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COMBINED EFFECTS OF CALORIE AND PROTEIN RESTRICTION WITH L-LEUCINE SUPPLEMENTATION ON GROWTH, BODY COMPOSITION AND CARCASS CHARACTERISTICS IN BROILER CHICKEN

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L-Leucine (Leu), an essential amino acid, that have multiple roles in body metabolism as an essential substrate for synthesis of new proteins as energy substrates (1), precursors for synthesis of alanine and glutamine (2) and as a modulator of muscle protein synthesis. It enters the brain more quickly than other amino acids. It was shown that in brain slices leucine is more rapidly metabolized than incorporated into protein (4). Several studies observed the effect high-protein diets or dietary supplementation with Leu for body weight control (2, 3). The effects of supplementation of L-leucine on body composition and carcass characteristics were evaluated using broiler chicks from 21 to 42 d of age. A total of 100 day-old broiler chicks (Cobb500) were randomly assigned to four treatment groups. Each group was replicated four times with 5 birds per replicate and placed in pens in battery brooder. The chicks were given a diet restricted in their protein and calorie contents (18% and 3,000 kcal/kg) respectively. Broilers were supplemented with different levels (0, 0.42, 0.5 and 0.75% /kg) of L-leucine. Growth performance, feed intake and FCR were determined weekly from week 3 to week 6. At 42 days of age the birds were slaughtered and body composition analysed. Dietary L-leucine supplementation also increased live weight, carcass percentage, and breast meat. The results also showed that L-leucine supplementation increased body fat loss. It can be concluded that under our experimental conditions, the combination of protein and energy restriction with L-leucine supplementation allowed maintenance of body composition and carcass characteristics in growing finishing broiler. The chemical composition of the carcass in carcass composition is shown in Table 1.

Table 1. Effects of supplementation of several doses of Leucine in low energy and protein diets (42 days of age) on carcass composition.

Parameters	Dose of Leu(%)			
	0	0.5	0.67	0.75
Live weight (g)	1,551 ± 38.58 ^c	1,793 ± 24.72 ^b	1,823 ± 20.85 ^b	2,170 ± 36.43 ^a
Carcass (%)	67.73 ± 0.38 ^a	69.08 ± 0.40 ^a	67.94 ± 0.48 ^a	73.41 ± 0.80 ^b
Breast	249.4 ± 7.63 ^c	344.71 ± 8.81 ^b	317.49 ± 7.86 ^b	438.11 ± 11.40 ^a
Abdominal Fat	11.76 ± 1.13 ^a	8.56 ± 0.74 ^{ab}	6.98 ± 0.61 ^b	10.35 ± 0.85 ^a
Gizzard	38.31 ± 2.08 ^b	35.37 ± 1.30 ^b	38.81 ± 1.70 ^b	52.57 ± 2.44 ^a
Liver	35.98 ± 1.34 ^b	38.22 ± 1.35 ^b	42.45 ± 1.89 ^{ab}	47.18 ± 2.30 ^a
Heart	9.10 ± 0.63	10.17 ± 0.39	11.02 ± 0.62	10.95 ± 0.47

Means with different superscripts Means within rows with different superscripts were significantly different at $p < 0.05$. Values are means ± S.E.M

Leu supplementation significantly ($F[3, 54]=68.53, p<0.0001$) and ($F[3, 53]=11.58, p<0.0001$) increased on lean and bone, respectively. Significant ($F[3, 54]=9.59, p<0.0001$) decreases in the amount of abdominal fat were observed for the Leu group compared with the control group. No significant difference in skin weights were observed between treatment groups.

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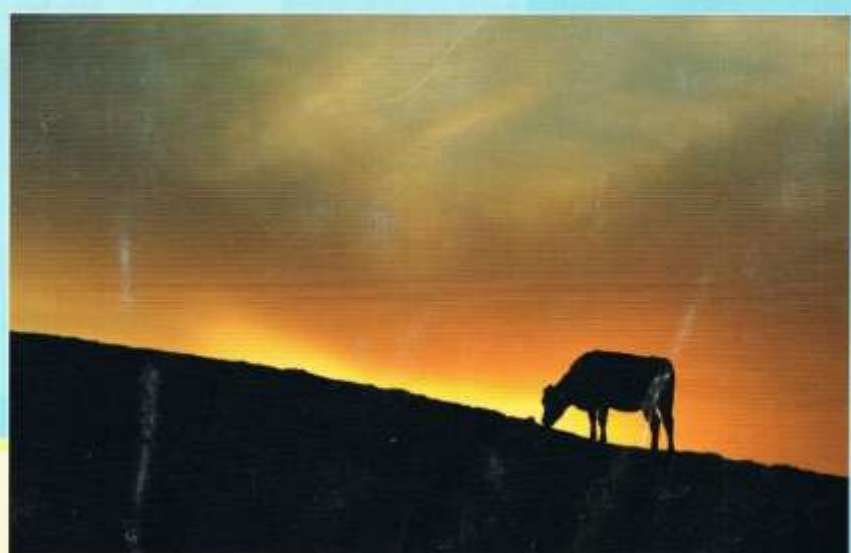
Program and Abstracts

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SY-10

Impact, Adaptation and Mitigation of Heat-Stress in Livestock

Organizer: Vishwajit Chowdhury

Faculty of Arts and Science, Kyushu University, Japan

Worldwide, global warming and heat-stress is a billion dollar problem. United Nations Climate Summit, Sept 23, 2014 clearly showed global warming is not a far-off problem. It is happening now and it has very real consequences on people's lives. Institute for Global Change Adaptation Science (ICAS) at Ibaraki Univ. reported that if no action is taken now, the economic cost of climate change to Japan could be as high as ¥17 trillion (US\$176 billion) annually by the end of the century. The concern of global warming is crucial issue in tropical and subtropical zones in the world, where Bangladesh ranks first as the nation most vulnerable to the impacts of global climate change in the coming decades. Therefore, it is very urgent to take immediate steps to face the challenge of global warming induced heat-stress in each sector. Being animal scientists, it's our obligation to be aware about the impact of heat-stress in livestock then try to develop technologies for supporting their survival and production.

This symposium will focus to understand how heat-stress is affecting livestock, in particular, cattle, swine and chickens. Then some possible approaches for adaptation and mitigation of heat-stress will be explored.

Chairs: Vishwajit Chowdhury, Kyushu University, Japan

Rong Zhang, Harvard Medical School

Presenters

1. Oral administration of L- or D-aspartate and their chemical conjugates to regulate body temperature in chicks
Edi Erwan, State Islamic University of Sultan Syarif Kasim Riau
2. Thermal conditioning to mitigate heat stress in chickens
Takashi Bungo, Hiroshima University
3. Significance of temperature-humidity index values on production and composition of crossbred cow's milk in Bangladesh
Morshedur Ranman, Bangabandhu Sheikh Mujibur Rahman Agricultural University
4. Effects of thermal HS in swine and solutions for alleviating it
David Renaudeau, INRA, France

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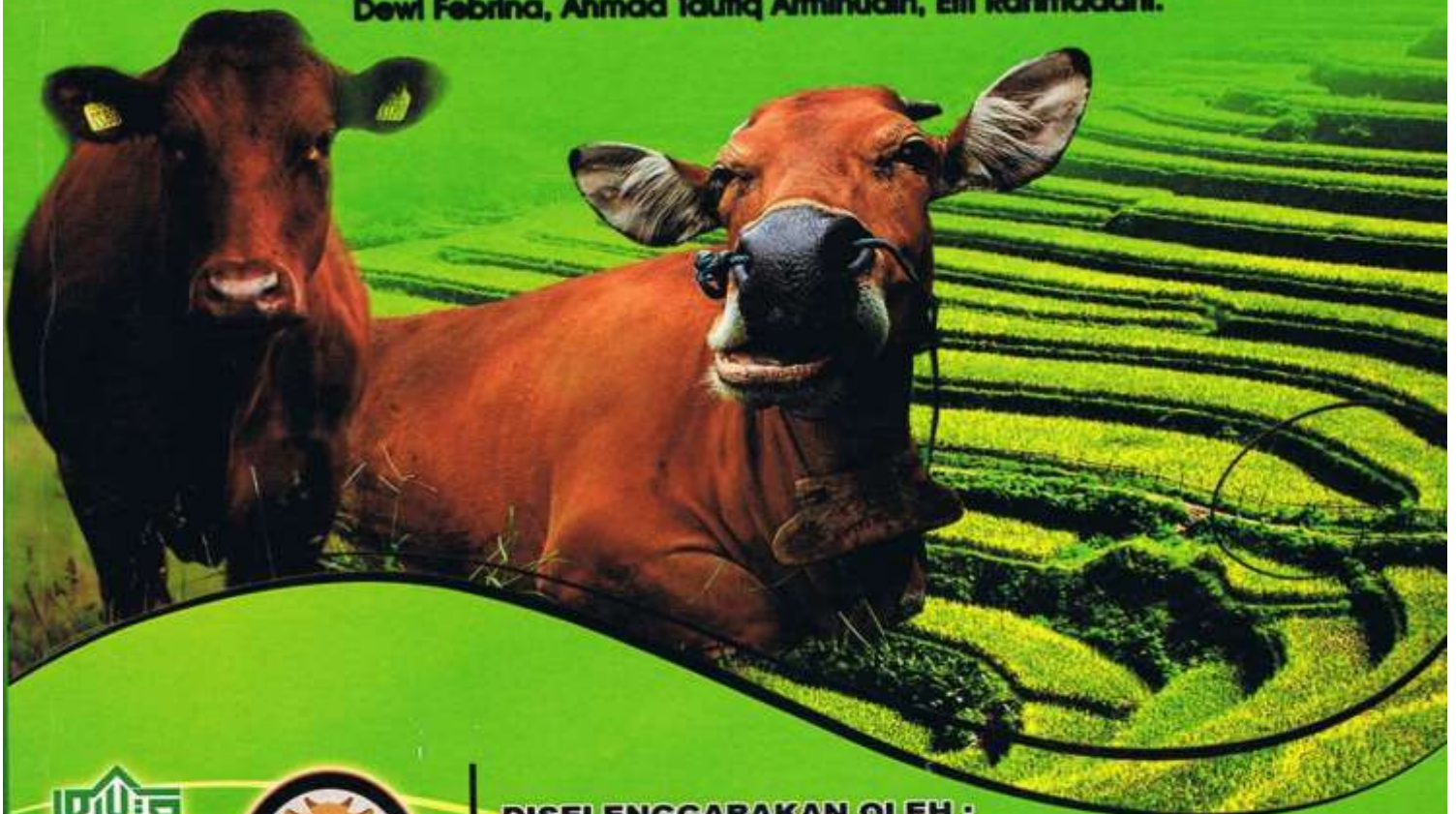
Pertanian dan Peternakan 2016

**“STRATEGI DAN INOVASI TEKNOLOGI
DALAM MEMBENTUK PETANI DAN PETERNAK
BERKARAKTER AGRIBINIS DALAM MEWUJUDKAN
KEDAULATAN PANGAN”**

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EVALUASI PENERAPAN TEKNIK PEMOTONGAN DAN SISTEM JAMINAN HALAL SERTA NILAI KONTROL VETERINER PADA TEMPAT PEMOTONGAN AYAM DI KOTA PEKANBARU

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ABSTRACT

Fulfillment of public for meat requirement is crucial to be done by increasing of implementation both production and quality of livestock products as well as the guarantee of meat quality for consumer. The safety and halal chicken slaughtering result on the slaughterhouse is a serious problem and need attention, especially for poultry slaughterhouse. This study was to evaluate the application of Good Slaughtering Practices (GSP), Halal Assurance System (HAS), as well as to evaluate veterinary control number at poultry slaughterhouses in Pekanbaru City. Random sampling was done to choose a five traditional poultry slaughterhouse and one poultry slaughterhouse of government property. The result showed that the implementation of GSP was 42,25 in slaughterhouse government property. In addition, implementation of GSP at traditional poultry slaughterhouse was 44,70%. The result for evaluation HAS in poultry slaughterhouse government property that was 38,25%. Implementation of HAS in traditional poultry slaughterhouse was 35.40%. It can be concluded that poultry slaughterhouse in Pekanbaru City not yet fully implemented GSP and HAS indicated by deviations in the assessment veterinary control number.

Keywords : slaughtering, meat safety, halal assurance, veterinary control number, poultry slaughterhouse.

PENDAHULUAN

Pemenuhan kebutuhan masyarakat akan daging perlu dilakukan dengan cara peningkatan produksi dan kualitas hasil ternak secara optimal serta penjaminan mutu daging yang aman sampai ke konsumen. Data dari Badan Pusat Statistik (2014), menyatakan rerata konsumsi daging ayam per kapita di Indonesia tergolong masih rendah, yaitu sebesar 0,086 kg/kapita/minggu. Hal ini tidak terlepas dari tingkat daya beli masyarakat yang masih rendah dan produktivitas ternak yang belum optimal. Kontribusi ternak unggas dalam memenuhi kebutuhan daging secara nasional masih lebih besar dibandingkan daging sapi atau kerbau yang hanya sebesar 0,005 kg/kapita/minggu.

Kualitas dan keamanan daging yang dihasilkan salah satunya ditentukan oleh pelaksanaan penyediaan daging di Tempat Pemotongan Ayam (TPA). Disadari atau tidak, peranan TPA sebagai penyedia daging ayam yang akan dikonsumsi manusia sangat besar (Damayanti *et al.*, 2012). Proses penanganan ternak dan daging di TPA yang kurang baik dan tidak memperhatikan faktor-faktor sanitasi dan higienis, tidak menerapkan prosedur pemotongan ternak yang baik atau *good slaughtering practices* (GSP) yang sesuai akan berdampak pada mutu, kehalalan dan keamanan daging yang dihasilkan. GSP merupakan seluruh praktik di RPH atau TPA yang berkaitan dengan kondisi dan tindakan yang dibutuhkan untuk menjamin keamanan dan kelayakan pangan pada seluruh tahapan dalam rantai pangan (CAC 2004). Beberapa persyaratan untuk memperoleh hasil pemotongan ternak yang baik yaitu: (1) ternak harus tidak diperlakukan secara kasar, (2) ternak tidak mengalami stres, (3) penyembelihan dan pengeluaran darah harus secepat dan sesempurna mungkin, (4) kerusakan karkas harus minimal, (5) cara pemotongan harus higienis, (6) ekonomis dan (7) aman bagi para pekerja abatoar (Swatland 1984). Penetapan aturan atau *standard operasional procedure* (SOP) maupun teknis di TPA adalah sebagai dasar untuk menyelenggarakan fungsi TPA sebagai tempat pelaksanaan pemotongan ternak guna menghasilkan daging yang ASUH (aman, sehat, utuh dan halal).

Menurut Delfita (2013), kehalalan dan keamanan produk asal ternak harus diperhatikan. Proses pemotongan harus mengikuti tata cara penyembelihan ayam sesuai dengan syariat hukum Islam sehingga daging yang dihasilkan benar-benar dapat dijamin kehalalannya. Permasalahan halal dan haram dalam Agama Islam diatur dalam Al-Qur'an dan Hadits. Selain menjelaskan hewan yang halal dan haram untuk dikonsumsi, Islam juga menetapkan ketentuan-ketentuan personal yang sah