Animal Science Congress

The 17th Asian-Australasian Association of Animal Production Societies Animal Science Congress

Proceedings

22-25 AUGUST 2016

CONGRESS VENUE: FUKUOKA JAPAN

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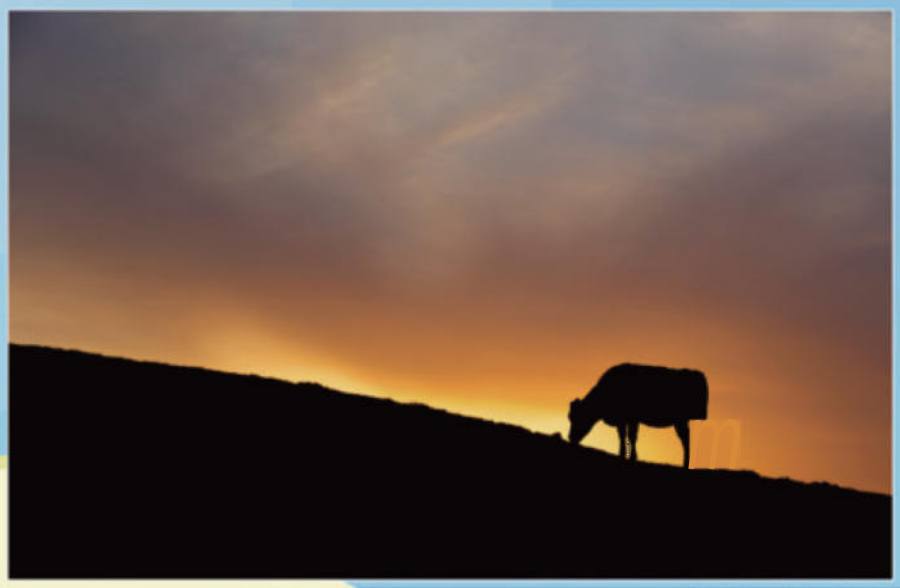

www.aaap2016.jp

Asian-Australasian Association of Animal Production Societies

✧ **Scope of AAAP**: AAAP is established to devote for the efficient animal production in the Asian-Australasian region through national, regional, international cooperation and academic conferences.

✧ **Brief History of AAAP**: AAAP was founded in **1980** with **8** charter members representing **8** countries-those are Australia, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines and Thailand. Then, the society representing Taiwan joined AAAP in **1982** followed by Bangladesh in **1987**, Papua New Guinea in **1990**, India and Vietnam in **1992,** Mongolia, Nepal and Pakistan in **1994**, Iran in **2002**, Sri Lanka and China in **2006** , thereafter currently **19** members.

✧ **Major Activities of AAAP**: Biennial AAAP Animal Science Congress, Publications of the Asian-Australasian Journal of Animal Sciences and proceedings of the AAAP congress and symposia and Acknowledgement awards for the contribution of AAAP scientists.

✧ **Organization of AAAP**:

· President: Recommended **by** the national society hosting the next biennial AAAP Animal Science Congress and approved **by** Council meeting and serve 2 years.

· Two Vice Presidents: One represents the present host society and the other represents next host society of the very next AAAP Animal Science Congress.

· Secretary General: All managerial works for AAAP with 6 years term by approval by the council

· Council Members: AAAP president, vice presidents, secretary general and each presidents or representative of each member society are members of the council. The council decides congress venue and many important agenda of AAAP

✧ **Office of AAAP:** Decided by the council to have the permanent office of AAAP in Korea. Currently # 909 Korea Sci &Tech Center Seoul 135-703, Korea

✧ **Official Journal of AAAP**: Asian-Australasian Journal of Animal Sciences (AsianAustralas. J. Anim. Sci. **ISSN** 1011-2367. http://www.ajas.info) is published monthly

✧ **Current 19 Member Societies of AAAP:**
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✧ **Previous Venues of AAAP Animal Science Congress and AAAP Presidents**

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Welcome Message

The 17th Animal Science Congress of AAAP will be held at Kyushu Sangyo University, Fukuoka, Kyusyu Area in Japan, from 22 to 25 August 2016. The aim of this congress is to provide a forum for the exchange of new information on animal sciences and technology, with a focus on successful strategies for the sustainable promotion of livestock considering the environment and welfare of livestock and human beings. At the same time, the congress will provide a venue for people from both inside and outside of the Asian Australasian region to make new contacts and renew friendships. Japanese Society of Animal Science is organizing the 17th AAAP Congress and is pleased to welcome everyone in this congress who is interested in animal science and production.

The venue of the congress, Fukuoka City, where tradition meets modernity, with delicious dishes and an excellent geographic location close to the Asian countries.

Prof. Mitsuhiro FURUSE

President of 17th AAAP

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Outline of the congress

Congress Name

The 17th Asian-Australasian Association of Animal Production Societies Animal Science Congress

Theme

Strive toward Progress on Sustainable Animal Production Contribute to Environment and Welfare for Human and Livestock

President

Mitsuhiro FURUSE **(Professor, Animal & Marine Bioresource Sciences, Kyushu University)**

Date

22-25 August, 2016

Venue

Kyushu Sangyo University
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Official Website

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The Society for Reproduction and Development
Tohoku Animal Science and Technology Society
TOKAI SOCIETY OF ANIMAL PRODUCTION
Warm Regional Society of Animal Science, Japan

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PO-04-39 Effects of providing fatty acid-calcium soap with high oleic acid content on fatty acid composition in Japanese Black steers
Nobutada Sakagami, Hiroyuki Tsuji, Shinji Hashimura, Kiyoshi Akiyama, Kentaro Orihara
Kanagawa Prefectural Livestock Industry Technology Center

PO-04-41 Carcass Commercial Cuts Percentage of Ram Raised Under Different Energy-Protein Ratio Feeding and Different Slaughtered Weight
Endang Purbowati, Rega Dianzha Yudha, Edy Rianto
Diponegoro University, Faculty of Animal Agricultural Sciences

PO-04-45 Breeding of Napiergrass (Pennisetum purpureum) Talsu no.6
Jeng-Bin-Li[1], Tzu-Rung Li[1], Shy-Rong Chang[1], Chi-Hsin Lu[1], Churng_Faung Lee[1], Yih-Min Shy[1], Shu-Fen Yan[1], His-Hsun Wu[2], Yu-Kule Cheng[1]
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PO-04-46 Physical and Growth Characteristics of Japanese 'Kuchinoshima Feral Cattle', a Native Cattle Breed
Ichiro Oshima[1], Yuki Chikara[2], Akira Tominafa[1], Daiki Yanagita[1], Daisuke Ishii[1], Satoshi Matsumoto[1], Kiyomi Katahira[1], Koji Takayama[1], Yoshitaka Nakanishi[1]
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PO-04-48 Fermentation quality of Tropocal Grasses Silage treated with Lactic acid bacteria and Cellulase
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PO-04-49 Silage fermentation of natural grasses in meadow steppe and typical steppe
Melling Hou[1], Gentu Ge[1], Tingyu Liu[2], Yushan Jia[1], Yimin Cai[3]
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PO-04-50 Effect of molasses and cellulase on the silage fermentation of kudzu, sugarcane top and their mixture
Xinzhu Chen[1], Wenyang Li[1], Yifen Zhuang[2], Boqi Weng[1], Yimin Cai[3]
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PO-04-54 Evaluation of Protein Utilization from Broken Job's tears and Job's tears bran in Weanling Pigs
Chaiyapruek Hongladdaporn, Sawang Kullawong, Suthasinee Kruttaga
Loel Rajabhat University

PO-04-41

Carcass Commercial Cuts Percentage of Ram Raised Under Different Energy-Protein Ratio Feeding and Different Slaughtered Weight

Endang Purbowati, Rega Dianzha Yudha, Edy Rianto

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ABSTRACT

A study was carried out to determine the effect of dietary energy-protein ratio on the carcass commercial cuts percentage (flank, leg, loin, rib, breast, shoulder-neck and shank) of rams at different slaughter weight. The study used 24 thin tail rams aged 3-5 months and weighed 8.7 to 15.5 kg (CV = 15.01%). A Generalized Randomized (Complete) Block Design was used in this study with 4 different feeding treatments, i.e. R1 = 14.48% crude protein (CP) and 50.46% *total digestible nutrients* (TDN), R2 = 17.35% CP and 52.61% TDN, R3 = 15.09% CP and 58.60% TDN, and R4 = 17.42% CP and 57.46% TDN. Rams were grouped based on the initial body weight, i.e. B1 = 10,73 + 1,37 kg (slaughtered at 15 kg), B2 = 12,76 + 0,54 kg (slaughtered at 20 kg) and B3 = 14,91 + 0,36 kg (slaughtered at 25 kg). The results showed that slaughter weight, cold carcass weight, cold carcass percentage, and carcass commercial cuts percentage (except flank) were not significantly different (P>0.05) among feeding treatments. In average, the animals had 20 kg slaughter weight, 8909.58 g cold carcass weight, 44.18% cold carcass percentage. Whilst, the average of percentage of shoulder-neck, leg, loin, rack, breast and shank were 32.05; 34.23; 9.32; 8.70; 9.14; and 4.05%, respectively. On the other hand, the highest percentage flank was found inR1 (2.70%), followed by R3 (2.56%), R2 (2.40%) and R4 (2.26%). Cold carcass percentage increased (P<0.05) with increasing slaughter weight. The percentage of leg and shank decreased (P<0.05) with increasing slaughter weight, while the percentage of other commercial cuts are not significantly different (P>0.05) among slaughter weights. The conclusion of this study is that energy-protein ratio of the feed does not affect the percentage of commercial cuts (except flank), while the slaughtered weight affects the percentage of carcass, leg, and shank.

INTRODUCTION

The carcass is the main yield expected from the sheep. The carcass yield measurements, both relative and actual weights are important as these are the criteria used to evaluate animal productivity. The carcass is the result of a biological process affected by genetic, environmental and management factors (Cardoso et al., 2013).

Carcass weight of sheep is affected by slaughter weight, which in turn is affected by feed intake. Protein and energy are the main nutrients required by the animal. Protein is found in all living cells, where they are intimately with all phases of activity that constitute the life of cell. Dietary energy is used for production after satisfying the requirement of maintenance. A young growing animal stores protein in new tissues, while an adult stores relatively more energy in fat (McDonald et al., 1991). Energy and protein interact because dietary protein is a source of dietary energy, because dietary energy is needed for protein turnover and deposition and because deposited protein represents part of the body's energy store (Boorman, 1980).

Carcass traits are greatly modified by slaughter weight (Galvani et al., 2008). Hot carcass weight of Barki lambs increased significantly (P<0.01) with increasing slaughter weight from 30 to 60 kg (Shehata, 2013).Similiar results were reported by Galvani et al. (2008), that dressing percentage of Texel x Ile de France crossbred feedlot lambs increased linearly with increased slaughter weight (P<0.01).

The proportions of the carcass cuts are an important index for the commercial evaluation of the carcass and have different economic value. Factors such as genetics, diet, slaughter weight, sex among others, are responsible for differences in cuts between carcasses (Cardoso et al., 2013). This study was carried out to determine the effect of feed energy-protein ratio of complete feed on the carcass commercial cuts percentage (flank, leg, loin, rib, breast, shoulder-neck and shank) of ram at different slaughtered weight.

MATERIALS AND METHODS

This study used 24 thin-tailed rams, aged 3-5 months and weighed 8.7 to 15.5 kg (CV = 15.01%). The rams were kept in individual pens and fed a diet composed of rice straw (25%), and a concentrate mix 75% (fish meal, soybean meal, *Leucaena leucocepala* leaf meal, rice bran, cassava meal, mollasess, and mineral), and formulated according to treatments.

A Generalized Randomized (Complete) Block Design was used in this experiment with 4 different feeding treatments, i.e. R1 = 90.73% dry matter (DM), 14.48% crude protein (CP) and 50.46% *total digestible nutrients* (TDN), R2 = 90.82% DM, 17.35% CP and 52.61% TDN, R3 = 89.01% DM, 15.09% CP and 58.60% TDN, and R4 = 90.11% DM, 17.42% CP and 57.46% TDN. Rams were grouped based on the initial body weight, i.e. B1 = 10,73 + 1,37 kg (slaughtered at 15 kg), B2 = 12,76 + 0,54 kg (slaughtered at 20 kg) and B3 = 14,91 + 0,36 kg (slaughtered at 25 kg). Dry matter intake (DMI), CP intake, and TDN intake were recorded.

The rams were slaughtered after a 24 hour fasting period. Before being slaughtered, the animals was weighed individually. The animals were killed by cutting their jugular vena, throat and esophagus removing . The carcass was obtained after removal of the head, feet, skin, digestive tract and internal organs, except kidneys and kidney fat. The carcass was weighed (hot weight), then two hours later the carcass was reweighed (cold weight). The carcass was then halved longitudinally by a band saw, after the removal of tail, kidneys and kidney fat. Right carcass half was then cut into seven joints: flank, leg, loin, rack, breast, shoulder with neck, and shank (Figure 1). The percentage of each cut was calculate. Analysis of variance and Duncan's Multiple Range Test were used to analyze the data (Steel and Torrie, 1980).

RESULTS AND DISCUSSION

The main characteristics of sheep carcasses from different energy-protein ratio feeding are presented in Table 1. The results showed that slaughter weight, cold carcass weight, cold carcass percentage, and carcass commercial cuts percentage (except flank) were not significantly different (P>0.05) among treatments.

The non-significant difference in carcass percentage and carcass commercial cuts percentage in this study occurred because of the fact that the slaughter weight and cold carcass weight no significant differences (P>0.05). This was in accordance with the opinion of Soeparno (2005), that the weight of carcass weight affects carcass commercial cuts. Slaughter weights, carcass weights and dressing percentages in this study were not significantly different (P>0.05) among the treatments, because the energy intake was not significantly different (P>0.05) either. According to Blakely and Bade (1985), the main nutrients needed for fattening animals is energy. Rianto et al. (2006) stated that an increase in dietary energy intake will be followed by an increase in energy deposition in the body, increasing energy deposition will be used to accelerate the rate of metabolism and establish fat deposition. The dietary energy intake of sheep in this study were similar, so that the energy deposited was also relatively the same.

The percentage of flank of R4 was the lowest (P <0.05), followed by R2, R3 and R1. This was so because the weights of flank in R4was the lowest, but the carcass weight was the highest. Hasnudi (2004) reported that while the empty body weight increased, the flank weight was relatively stable, so the flank percentage was getting lower as the body weight increased.

Data in Table 2 show that carcass weight and percentage increased with slaughter weight. These findings were in agreement with the statement of Cardoso et al. (2013), that animal carcass production is influenced by slaughter weight, which in turn is affected by the feed intake. An increase in feed intake will result in higher slaughter weight.

The percentage of leg and shank were significantly different (P <0.05) among slaughter weights. The percentage of leg and shank of B3 were the lowest, followed by B2 and B1. These findings indicated that leg and shank were early mature compared with other parts of the body. This was in agreement with the statement of Tillman et al. (1991), that head and leg bones reach maturity faster than bones of shoulder, pin bones and muscles. Thus while the other parts of the grow, leg and shank stop growing at certain stage of growth, so that the percentage of leg and shank are lower than the other parts of carcass. This results is also confirmed by the results obtained by Tobing et al. (2004), that the weight of head, feet and viscera decline their growth rate at the beginning of life, while the other parts still continue to grow. Consequently, the weight of leg and shank did not increase with the increasing slaughter weight, resulting in low percentage of leg and shank in higher slaughter weight as occurred in animals of B3.

CONCLUSIONS

The conclusion of this study is that dietary energy-protein ratio does not affect the percentage of commercial cuts (except flank) of rams, while rams slaughter at higher body weight had higher carcass percentage, but lower leg and shank percentage.

Keywords: Sheep, dietary energy-protein ratio, slaughter weight, carcass commercial cuts

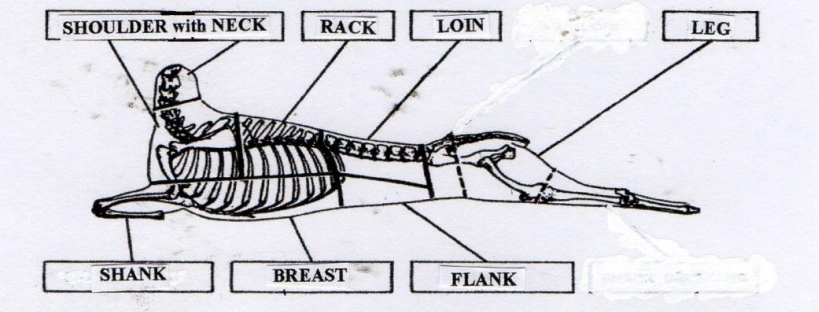

Figure 1. Carcass commercial cuts (Soeparno, 2005)

Table1. Slaughter weight, cold carcass weight, dressing percentage, carcass commercial cuts percentage, and dry matter intake, crude protein intake, and TDN intake of ram raised under different dietary energy-protein ratio

Variables	R1	R2	R3	R4
Slaughter weight (kg)	20.42[a]	19.58[a]	20.05[a]	19.97[a]
Cold carcass weight (g)	8,966[a]	8,631[a]	8,898[a]	9,142[a]
Dressing percentage (%)	43.91[a]	44.08[a]	44.38[a]	45.78[a]
Percentage of carcass commercial cuts (%)				
- Shoulder with neck	33.09[a]	31.90[a]	31.24[a]	32.46[a]
- Leg	33.83[a]	34.12[a]	34.72[a]	34.03[a]
- Loin	9.30[a]	9.22[a]	9.08[a]	9.80[a]
- Rack	8.31[a]	8.71[a]	8.73[a]	9.22[a]
- Breast	8.80[a]	9.62[a]	9.63[a]	8.37[a]
- Flank	2.70[c]	2.40[ab]	2.56[bc]	2.26[a]
- Shank	4.00[a]	4.05[a]	4.05[a]	3.87[a]
DMI (g/day)	956.35[b]	966.94[b]	827.94[a]	850.55[a]
CP intake (g/day)	138.51[b]	140.04[b]	119.91[a]	123.18[a]
TDN intake (g/day)	480.24[a]	535.09[a]	499.99[a]	345.48[a]

[a, b, c] Different letters in the same raw are significantly different (P<0,05), using Duncan test

Table2. Slaughter weight, cold carcass weight, dressing percentage, carcass commercial cuts percentage, and dry matter intake, crude protein intake, and TDN intake of ram at different slaughter weight

Variables	B1	B2	B3
Slaughter weight (kg)	15.09[a]	19.86[b]	25.06[c]
Cold carcass weight (g)	6,266.75[a]	8,918.75[b]	11,543.25[c]
Dressing percentage (%)	41.52[a]	44.93[b]	46.07[b]
Percentage of carcass commercial cuts(%)			
- Shoulder with neck	31.92[a]	31.98[a]	32.62[a]
- Leg	34.94[b]	34.25[ab]	33.33[a]
- Loin	9.11[a]	9.52[a]	9.42[a]
- Rack	8.76[a]	8.63[a]	8.84[a]
- Breast	8.34[a]	9.37[a]	9.60[a]
- Flank	2.45[a]	2.45[a]	2.54[a]
- Shank	4.49[b]	3.83[ab]	3.65[a]
DMI (g/day)	711.91[a]	913.87[b]	1,075.56[c]
CP intake (g/day)	103.10[a]	132.36[b]	155.77[c]
TDNintake (g/day)	381.95[a]	396.94[a]	616.71[a]

[a, b, c] Different letters in the same raw are significantly different (P<0,05), using Duncan test

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Summary of the 17th AAAP Animal Science Congress

1. Congress Outline:

Date : 22-25 August, 2016

Venues: Hotel Nikko Fukuoka(Aug 22)
Kyushu Sangyo University(Aug 23~25)
Fukuoka, Japan

Homepage: http://www.aaap2016.jp

Theme: 『Strive toward Progress on Sustainable Animal production Contribute to Environmental and Welfare for Human and Livestock』

(Opening ceremony, Seiichi KOIZUMI(left), Mitsuhiro FURUSE(right)

2. AAAP Officers:

AAAP President: Seiichi KOIZUMI (Japan)

Vice Presidents: Naomi KASHIWAZAKI (Japan), Loh Teck CHWEN(Malaysia)

Secretary-General: Sang Jip OHH (Korea)

3. Members of the 17th AAAP Animal Science Congress Organizing Committee:

Mitsuhiro FURUSE	Congress President of the 17th AAAP Animal Science Congress	
Seiichi KOIZUMI	Chair of Committee and Finance	
Kei HANZAWA	Chair of Fund Raising, Public Relations, and Registration	
Naomi KASHIWAZAKI	Chair of Accommodations & Tour	
Masahiro SATOH	Chair of Program, Scientific Section and Publications	
Koichi ANDO	Chair of Venue, Social Culture & Protocol, and Exhibition	
Keitaro YAMANOUCHI	Secretary General	
Naoshige ABE	Yoshikazu ADACHI	Ryozo AKUZAWA
Narito ASANUMA	Hisashi ASO	Takashi BUNGO
Hiroshi DOHI	Osamu DOI	Takafumi GOTOH
Tsutomu HASHIZUME	Satoshi HIDAKA	Kohzy HIRAMATSU
Hiroyuki HIROOKA	Toshiyoshi ICHINOHE	Masakazu IRIE
Yasuhiro KAWAMOTO	Tomoyuki KAWASHIMA	Kazuhiro KIKUCHI
Shinichi KOBAYASHI	Yasuo KOBAYASHI	Tetsuo KUNIEDA
Hiroki MATSUI	Takashi MIYANO	Tetsuo MORITA
Takashi NAGAI	Kunihiko NAITO	Yoshitaka NAKANISHI
Sueo NIIMURA	Takahiro NIKKI	Shotaro NISHIMURA
Takeyuki OZAWA	Hiroshi SASADA	Eimei SATO
Kazuhiro SHIMADA	Shigeru SHIOYA	Kunio SUGAHARA
Koji SUGIURA	Madoka SUTOH	Kenichi TAKEDA
Kumiko TAKEDA	Ryuichi TATSUMI	Yoshinori TERAWAKI
Atsushi TOYODA	Hiroko TSUKAMURA	Hitoshi USHIJIMA
Akira WATANABE	Nobuhiko YAMAUCHI	Tatsuyuki YOSHIDA

(*Alphabetical order / titles omitted unless specified*)

4. Scientific Programs

The scientific and technical programs offer 3 plenary sessions, 9 symposia, 6 workshop, 2 meetings, 41 oral presentation sessions, and 6 poster sessions for three days (23,24, and 25 August). Two special satellite symposia were held by:

1. CADIC (Center for Animal Disease Control) International Symposium entitled " Livestock revolution in Asia - Risk and opportunity-"
2. FFTC (Food and Fertilizer Technology Center) entitled "Mitigation of greenhouse gases and adaptation to climate change in livestock production systems"

Total numbers of scientific papers presented in the 17th AAAP Animal Science Congress were 834. Those include 3 plenary papers, 15 lead papers, and 816 contributed papers, of which were 377 oral presentations from 41 concurrent sessions and 439 poster presentations on 19 categories The highest number of papers (276 papers) were presented by delegation from Japan, then followed by Thailand (140 papers).

In addition, there were two managerial meeting for AAAP organization. Those were 17th AAAP Council Meeting (Aug. 24, 2016) and AJAS Editorial Board Meeting (Aug. 22, 2016).

One program booklet and one proceeding of 17th AAAP Congress were published as:

1. Program and Abstract: Booklet (411 pages) 2. Proceeding: USB storage (1,688 pages)

Table 1. Summary of the papers presented at the 16th AAAP Animal Science Congress

Country	Plenary Session	Lead Papers	Contributed Papers	Total
AAAP Countries				
Australia	1	0	7	8
Bangladesh	0	0	4	4
China	0	1	30	31
India	0	0	2	2
Indonesia	0	4	131	135
Iran	0	0	0	0
Japan	1	9	266	276
Korea, Republic	0	0	77	77
Malaysia	0	0	13	13
Nepal	0	0	1	1
Pakistan	0	0	0	0
Philippines	0	0	20	20
Sri Lanka	0	0	5	5
Taiwan, Republic of China	1	0	96	97
Thailand	0	0	140	140
Vietnam	0	1	10	11
Non-AAAP Countries				
Afghanistan	0	0	2	2
Cambodia	0	0	1	1
Egypt	0	0	2	2
Mexico	0	0	1	1
Nigeria	0	0	1	1
Turkey	0	0	1	1
United States of America	0	0	5	5
Zimbabwe	0	0	1	1
Total number of papers	**3**	**15**	**816**	**834**

5. Summary of the congress and activities

A total of 1,160 participants from 27 countries had participated in the 17th AAAP Congress, of which were 1,131 participants from 15 member countries and 29 participants from non-AAAP member countries (refer Table 2).

The social and cultural programs of the 17th AAAP Congress were organized to develop friendship and cooperation between the participants of the 17th AAAP Congress and also to introduce Japanese cultural inheritance. Opening ceremony and welcome dinner were specially arranged on 22 August 2016 to show various Japanese cultural performances. Half a day field trip was held on 24 August 2016. There were 3 alternative routes: (1) Factory Tour (2) Saga Karatsu, and (3) Dazaifu

Table 2. Number of participants of the 17th AAAP Animal Science Congress

Country	Number	Country	Number
AAAP Member Countries			
Japan	418	Sri Lanka	8
Indonesia	174	Bangladesh	5
Taiwan, Rep. of China	167	India	2
Korea, Republic	127	New Zealand	2
Thailand	126	Nepal	1
China	38	Iran	None
Philippines	26	Mongolia	None
Malaysia	18	Pakistan	None
Vietnam	10	Papua New Guinea	None
Australia	9	**Sub-total**	1,131
Non-AAAP Member Countries			
United States of America	12	France	1
Afganistan	3	Italy	1
Egypt	3	Laos	1
Germany	2	Macau	1
Nigeria	2	Mexico	1
Cambodia	1	Turkey	1
		Sub-total	29
Total number of participants		**1,160**	

Closing ceremony was held on 25 August 2016. The Young scientist award was conferred to 30 best oral presenters, 15 best poster presenters and the youngest presenter. The 17th AAAP Animal Science was closed with the invitation presentation by the newly elected AAAP president from Malaysian Society of Animal Science, who will host the 18th AAAP Animal Science Congress in 2018 in Sarawak, Malaysia.

(*This summary report was prepared by the 17th AAAP Animal Science Congress President, Prof. Mitsuhiro Furuse, on Dec. 26. 2016, then confirmed by the AAAP Secretary General, Prof. Sang Jip Ohh on Jan. 6. 2017*)