were not significantly different ($P<0.05$) from those in T3 (70% sweet potato veins + 30% sweet potato tubers). Sweet potato biomass, a local cheap feed, can be used as a substitute for expensive concentrate feed.

Keywords: Concentrate feed, Performance, Sheep, Sweet potato biomass

The Correlation of Body Measurements and Weights of Ongole Crossbred (PO) Cattle in Kebumen Regency

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ABSTRACT

The aim of this research was to determine the correlation of body measurements with body weights, slaughter weights with carcass weights and deciding the most suitable formula to estimate body weights of Ongole Crossbred (PO) cattle in Kebumen Regency. This research was conducted from September to December 2015. The materials which were used recording data from 357 male PO cattle and 762 female PO cattle were divided into three groups of age (calf, young, and mature). The correlation between body measurements and weights was analyzed by multiple regression equation analysis by using SPSS 16 with stepwise method. The estimation of body weights through body measurements used Schoorl and Lambourne formula. The correlation of slaughter weights and carcass weights was analyzed by simple regression analysis used SPSS 16. The body measurements and body weights had a great correlation that showed by R^2 value were 0.86 and 0.91 for sire and dam respectively. The estimation of young and mature male cattle body weights was better using Schoorl formula while the estimation of young and mature female cattle body weights is better using Lambourne formula. The slaughter weights and carcass weights had a great correlation that showed by R^2 value were 0.90 and 0.65 for sire and dam respectively. Therefore, according to the research's result can be concluded that there is a great correlation between body weights with body measurements and slaughters weights with carcass weights of PO cattle. The estimation of PO cattle body weights through its body measurements can be calculated with Schoorl and/or Lambourne but remain to be paid attention to the correction factors.

Keywords: correlation, body measurements, body weights, PO cattle, Kebumen

Nitrogen Balance of Bligon and Kejobong Goat Fed King Grass and Peanut Straw

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ABSTRACT

Five male Kejobong goats, six female Kejobong goats and six male Bligon goats were used in this experiment to compare their nitrogen balance when they received the diet consist of King grass and peanut straw. The animals were put in the metabolism cages, fed *ad libitum* twice a day at 08.00 am and 3.00 pm. The feeding trial was run for one-week collection period, after couple weeks of adaptation period. During collection period, samples of feed, uneaten feed, as well as feces were taken out for dry matter and nitrogen measurements. Daily urine collection was done for nitrogen analysis. The data of N intake and fecal N excretion were used to calculate nitrogen absorbed. Nitrogen balance were calculate from N absorbed substracted by urinary N excretion. The result showed, that there were no significant differences in dry matter and N intake between male Bligon, male Kejobong as well as female Kejobong. When it was presented in metabolic body weight, the dry matter intake of male Bligon significantly lower compared with female Kejobong (59.99vs.68.99g/$W^{0.75}$/day) while the N intake of male Bligon significantly lower compared with male and female Kejobong. No differences were found for fecal and urinary N excretion as well as N digested and N balance between the goats. When it was expressed in metabolic body weight, N digested of male Bligon (0.58g/$W^{0.75}$/day) significantly lower than male Kejobong (0.70 g/$W^{0.75}$/day) and female Kejobong (0.81 g/$W^{0.75}$/day. It could be concluded that King grass- peanut straw mixed diet could fulfill N requirement for male Bligon, male Kejobong as well as female Kejobong goat although metabolism response of goat could be different among breeds and sex.

Keywords: Nitrogen Balance, male Bligon, male Kejobong and female Kejobong goats

Exterior Characteristics of Jabres Cattle at Brebes Regency, Central Java Province, Indonesia

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ABSTRACT

This study was conducted to observe the exterior characteristics of Jawa Brebes (Jabres) cattle at Brebes Regency, Central Java Province. The study was conducted at Bantar Kawung and Ketanggungan Districts, Brebes Regency. One hundred and eighty eigh heads of cattle, which were consisted of 76 heads of male and 112 heads of female, were used in this study. The age of animal was ranged from calf up to 60 months. The exterior characteristics of cattle were directly observed in the farm. One hundred farmers were also involved in this study to investigate their characteristics preferences. The data collected was analyzed as quantitative description. The most body color of males were whitish brown (54.83%) and that of females were brown (47.36%). The most legs color of males were white (47.61%) and that of females were brown (38.77%). The most bottom color of males and females were white (61.53% and 42.10%). The most forehead color of males and females were plain brown without any white mark (88.58% and 86.49%). The most tail tips color of males and females were black (100.00% and 93.25%). Most of cattle had black line color on the back (66.00% of males and 65.49% of females). The most face profile of males and females were flat (60.00% and 69.62 %). All of cattle were having black lips, small and erect sideways ears, small dewlap and hump, and straight back. The horn of males was usually shorter than that of females. The withers height, body length, heart girth, and body weight of males and females were 119,50±3,26 and 117,72±3,14 cm; 115,33±1,87 and 115,18±3,90 cm; 151,50±1,78 and 151,27±3,65 cm; 239,68±5,79and 238,43±7,72 kg, respectively.

Keywords: Jabres cattle, Exterior characteristics, Brebes Regency

The Effect of Different Land and Chicken Manure Mollases Block (KAMBLOK) As Feed Supplement on the Heat Tolerance Coefficiant and Body Weight Gain of Fat Tail Sheep

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ABSTRACT

Using manure laying hens as feed supplement was Chicken Manure Mollases Block (KAMBLOK). Laying hen manure contains 28% crude fiber and protein 11.3%. Results of this study were expected to be used as farmers' guidelines and consideration in Fat-Tailed Sheep (FTS) rearing management and the development of livestock. This study was conducted in two places were lowland (Payaman Village, Indonesia-30 m asl) and highland (AgriRanch, Batu, Indonesia-700 m asl). The purpose was to study the effect of KAMBLOK to environmental adaptability expressed by the value of HTC and daily weight gain. The materials used were 10 heads male FTS ages 9-12 months at each land. Feed were elephant grass, concentrate and KAMBLOK. Water was ad-libitum. The method was experiment and direct observation. The variables were Heat Tolerance Coefficient and body weight gain. HTC in the highlands was 2.10±0.02, while FTS in lowland showed 2.11±0.02. Body weight gain in the lowlands was 85.33±4.86 g/day, while the body weight in the highlands was 117.33±6.25 g/day. The conclusion was different land and KAMBLOK did not significantly affect of HTC. Future studies suggested to use FTS with the same rearing management in different lands to obtain the rearing of an effective and efficient FTS.

Keywords: lowland, highland, respiratory rate, body temperature, environmental temperature

Effect of Plus Complete Feed (PCF) Containing $ZnSO_4$ and Zn-Cu Isoleusinate on Post Partum Estrous Cycle and Weaning Weights of Calves in Bali Cows Raised in Semi Intensive System

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ABSTRACT

An experiment was conducted to determine the effect of supplementing a formulae technology package of plus complete feed (PCF) containing ZnSO4 and Zn-Cu isoleusinate and gliricidia leaves on estrous cycleand calves weaning weights in post partum Bali cows raised in a semi intensive system. The PCF technology package was formulated of various local feed consisting of corn meal, rice bran, fish meal, coconut oil and salt. The PCF containing 17% crude protein and 78% TDN. The research used 27 post partum Bali cows. In a randomized block design with three treatments and 9 replicates each was applied in the study. Treatments offered are: basal diet in the pasture without supplementation (R0); Gliricidia leaves supplement with basal diet (R1) and basal diet with CFP supplement containing 150 mg $ZnSO_4$ kg^{-1} DM of PCF and 2% Zn-Cu isoleusinate kg^{-1} DM of ration (R2). The PCF supplement was offered once daily in the morning after the animal consuming dry grass in pasture. Variables measured were plasma glucose, plasma protein, estrous cycles, and weaning weight. The result shows that treatments have significantly effect ($P<0.01$) on all parameters study whereas that highest effect ($P <0.05$) was on supplementing PCF in the diets.

Keywords: ZnSO4, Zn-Cu isoleusinate, Semi-intensive, Bali cows, Reproduction

The Effect of Ruminally Undegradable Protein Using Formaldehyde on the Nitrogen Balance and Productivity of Kacang Goat

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ABSTRACT

Kacang goat is one of indigenous breed in Indonesia that has low in productivity. Many researchs have been tried to increase the productivity. Soybean meal (SBM) was palatable for Kacang goat; however the protein of SBM was highly degraded in the rumen. Formaldehyde has been used to increase rumen undegradable protein in ruminant to increase the productivity. The purpose of this study was to increase the productivity of Kacang goat using SBM protected with 1% of formaldehyde. Fifteen heads of yearling Kacang buck, 17.53±1.19 kg were arranged with a completely randomized design in 3 different treatments: SBM: untreated SBM (control); SBM50: 50% untreated SBM + 50% formaldehyde-protected SBM; SBM100: 100% formaldehyde-protected SBM. The rations consisted of 30% *Pennisetum purpureum*, 30% *gliricidia* leaves, 19.2% cassava waste product, 13.8% wheat bran, 7% SBM, 1% mineral mix and were formulated containing 14-15% of crude protein (CP). The average daily gain (ADG) was calculated using linear regression of 10 weekly ody weights. Data were analyzed by analysis of variance using the SPSS statistics software version 19. The ADG of SBM control group (90.54±16.22 g) was similar to those of SBM100 (63.71±12.92 g), but it was higher ($P<0.01$) than those of SBM50 (36.22±24.79 g). However, the ADG of SBM50 was the same as those of SBM100. These trends were similar to the DMI, N intake, digestible N, and retention N. The N intake of untreated SBM was higher (18.47±3.30 g) compared to those of SBM50 (12.65±1.60 g), but the N intake of SBM50 was similar to those of SBM100. It can be concluded that the N retention and production of Kacang goats fed untreated SBM was better than those of goat fed treated SBM. These conditions were mainly reflected by the differences in DMI.

Keywords: ADG, Digested N, Fecal N, Kacang goat, Retained N

Effect of Different Levels of Non-Fiber Carbohydrates on Production Performance in Lactating Nili Ravi Buffaloes

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ABSTRACT

The objective of current study was to evaluate the effect of different Non-Fiber Carbohydrates (NFC) levels on production performance in lactating buffaloes. Twelve lactating Nili Ravi buffaloes of same parity, lactation stage, and comparable milk production were selected from Buffalo Research Institute, Pattoki, Pakistan and randomly divided into two dietary treatments with six animals in each treatment. Treatments were: 1) low NFC (LNFC; containing 32% NFC contents), and 2) High NFC (HNFC; containing 40% NFC contents). Wheat straw was used as roughage source. The formulated diets were iso-nitrogenous and offered as TMR to animals for 50 days including a 10 day adaptation period. Animals were milked twice daily and feed was given once daily after morning milking and orts were recorded. Milk yield was recorded daily for morning and evening milking, and composition twice weekly. Data were analyzed using Procttest procedures of SAS. Results revealed that average daily DMI, milk yield, and milk fat contents were higher ($P<0.05$) in the LNFC diet compared to HNFC diet. Milk proteins, SNF and BCS were not affected by dietary treatments ($P>0.05$). Importantly, daily feeding cost was lowerin LNFC compared to HNFC diet. In conclusion, buffaloes performed better on low NFC diet suggesting their ability to efficiently utilize high fiber diet.

Keywords: NFC, Lactating buffaloes, Milk production

Mineral Concentrations of Magnesium and Calcium in Relation to Diestrus and Proestrus in Ongole Crossbred Cows

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ABSTRACT

This research aims to examine the mineral concentrations of magnesium and calcium in relation to diestrus and proestrus cycles in Ongole crossbred cows. Serum was taken from 6 Ongole crossbred cows for the detection of its calcium (Ca) and Magnesium (Mg) during which the 3 cows were in diestrus cycle and the 3 other were in proestrucs cycle. The results revealed that the concentration of Mg in the diesterus cycle tended to be higher (2.47±0.39 mg/dL) than that in the proestrus cycle (2.40±0.27 mg/dL) although the Mg concentration during these two cycles did not differ significantly (P>0.05). Ca concentration in diestrus cycle (2.26±0.13 mmol/L) was higher than that in proestrus (2.15±0.07 mmol/L) although both of diestrus and proestruc cycles did not significantly differ (P>0.05). As a conclusion, the concentration of Ca and Mg during the diestrus cycle tended to be higher compared to that during the proestrus cycle in the blood of Ongole crossbred cows.

Keywords: Calcium, Diestrus, Magnesium, Ongole crossbred cows, Proestrus

Optimization of Protein Isolation Technique on Pig Hair

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ABSTRACT

In the earlier research, the technique of protein isolation on pig hair took some weeks. The aim of the research was optimizing of the technique of the protein isolation on pig hair, so the protein could be used directly for detection of pig species. Samples were pig hairs and paintbrush. The protein isolation technique was optimized by cutting the hair in smaller pieces, using SDS in 2% and 3%, H_2SO_4 in 5% and 10%, and increasing sum of NH_4HCO_3 50%. The concentration of protein product was analyzed by Kjeldahl method, while pig species was detected by pork Xema kit. The result showed the optimum technique used SDS 2%, H_2SO_4 10%, and NH_4HCO_3 50%. Protein of pig hair were 16.30% b/v of uncentrifuged protein, 18.02 % b/v centrifuged protein (top part), 17.16% b/v entrifuged protein (bottom part). Protein of painbrush: 14.18 % b/v uncentrifuged protein; 29.70 uncentrifuged protein (top part), 35.72% centrifuged protein (bottom part). The samples of pig hair and the brush were detected positively by pork Xema test.

Keywords: optimization, protein isolation, pig hair, pork Xema test

Implementation of HACCP and Halal Assurance System in Chicken Slaughterhouses in West Kalimantan

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ABSTRACT

The aim of this study was to observe the hazard analysis and critical control points (HACCP) and halal assurance system (HAS) implementation in chicken slaughterhouses in West Kalimantan. This explorative study was using primary and secondary data by field survey during October to December 2016 in modern PT. X and semi-modern PT. Y chicken slaughterhouses. The results showed : (1) there were 6 critical control points (CCP) and 3 halal critical control points (HCCP) in PT. Y; (2) there were 3 CCP and 2 HCCP in PT Y.; (3) HACCP and HAS in chicken slaughterhouses could be implemented in West Kalimantan. The challenges to optimize HACCP and HAS in chicken slaughterhouses in that area are the high production cost and poultry product trading in wet market. Public awareness related to animal originated food chain preparation, halal products and internal company commitment are essential to implementation of HACCP and HAS practice.

Keywords: Chicken slaughterhouses, West Kalimantan, Hazard Analysis and Critical Control Points (HACCP), Halal Assurance System (HAS)

Comparation of Ricotta Cheese Containing Single Lactic Acid Bacteria to Those of Mixed Probiotic Bacteria. Short Communication

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ABSTRACT

Cheese whey contains much nutrients and it is thereforee could be used as raw material to make ricotta cheese. This study had an objective to develop Ricotta cheese in order to reduce waste of cheese industry cause to environment pollution. This study has compared ricotta cheese which made from cheese whey using *Streptococcus thermophilus* (ST) and mixed probiotic bacteria ABC (*Lactobacillus acidophilus* (A), *Bifidobacterium longum* (B), and *Lactobacillus casei* (C)). The ricotta cheese made by mixing whey and fresh milk then heated to 90ºC for 10 minutes and stored in refrigerator for 30 days. The moisture, ash, and protein were checked in day 0 and 30. Data analyzed descriptively. The results showed that the cheese moisture decreased while the ash and protein increased. The moisture of ricotta cheese ST vs ABC in day 0 was 60.29% vs 59.49% and in day 30 57.17% vs 51.94%. The ash of ricotta cheese ST vs ABC in day 0 was 1.55% vs 1.33% and in day 30 1.70% vs 1.75%. The protein of ricotta cheese ST vs ABC in day 0 was 10.06% vs 10.21% and in day 30 11.36% vs 15.13%. From the data obtained could be concluded that ricotta cheese could be developed using mixed probiotic bacteria ABC and has no different effect on chemical quality of the cheese. Ricotta cheese that developed with single lactic acid bacteria belongs to soft cheese while developed with mix probiotic bacteria belongs to soft cheese and after storage belongs to semi hard cheese.

Keywords: Cheese whey, Ricotta cheese, Probiotic Bacteria, Lactic acid bacteria, Biochemical changes

Fourier Transform Infrared (FTIR) Spectra, Amino Acid Profile and Microstructure of Gelatin From Madura and Crossbred Ongole Cattle Hides

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ABSTRACT

The research was aimed to extract and determine the characteristics of gelatin from Madura and Crossbred Ongole cattle hides prepared using bases and acid curing. The research materials were rawhide from 2.5-3 years of age males Madura and crossbred ongole cattle, curing solutions were sodium hydroxide (NaOH 0.25 M) and hydrochloric acid (HCl 0.25 M). The data obtained were descriptively analyzed which includes a functional group using FTIR (Fourier Transform Infrared Spectrofotometri), amino acid profile using HPLC (High Performance Liquid Chromatography) and gelatin microstructure using SEM (Scanning Electron Microscopy). The commercial gelatin was used as a control standard gelatin. The results showed the intensity of the infrared absorption of main functional groups were O-H, C=O, C=C, C-H and C-O and there were different functional groups absorption intensity between Madura, Crosbreed Ongole cattle hides and commercial gelatin. Amino acid profile showed that histidine was the highest amino acid on all the gelatin samples from Madura-Base, Madura-Acid, Crossbred Ongole-Base, Crossbred Ongole-Acid and Commercial gelatin and the hystidine content were 32.16, 22.34, 29.79, 34.84 and 18.74 g/100g respectively. The lowest amino acid content prepared gelatin was methionine (0.01 g/100g) while the commercial gelatin was tyrosine (0.22 g/100g). The glycine amino acid was founded on the prepared gelatin but was not founded on commercial gelatin. Scanning Electron Micrograph showed on all samples had not different appearance. Inconclusion, gelatin from cattle hide (Madura and Crossbred Ongole) using base (NaOH 0.25M) and acid (HCl 0.25M) curing have different characteristics.

Keywords: Gelatin characteristics, Madura, Crosbred Ongole cattle hides, base and acid curing

Hair Pig Content Identification from Paint Brush using *Porcine Detection Kit* for Halal Verification

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ABSTRACT

Paint brush could be made of any material including pig hair. Some of the brush might be used in cake and bakery home industry. Therefore it is important to identify whether brushes that are sell in market area are made of a small part of hair pig. This research aimed to identify protein content in two kind of brush with L and T trade mark. The brush was cut into small part and then weighed 0.2 gram, then dissolved into 25 mL SDS 2% solution for 30 minutes. The sample than was added 25 mL PBS in pH 7.8 and then be incubation at temperature 65 ^{o}C for 18 hours long. Sample than homogenized using magnetic stirrer for an hour at room temperature. The amount of 42 ml of sample added by 42 ml H_2SO_4 10%. The sample was heated in 40 oC water bath for an hour and was shaked regularly every 5 minutes. Finally sample was added 50 ml of NH_4HCO_3 50%. The result show that two sample were positively content of protein. To confirm the result, the samples also tested by *porcinedetection kit*.

Keywords: Paint brush, Hair pig content, Porcine detection kit, Halal identification

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