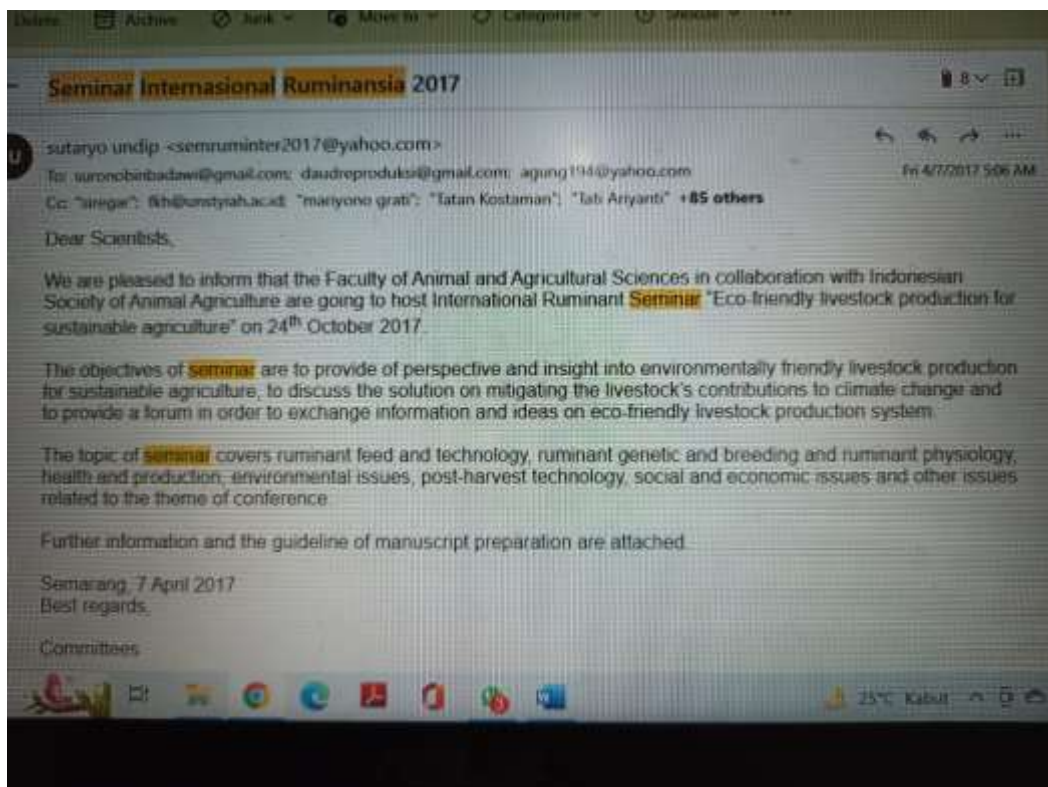
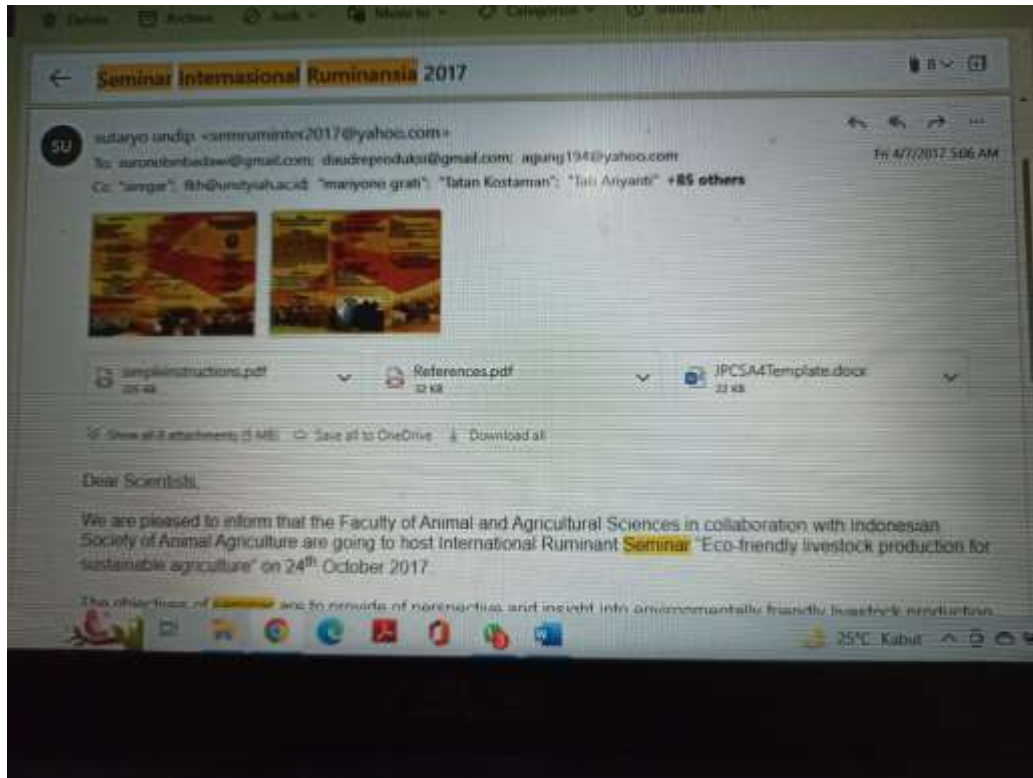


**BUKTI KORESPONDENSI
ARTIKEL DI PROSIDING INTERNASIONAL**

Judul Artikel : Carcass Production of Cattle Slaughtered at Salatiga City Slaughtered House, Salatiga, Central Java, Indonesia
Prosiding : IOP Conf. Series: Earth and Environmental Science 119 (2018) 012042
Penulis : Endang Purbowati, C.M.S. Lestari, M.J. Ma'aruf, and Sutaryo

No	Perihal	Tanggal
1.	Email Tawaran Seminar Internasional Ruminansia - Leaflet - Registration form - Template - Simple Intruction	7 April 2017
2.	Draf Artikel yang dikirim	7 Mei 2017
3.	Review Artikel	7 Juni 2017
4.	Bukti Artikel diterima	30 Juni 2017
3.	Poster untuk seminar	24 Oktober 2017
4.	Publikasi Artikel di Prosiding	2018

BUKTI EMAIL TAWARAN SEMINAR INTERNASIONAL RUMINANSIA 2017 (7 April 2017)



<p>Registration Fee</p> <ul style="list-style-type: none"> - Participant-speaker: IDR 750,000 - Foreign - speaker: USD 150 - Student: IDR 500,000 - Participant - non speaker: IDR 500,000 - Industries: IDR 1,000,000 <p>Publication Charge Publication charge in the proceeding indexed by Scopus is IDR 1,750,000</p> <p>Date and Venue 24th October 2017 ICT Centre, Diponegoro University Tembalang, Semarang, Central Java Indonesia (50275)</p> <p>Payment Payment of seminar should be transferred to : Mandiri KCP UNDIP Semarang Name Account : Bendahara Penerimaan UNDIP, No. Account 136-000-559-9-045, Swift code : BMRIDJAB54</p> <p>Abstract, full paper, registration form and payment slip should be sent to semruminter2017@yahoo.com</p>	<p>REGISTRATION FORM</p> <p>Name and title :</p> <p>Institution :</p> <p>Office address :</p> <p>Phone :</p> <p>Email :</p> <p>Home address :</p> <p>Join to Seminar as *) : <input type="checkbox"/> Non Speaker <input type="checkbox"/> Speaker</p> <p>Article Title :</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>Seminar payment through *) : <input type="checkbox"/> Bank account <input type="checkbox"/> Onsite</p> <p>..... 2017</p> <p>(.....)</p> <p>*) Optional</p>	<p>International Ruminant Seminar 2017 Eco-friendly livestock production for sustainable agriculture</p>  <p>Important Dates Abstract: Should be submitted at latest on 30th June 2017</p> <p>Full Paper: Should be submitted at latest on: 30th August 2017</p> <p>Registration deadline: 30th June 2017</p> <p>On site registration : 24th October 2017</p> <p>FACULTY OF ANIMAL AND AGRICULTURAL SCIENCES DIPONEGORO UNIVERSITY 2017</p>
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<p>Theme "Eco-friendly livestock production for sustainable agriculture"</p> <p>Background Livestock production is one of the largest contributors to climate change. In addition to greenhouse gases production, livestock sector increase deforestation due to expansion of pasture land and arable land used to grow feed crops. Mitigating the livestock sector's contributions to climate change is crucial for sustainable agriculture. Technical solution such as reformulation of ruminant diets to reduce enteric fermentation and some methane emissions can be undertaken. Other solutions may be proposed by researchers to support the sustainable livestock farming, from the aspect of feed, genetics, physiology, socio-economic, environment, etc.</p> <p>Objectives</p> <ol style="list-style-type: none"> 1) To provide a perspective and insight into environmentally friendly livestock production for sustainable agriculture. 2) To discuss the solutions on mitigating the livestock's contributions to climate change. 3) To provide a forum in order to exchange information and ideas on eco-friendly livestock production system. <p>Language English</p> <p>Benefits</p> <ol style="list-style-type: none"> 1) Accepted manuscript will be published in the proceeding indexed by Scopus 2) Selected paper will be published in Journal of the Indonesian Tropical Animal Agriculture indexed by Scopus and organized by Directorate General of Coordinating Research and Development, Ministry of Research, Technology and Higher Education 	<p>Key Note Speaker</p> <ol style="list-style-type: none"> 1) Prof. Takuro Okawa (Japan) - Animal genetic and Breeding. 2) Dr. Renato S.A. Vega (The Philippines) - Animal physiology 3) Prof. Agung Purnomo (Indonesia) - Ruminant methane emission <p>Participant</p> <ul style="list-style-type: none"> - Researchers - Academics - Education - Practitioners - Government departments - Entrepreneur <p>Seminar Topic:</p> <ul style="list-style-type: none"> - Ruminant feed and technology - Ruminant genetic and breeding - Ruminant physiology, health and production - Environmental issues - Post harvest technology - Social and economic issues - Other issues related to the theme of conference 	<p>Further Information</p> <p>Contact: 1. Sutaryo, Ph.D Email : soeta@undip.ac.id; +6285713959926 2. Sugiharto, Ph.D Email : agh_undip@yahoo.co.id; +6281215984225 3. Dien Wahyu Harjanti, Ph.D Email : harjantian@gmail.com; +62812156369001</p> <p>Website : http : seminar.fpp.undip.ac.id/International-Ruminant-Seminar</p> <p>Faculty of Animal and Agricultural Sciences Diponegoro University Kampus drh. R. Soejono Koesoemowardojo Tembalang-Semarang Post code 50275 fp@undip.ac.id; +6224 7474750</p> <p>Organized by Faculty of Animal and Agricultural Sciences Diponegoro University in collaboration with IBAA</p>
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Other paragraphs are indented (BodytextIndented style).

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2.1.1. *A subsubsection.* The paragraph text follows on from the subsubsection heading but should not be in italic.

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This reference has two entries but the second one is not numbered (it uses the 'Reference (no number)' style).

[2] Another reference

[3] More references

Preparing a paper for publication in *IOP: Conference Series*

J Mucklow¹ and A Jansson²

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Abstract. These guidelines (laid out in the recommended format of a published article) summarize the key requirements for an article to be published in *IOP: Conference Series*. **Articles will not be edited, proofread or have changes made to the layout; the submitted PDF will be used for both online and print.** It is, therefore, the author's responsibility to ensure that the content and layout are correct—no changes can be made after publication.

1. Key requirements

The following lists the essential requirements for an article to be published in an *IOP: Conference Series* journal:

- the page size should be A4;
- each page should have clear margins of 4cm (top), 2.5cm (left and right) and 2.7cm (bottom);
- pages should not contain page numbers, running heads or footlines;
- all articles *must* contain an abstract;
- in the PDF, all fonts should be embedded.

1.1. Layout of the title page

The title should be followed by a list of all authors' names and their affiliations. The style for the names is initials (no periods) followed by the family name. The authors' affiliations follow the author list. If there is more than one address then a superscripted number should come at the start of each address; each author should also have a superscripted number or numbers following their name to indicate which address, or addresses, are the appropriate ones for them. E-mail addresses may be given for any or all of the authors.

The abstract follows the list of addresses. The abstract text should be indented 25 mm from the left margin. As the abstract is not part of the text it should be complete in itself; no table numbers, figure numbers, references or displayed mathematical expressions should be included. It should be suitable for direct inclusion in abstracting services.

2. The text

The text of your article should start on the same page as the abstract. Any Acknowledgments should be placed immediately after the last numbered section of the paper, and any appendices after the Acknowledgments section. **The length limit will be provided by the conference organizer.**

3. Figures and tables

Figures and tables should be numbered serially and positioned (centred on the width of the page) close to where they are mentioned in the text, not grouped together at the end. Each figure and table should have a brief explanatory caption.

3.1. Colour figures

There are no restrictions on the use of colour in the online version of your article. However, you should bear in mind that any print version of your article is likely to be in black and white which may make coloured lines difficult to distinguish.

4. Supplementary data

We are happy for authors to submit supplementary data attachments to enhance the online versions of published articles. Supplementary data enhancements typically consist of video clips, animations or supplementary data such as data files, tables of extra information or extra figures.

5. References

Online references will be linked to their original source or to the article within a secondary service such as INSPEC or ChemPort wherever possible. To facilitate this linking extra care should be taken when preparing reference lists.

A complete reference should provide enough information to locate the article concerned in print or electronic form. If you are unsure of a particular journal's abbreviated title it is best to leave the title in full. The terms *loc. cit.* and *ibid.* should not be used.

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References to printed journal articles should typically contain:

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- the year of publication;
- the article title (optional) in lower case letters, except for an initial capital;
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- the volume number in bold type;
- the article number or the page numbers.

5.2. A typical (numerical) reference list

References

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**Draf Artikel yang dikirim
(7 Mei 2017)**

Produksi Karkas Sapi yang Dipotong di Rumah Potong Hewan Kota Salatiga Jawa Tengah

**(Carcass Production of Cattle Slaughtered at Slaughter House
in Salatiga City Central Java)**

Endang Purbowati, C.M. Sri Lestari, M.J. Ma'ruf, Sutaryo, Mukh Arifin, Edy Rianto,
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ABSTRACT

The objective of this study is to determine the breed, age, sex, slaughter weight, carcass weight, and carcass percentage of cattle slaughtered in Slaughter House, Salatiga, Central Java. The materials observed was 156 head of cattle and the equipments of the slaughter house. This research is a case study and sampling by incidental sampling method for the identification of the breed, age, sex, slaughter weight and cattle carcass weights and percentages. Data were analyzed descriptively. The results showed that the sex of cattle slaughtered is male. The breed of cattle slaughtered is Frisien Hollstein Crossbreed (70.51%), Simmental (15.38%), Limousin-Ongole Crossbreed (5.77%), Simmental-Ongole Crossbreed (5.13%), and Simmental (3.21). The average age of the cattle is 2.34 years old with an average slaughter weight of 529.94 kg, and carcasses weight 277.61 kg or 52.56% of the slaughtered weight. The conclusions of this study is; the highest number of breed slaughtered in the slaughter house in Salatiga were Frisien Holstein Crossbreed in a still relatively young age, the slaughtered weight included in the frame score is large, and the carcasses percentage of cattle were moderate.

Key Words: carcass, slaughter weight, age, breed of cattle

PENDAHULUAN

Pemerintah tak henti-hentinya membuat berbagai macam program peningkatan produksi peternakan, khususnya daging agar tercapai cita-cita Indonesia menjadi negara swasembada daging. Indikator produksi daging dari seekor ternak dapat diukur dari bobot dan persentase karkas yang dihasilkan, karena daging merupakan salah satu komponen karkas (Hafid *et al.*, 2013). Karkas adalah hasil pemotongan ternak setelah dikurangi kepala, darah, kulit, isi rongga dada dan rongga perut (kecuali ginjal), keempat kaki bagian bawah, dan ekor (Soeparno, 2005). Menurut Zajulie *et al.* (2015), sapi dikatakan baik apabila menghasilkan karkas 59% dari bobot potong dan dari jumlah tersebut diperoleh 46,5% daging yang dapat dikonsumsi. Persentase karkas yaitu rasio antara bobot karkas segar dengan bobot ternak saat dipotong dikalikan 100% (Prado *et al.*, 2008).

Beberapa faktor yang mempengaruhi persentase karkas adalah pakan, umur, bobot hidup saat dipotong, jenis kelamin, hormon, bangsa dan konformasi tubuh (Preston dan Willis, 1982). Jenis pakan, konsumsi dan komposisi kimia pakan berpengaruh besar terhadap pertumbuhan, konsumsi protein dan energi yang lebih tinggi akan menghasilkan laju pertumbuhan yang lebih cepat (Soeparno, 2005). Bobot potong cenderung meningkat seiring dengan meningkatnya umur (Zajulie *et al.*, 2015), sehingga bobot karkasnya juga akan bertambah (Soeparno, 2005). Persentase karkas akan meningkat dengan semakin meningkatnya bobot potong (Forrest *et al.*, 1975). Sapi Bali jantan mempunyai berat karkas segar yang lebih tinggi daripada sapi Bali betina (Saka *et al.*, 2011). Bangsa ternak yang memiliki bobot potong besar akan menghasilkan bobot karkas yang besar pula (Soeparno, 2005). Bobot potong, bobot karkas, dan persentase karkas keturunan bangsa sapi Simmental-Bali lebih tinggi daripada keturunan bangsa Bali-Bali, Ongole-Bali, dan Brahman-Bali (Munthalib, 2003). Penelitian ini bertujuan untuk mengetahui bangsa, umur, bobot potong, serta bobot dan persentase karkas sapi yang dipotong di rumah potong hewan Salatiga, Jawa Tengah.

MATERI DAN METODE

Lokasi dan Waktu Penelitian

Penelitian ini dilakukan di Rumah Potong Hewan (RPH) Salatiga, Jawa Tengah. Waktu pelaksanaan penelitian sekitar satu bulan dari tanggal 20 Januari sampai 18 Februari 2016.

Materi Penelitian

Materi yang diamati dalam penelitian adalah 156 ekor sapi yang dipotong di RPH Salatiga. Peralatan pemotongan hewan yang digunakan terdiri dari pisau, kapak, timbangan digital, kait gantung, timbangan, gerobak dorong, penjepit hidrolis, selang, dan pakaian kerja.

Metode Penelitian dan Analisis Data

Metode penelitian adalah studi kasus dengan melakukan observasi dan mengikuti kegiatan pemotongan sapi di RPH Salatiga. Metode pengambilan sampel sapi dengan *incidental sampling*, yaitu pengambilan sampel secara insidental dari sejumlah sapi yang dipotong saat periode pelaksanaan penelitian. Prosedur pemotongan di RPH Salatiga dimulai dari pemeriksaan *ante-mortem*, pemotongan ternak dan pembentukan karkas, dan diakhiri dengan pemeriksaan *post mortem*. Data yang diamati meliputi bangsa, umur, jenis kelamin, bobot potong, dan bobot karkas, serta menghitung persentase karkas. Penentuan umur dengan cara melihat pertumbuhan gigi, yaitu gigi seri, gigi geraham, dan gigi tetap menurut petunjuk Frandson (1996). Bobot potong sapi/bobot karkas diukur dengan cara menimbang sapi/karkas menggunakan timbangan. Karkas adalah bobot badan ternak saat dipotong dikurangi bobot kulit, isi rongga dada dan perut, kaki bagian bawah, ekor, serta kepalanya. Persentase karkas adalah perbandingan bobot karkas dengan bobot potong dikalikan 100% (Irin, 2012). Data hasil penelitian ditabulasi, kemudian dianalisis secara diskriptif.

HASIL DAN PEMBAHASAN

Rumah Potong Hewan Salatiga

Rumah Potong Hewan (RPH) Salatiga terletak di Jalan Imam Bonjol No. 111 A Salatiga, yang dibangun pada tahun 1984-1985 di atas lahan seluas 13.000 m² dan dengan luas bangunan 785 m². Rumah Potong Hewan Salatiga resmi dibuka pada tanggal 3 Juli 1987 oleh Gubernur Jawa Tengah. Pembangunan RPH Salatiga pada tahun 1993 oleh Dirjen Peternakan ditujukan untuk menjadi RPH dengan tipe B. Menurut Badan Standarisasi Nasional (1999), fasilitas RPH dengan Tipe B sebaiknya memiliki ruang khusus cuci jeroan, laboratorium yang dapat mendeteksi residu antibiotik, pengolahan limbah secara fisik dan biologis, ruang pelayuan, dinding bagian dalam ruang pemotongan terbuat dari porcelain, tersedia sumber air panas, kendaraan pengangkut dengan pendingin dan memiliki tenaga dokter hewan. Fasilitas di RPH Salatiga yang belum ada yaitu laboratorium yang memadai untuk mendeteksi residu antibiotik, karena laboratorium di RPH Salatiga hanya memiliki peralatan pengujian yang masih sederhana, sumber air panas, ruang pelayuan, ruang pendingin dan mobil pengangkut dengan pendingin belum dimanfaatkan dengan baik. Pengolahan limbah di RPH Salatiga diolah oleh pihak lain, selain itu RPH Salatiga tidak mendistribusikan daging sesuai dengan jangkauan distribusi RPH tipe B (antar propinsi).

Rumah Potong Hewan Salatiga memiliki lokasi yang berdampingan dengan pasar dan cukup dekat dengan pemukiman, sehingga dapat memungkinkan terjadinya gangguan. Menurut Lestari (1994), lokasi RPH yang baik berada di bagian pinggir kota yang tidak padat penduduknya, dekat aliran sungai atau di bagian terendah kota sehingga tidak menimbulkan gangguan atau pencemaran lingkungan. Setiajatinika (2011) menyatakan bahwa persyaratan teknis lokasi RPH jaraknya kurang lebih 2 - 3 km dari pemukiman penduduk.

Tujuan dari RPH Salatiga yaitu memberikan pelayanan terhadap masyarakat untuk menyediakan daging yang ASUH (Aman, Sehat, Utuh, Halal). Jumlah sapi yang dipotong di RPH Salatiga rata-rata sebanyak 8 ekor/hari, jumlah pemotongan sapi tersebut tergolong cukup rendah sehingga RPH Salatiga dapat digolongkan menjadi RPH kategori 1 (Arifin dan Purbowati, 2011).

Karakteristik Sapi dan Karkas di Rumah Potong Hewan Salatiga

Hasil penelitian (Tabel 1) menunjukkan bahwa rata-rata umur sapi yang dipotong di RPH Salatiga adalah 2,34 tahun, berjenis kelamin jantan dengan bobot potong 529,94 kg, bobot karkas 277,61 kg, dan persentase karkas 52,56%. Purbowati *et al.* (2015) melaporkan, bahwa umur sapi yang dipotong di RPH Penggaron Semarang sekitar 2-3 tahun (rata-rata sudah *poel* 2), serta bobot potong, bobot karkas, dan persentase karkas rata-rata masing-masing 497,95 kg, 247,17 kg, dan 49,59%, lebih rendah dari pada hasil penelitian ini.

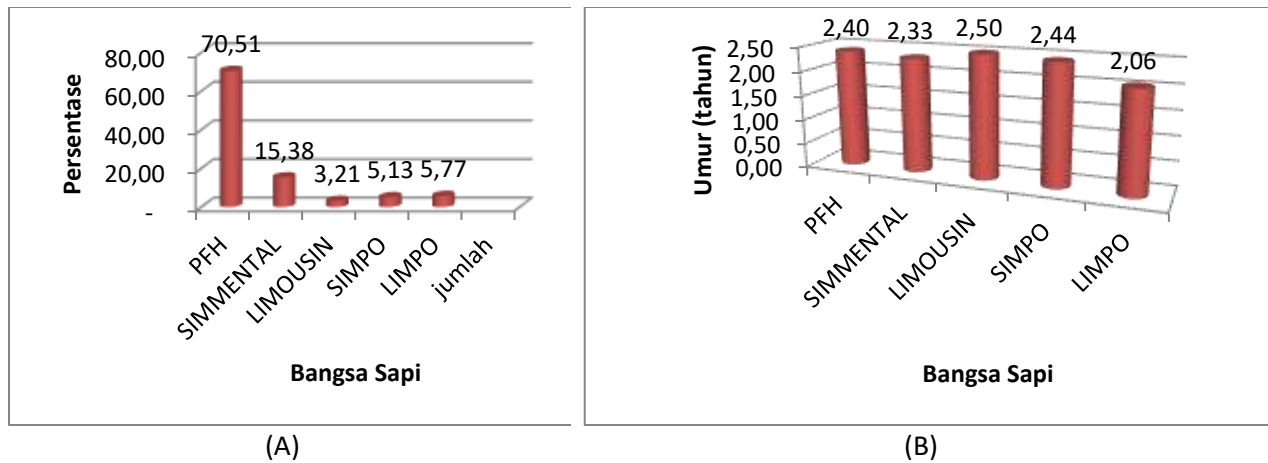
Tabel 1. Karakteristik Sapi yang Dipotong di Rumah Potong Hewan Salatiga

Bangsa Sapi	n	Umur (tahun)	Bobot Potong		Persentase Karkas (%)
			----- (kg) -----		
PFH	110	2,40	477,91	254,23	53,99
Simmental	24	2,33	548,92	285,00	51,95
Limousin	5	2,50	622,20	328,80	52,90
SimPO	8	2,44	542,25	282,13	51,95
LimPO	9	2,06	458,44	237,89	52,00
Rata-rata		2,34	529,94	277,61	52,56

n = jumlah sampel sapi

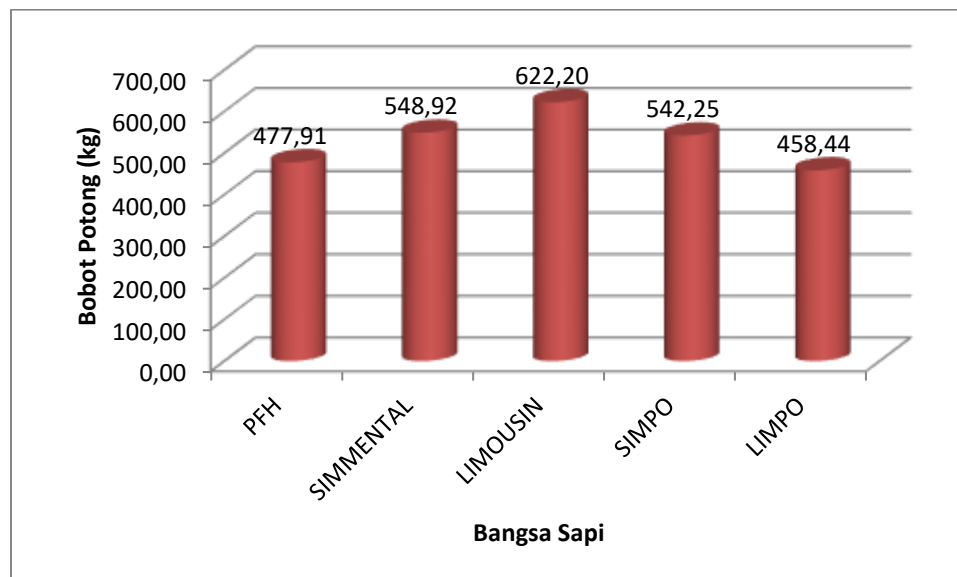
Bangsa sapi yang dipotong di RPH Salatiga sebagian besar adalah Peranakan Fries Holland (PFH) sebanyak 70,51%, kemudian diikuti oleh bangsa sapi Simmental (15,38%), Limousin-Peranakan Ongole (LimPO) sebesar 5,77%, Simmental-Peranakan Ongole (SimPO) sebesar 5,13%, dan Limousin 3,21% (Ilustrasi 1). Hal ini dikarenakan lokasi RPH Salatiga dekat dengan lokasi peternakan sapi perah PFH, sehingga sapi jantan yang tidak digunakan sebagai pejantan akan dimasukkan kedalam program penggemukan untuk menghasilkan daging. Sementara laporan hasil penelitian Purbowati *et al.* (2015), bangsa sapi yang dipotong di RPH Penggaron Semarang adalah Simmental 36%, Limousin 22%, Peranakan Limousin (PL) 18%, Peranakan Simmental (PS) 16%, dan bangsa lain (Peranakan Ongole/PO dan Brangus) sebanyak 8%.

Kisaran umur sapi yang dipotong yakni 1 – 4,5 tahun, dengan rata-rata 2,34 tahun, menunjukkan bahwa sapi yang dipotong termasuk masih muda. Sapi yang dipotong saat umurnya masih muda, mempunyai kualitas daging yang baik dan disukai konsumen. Menurut Arifin dan Purbowati (2011), kualitas karkas termasuk *prime* (kualitas terbaik), apabila sapi dipotong pada umur 9 bulan sampai 3,5 tahun dan mempunyai tingkat *marbling* yang banyak (*slightly abundant*). Sapi dapat menghasilkan karkas dengan kualitas *prime* apabila sapi digemukkan dengan pakan konsentrat (berupa biji-bijian) yang tinggi. Umur sapi yang dipotong di RPH Salatiga ini hampir sama dengan umur sapi yang dipotong di RPH Penggaron Semarang yakni 2 – 3 tahun (Purbowati *et al.*, 2015). Ali *et al.* (2015), melaporkan bahwa umur sapi yang dipotong di RPH Makasar rata-rata 4,76 tahun, lebih tua dari hasil penelitian ini. Persentase umur sapi yang dipotong di RPH Salatiga untuk masing-masing bangsa sapi dapat dilihat pada Ilustrasi 1.



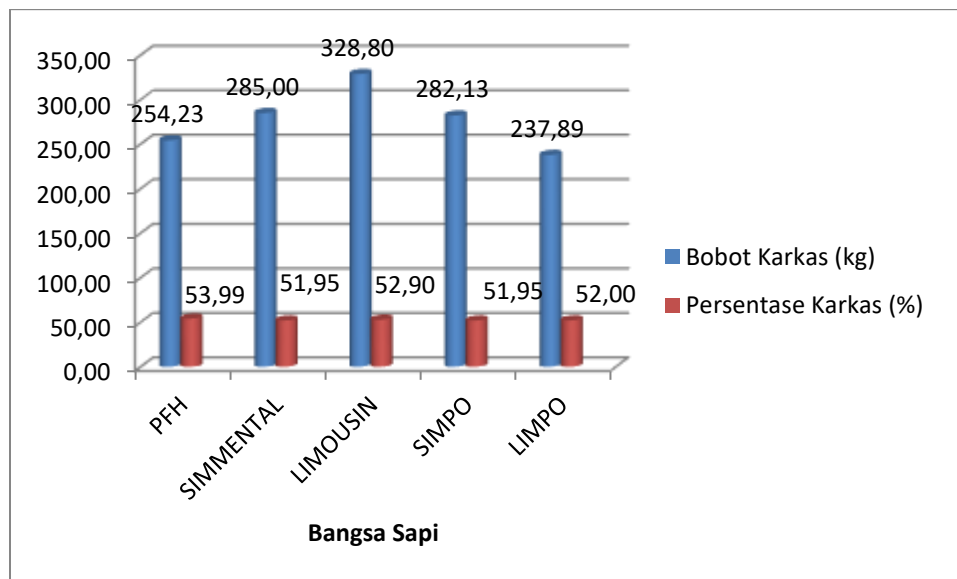
Ilustrasi 1. Persentase Bangsa (A) dan Umur (B) Sapi yang Dipotong di RPH Salatiga

Bobot potong sapi yang dipotong di RPH Salatiga rata-rata sebesar 529,94 kg, dengan bobot potong tertinggi dari sapi Limousin (622,20 kg), dan terendah sapi LimPO (458,94 kg). Menurut Arifin dan Purbowati (2011), bobot sapi yang dipotong di RPH Salatiga termasuk kedalam frame score *medium* (405 – 495 kg) sampai *large* (495 – 585 kg). *Frame score* pada sapi siap potong digunakan untuk menggambarkan berapa bobot hidup pada saat sapi mencapai dewasa, saat tebal lemak punggung pada rusuk ke-12 sebesar 0,2*inchi* dan lambung terisi secara wajar. Hasil penelitian Purbowati *et al.* (2015) di RPH Pengaron Semarang melaporkan bahwa bobot potong rata-rata sapi adalah $497,95 \pm 44,97$ kg (CV = 9,03%). Bobot potong dipengaruhi oleh pakan, bangsa, dan umur ternak. Ilustrasi 2 menampilkan bobot potong masing-masing bangsa sapi di RPH Salatiga.



Ilustrasi 2. Bobot Potong Sapi di RPH Salatiga

Bobot karkas tertinggi pada sapi Limousin (328,80 kg), dan terendah pada sapi LimPO (237,89 kg), dengan rata-rata bobot karkas sebesar 277,61 kg. Bobot karkas sejalan dengan bobot potongnya, sapi dengan bobot potong yang tinggi akan menghasilkan bobot karkas yang tinggi pula. Hal ini telah ditunjukkan oleh Purbowati *et al.* (2011) bahwa bobot karkas sapi di RPH Penggaron Semarang, tertinggi pada sapi Brangus (295 kg), kemudian disusul oleh sapi Simmental (249,33 kg), Limousin (245,65 kg), Peranakan Ongole (236,25 kg), Peranakan Limousin (235,56 kg), dan Peranakan Simmental (221,35 kg), yang sejalan dengan bobot potongnya. Bobot karkas sapi hasil penelitian di RPH Salatiga lebih tinggi dari pada di RPH Penggaron Semarang. Persentase karkas sapi hasil penelitian ini rata-rata sebesar 52,66% dari bobot potong. Sapi PFH menghasilkan persentase karkas tertinggi (53,99%), sedangkan sapi Simmental dan SimPO menghasilkan persentase karkas sebesar 51,95% dari bobot potong. Persentase karkas rata-rata hasil penelitian ini (52,56%) termasuk sedang, karena menurut Zajulie *et al.* (2015), sapi dikatakan baik apabila menghasilkan karkas 59% dari bobot potong. Namun persentase karkas hasil penelitian ini lebih baik apabila dibandingkan dengan hasil penelitian Purbowati *et al.* (2015) di RPH Penggaron Semarang yang menghasilkan persentase karkas sapi sebesar 49,59% dari bobot potong. Bobot dan persentase karkas sapi masing-masing bangsa di RPH Salatiga ditampilkan pada Ilustrasi 3.



Ilustrasi 3. Bobot dan Persentase Karkas Sapi di RPH Salatiga

SIMPULAN

Simpulan penelitian ini adalah bangsa sapi yang dipotong di RPH Salatiga sebagian besar Peranakan Fries Holland, umur masih tergolong muda (2,34 tahun), berjenis kelamin jantan, bobot potong (529,94 kg) termasuk ke dalam *frame score large*, dan persentase karkas sapi (52,56% dari bobot potong) termasuk sedang.

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CARCASS PRODUCTION OF CATTLE SLAUGHTERED AT SALATIGA CITY SLAUGHTER HOUSE, SALATIGA, CENTRAL JAVA

ABSTRAK

Penelitian ini bertujuan untuk mengetahui bangsa, umur, jenis kelamin, bobot potong, serta bobot dan persentase karkas sapi yang dipotong di rumah potong hewan Salatiga, Jawa Tengah. Materi yang diamati dalam penelitian adalah 156 ekor sapi dan peralatan pemotongan hewan. Metode penelitian adalah studi kasus dan pengambilan sampel sapi dengan metode *incidental sampling* untuk mengidentifikasi bangsa, umur, jenis kelamin, bobot potong, dan bobot karkas, serta menghitung persentase karkas yang kemudian dianalisis secara deskriptif. Hasil penelitian menunjukkan, bahwa semua sapi yang dipotong berjenis kelamin jantan dengan bangsa Peranakan Fries Holland (PFH) sebesar 70,51%, kemudian Simmental (15,38%), Limousin-Peranakan Ongole (LimPO) sebesar 5,77%, Simmental-Peranakan Ongole (SimPO) sebesar 5,13%, dan Simmental (3,21%). Umur saat dipotong rata-rata 2,34 tahun dengan bobot potong rata-rata sebesar 529,94 kg, dan karkas yang dihasilkan sebesar 277,61 kg atau 52,56% dari bobot potong. Simpulan penelitian ini adalah bangsa sapi yang dipotong sebagian besar PFH, umur masih tergolong muda, bobot potong termasuk ke dalam *frame score large*, dan persentase karkas sapi termasuk sedang.

Kata Kunci: karkas, bobot potong, umur, bangsa sapi

ABSTRACT

The objective of this study is to evaluate the breed, age, sex, slaughter weight, carcass weight, and carcass percentage of cattle which was slaughtered at Slaughter House in Salatiga, Central Java. The materials used in the study were 156 head of cattle. The sampling used was incidental sampling to identify the breed, age, sex, slaughter weight and carcass weight. The data gathered were analyzed descriptively. The result showed that the sex of all the cattle slaughtered were male. The breeds of the cattle were Frisian Holstein Grade (70.51%), Simmental (15.38+3.21), Simmental-Ongole Grade(5.13%), and Limousine-Ongole Grade (5.77%). The average age of the cattle were 2.34 year old, with an average of slaughter weight of 529.34 kg, while the averages of carcass weight were 277.61 kg. The average of carcass percentage was as high as 52.56%. The conclusion of the study was the highest number of breeds of the cattle slaughtered at Slaughter House in Salatiga were young Frisian Holstein, the body weights were included in large frame score, and the carcass percentage were moderate.

Key words: Age, carcass, cattle breed, slaughter weight

INTRODUCTION

The Indonesian government has many programs to increase the livestock production, especially meat, in reaching the dream in which Indonesia becoming a country with self-sufficiency of meat. The meat production indicator of cattle can be measured from the weight and carcass percentage, because the meat is a part of carcass components (Hafid *et al.*, 2013). According to Soeparno (2005), the definition of carcass is the slaughter production of cattle which the blood, skin, head, viscera, low parts of the legs, and tails are removed. Cattle can be classified as good cattle are if it the carcass yield is 59% of the slaughter weight, and from there, the amount edible meat is 46.5 % (Zajulie *et al.*, 2015). The carcass percentage is ratio of carcass weight to slaughter weight, multiplied 100 % (Prado *et al.*, 2008).

Some factors that affect carcass percentage are feed, breed, age, sex, hormone, slaughter weight, and body conformation (Preston and Willis, 1982). The kind of feeds, feed consumption, and feed composition has a great influence to the growth of cattle, where the higher protein and energy intake will accelerate the growth rate of the cattle (Soeparno, 2005). The slaughter weight will increase as the cattle's age increase (Zajulie *et al.*, 2015), so the carcass weight will increase too (Soeparno, 2005). The carcass percentage will increase with the increase of the slaughter weight (Forrest *et al.*, 1975). According to Saka *et al.* (2005), Bali bull has higher carcass percentage those female Bali cattle. A big cattle breed will also produce big carcass (Soeparno, 2005). The slaughter weight, carcass weight, and carcass percentage of Simmental-Bali Grade breed is higher than Bali-Bali Grade, Ongole-Bali, and Brahman-Bali breed (Munthalib, 2003). The study objective is to determine breed, age, slaughter weight, and carcass percentage of cattle slaughtered at Slaughter House Salatiga, Salatiga, Central Java.

MATERIAL AND METHOD

Time and Location

The study was done in Slaughter House Salatiga (SHS) Salatiga City, Central Java on January 20 to February 18, 2016.

Materials

The materials used in the study were 156 heads of cattle that were slaughtered at SHS Salatiga City. The equipments that were used to slaughter are knife, axe, digital scale, hanging hooks, scale, barrow, hydraulic clamp, hose, and working suit.

Methods

The study was done via observation and by following the whole activity of cattle slaughtering process in Slaughter House Salatiga. The sampling method that is used is incidental sampling, where the samples of the cattle are taken incidentally while conducting the study. The slaughtering process in Slaughter House Salatiga started from ante mortem inspection, cattle slaughtering and carcass forming process, until post mortem inspection. The data that are gathered were breed, age, sex, slaughter weight, carcass weight, and carcass percentage.

The age was determined using the observation to the teeth eruption included incisors, pre molar, molar, and permanent teeth (Frandsen, 1996). Slaughtered and carcass weight were measured using digital scale. The definition of carcass is the slaughtered cattle which the skin, head, tail, low part of leg and viscera is removed. The dressing percentage is a proportion of

carcass to body weight multiplied by 100% (Irin, 2012). The data gathered was analyzed descriptively.

RESULT AND DISCUSSION

The Slaughter House Salatiga

The Slaughter House Salatiga (SHS) is located at Jl. Imam Bonjol No. 111 A. Salatiga. The SHS has been built in 1984-1985 on the area of 13,000 m², including the SHS building of 785 m². SHS was inaugurated officially by the Governor of Central Java in 1987. In 1993, the SHS was renovated to be type B Slaughter House by Director General of Livestock. According to National Standardized Bureau (1999), the type B slaughter house must have special room to wash internal organs, a laboratory to detect antibiotic residue, physically and biologically waste processing process, chilling room, the inside wall of slaughter building should made of porcelain, hot water resources, vehicle with cooling box, and has a veterinarian.

The SHS has no laboratory to detect antibiotic residue, because the lab only has simple equipments. Hot water, chilling room, cooling room, and the cooling vehicle are not well utilized. The waste management in SHS was done by a third party. In addition, SHS was not distributing beef meat as per distribution guideline of type B Slaughter House, which is interprovincial.

The location of SHS is beside a traditional market and quite closed to housing area, so disruptions are likely to happen. Lestari (1994) stated that a good slaughter house location is in city border where the human population is not high, near the river stream, or in the lowest part of city so that it will not produce any disruption or contaminate the environment. According to Setiajatnika (2011) the technical requirement of slaughter house location is 2-3 km from housing area. The goal of SHS is to serve people in getting a safe, healthy, complete, and *halal* meat. The average number of cattle which slaughtered in SHS was 8 heads/day. The number of cattle that was slaughtered in SHS was low. Based on the number of cattle slaughtered in SHS, the SHS could be grouped as category 1 slaughter house (Arifin dan Purbowati, 2011).

The Characteristics of Cattle and its Carcass at Slaughter House Salatiga.

The result of the study (Table 1) showed that the average age of the cattle slaughtered at Slaughter House in Salatiga was 2.34 year old, male, and the average of body weight, carcass weight, carcass percentage were 529.94 kg, 277.61 kg, 52.56% respectively. Purbowati *et al.* (2015) reported that the age of cattle that was slaughtered at Slaughter House Penggaron, Semarang is ranging from 2-3 year old (has 2 pairs of permanent incisors). The average body weight, carcass weight, and carcass percentage were 497.95 kg, 247.17 kg, and 49.59%, lower than those of this study.

Most of the cattle breeds slaughtered at SHS was Friesian Holstein Grade (FHG), as many as 70.51% followed by Simmental (15.38%), Limousine-Ongole (LimOG) Grade (5.77%), Simmental-Ongole (SimOG) Grade (5.13%), and Limousine (3.21%). The reason why most of cattle breed slaughtered at SHS was Friesian Holstein Grade because the Salatiga city was very closed with the Friesian Holstein Grade dairy cattle location, so that the bulls would be fattened

as a beef cattle. The study of Purbowati *et al.* (2015) showed that the cattle breeds slaughtered at Penggaron Slaughter House (PSH) were Simmental = 36%, Limousine = 22%, Limousine Grade = 18%, Simmental Grade = 16%, and other breeds (Ongole Grade and Brahman Angus Grade = 8%).

Table 1. The Characteristic of Cattle Slaughtered at Slaughter House Salatiga.

Cattle Breeds	n	Age	Slaughter Weight	Carcass Weight	Carcass Percentage
		(year)	----- (kg) -----	-----	(%)
FHG	110	2,40	477,91	254,23	53,99
Simmental	24	2,33	548,92	285,00	51,95
Limousin	5	2,50	622,20	328,80	52,90
Sim-OG	8	2,44	542,25	282,13	51,95
Lim-OG	9	2,06	458,44	237,89	52,00
Average		2,34	529,94	277,61	52,56

n = total sample

The age range of the cattle slaughtered at SHS was 1- 4.5 year old. It was showed that the cattle which were slaughtered were young. The young cattle have a good quality of meat, so that the consumer would like it. Arifin and Purbowati (2011) noted that the prime carcass quality is received from the slaughtered cattle with an age of 9 months to 3.5 year old, and has a slightly abundant of marbling. Cattle can produce prime quality of beef by fattening it using high concentrate or grain. The cattle's age slaughtered at SHS is similar with the age of cattle slaughtered at PSH, which was 2-3 year old. Ali *et al.* (2015) reported that the age of slaughter cattle slaughtered at Slaughter House in Makassar (South Sulawesi) was 4.76 year old in average, older than the age of the cattle from the study. The age percentage of cattle slaughtered at SHS for each cattle breed is presented at Illustration 1.

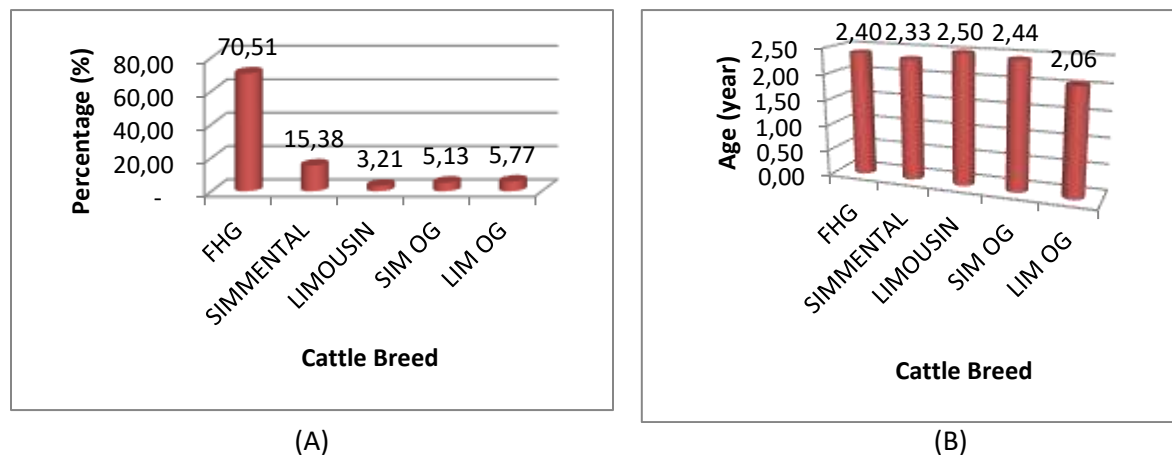


Illustration 1. Breed Percentage (A) and Age (B) of Cattle Slaughtered at SH Salatiga

The average slaughter weight of cattle slaughtered at SHS was as high as 529.94 kg. The highest slaughter weight was the Limousine (622.20 kg), and the lowest was Limousine-Ongole Grade (458.94 kg). According to Arifin and Purbowati (2011), the slaughter weight of cattle slaughtered at SHS was included into medium score frame (405-495 kg) to large score frame (495-585 kg). Frame score of the suitable cattle for slaughter is used to describe how heavy (in kg) the cattle were when reaching maturity, when the back fat on 12th rib is 0.2 inch thick and the gastric was properly full. The study of Purbowati *et al.* (2011) resulted that at the SHP Semarang, the average of the cattle slaughter weight was 497,95±44,97 kg (CV = 9,03%). The slaughtered weight was affected by feed, breeds, and age of cattle. The slaughter weight of each cattle breed at SHS could be seen at Illustration 2.

The highest and the lowest carcass weight were Limousine breed (328.80 kg), and Limousine-Ongole Grade (237.89), with an average carcass of 277.61 kg. The carcass weight is in line with the slaughter weight, as high slaughter weight will also be produce high carcass weight. This was shown by Purbowati *et al.* (2011) that the highest carcass weight at SHP was Brahman-Angus Grade (295 kg), followed by Simmental (249.33 kg), Limousine (245.65 kg), Ongole Grade (236,25 kg), Limousine Grade (235,56 kg), and Simmental Grade (221,35 kg), in line with their slaughter weight.

The carcass weight of the study at SHS was higher compared to carcass weight in Slaughter House Penggaron (SHP). The average of dressing percentage (DP) of the study was as high as 52.66%. Frisian Holstein breed has the highest DP (53.99%), while Simmental and Simmental-Ongole Grade have DP of 51.95%. The average of DP in the study (52.56%) is included as medium DP. According to Zajulie *et al.* (2015), cattle are considered as good if it has a DP of 59%. The DP of the study was better compared to DP from SHP as many as 49.59% (Purbowati *et al.*, 2015). The weight and DP of each cattle breed in SHS was presented at Illustration 3.

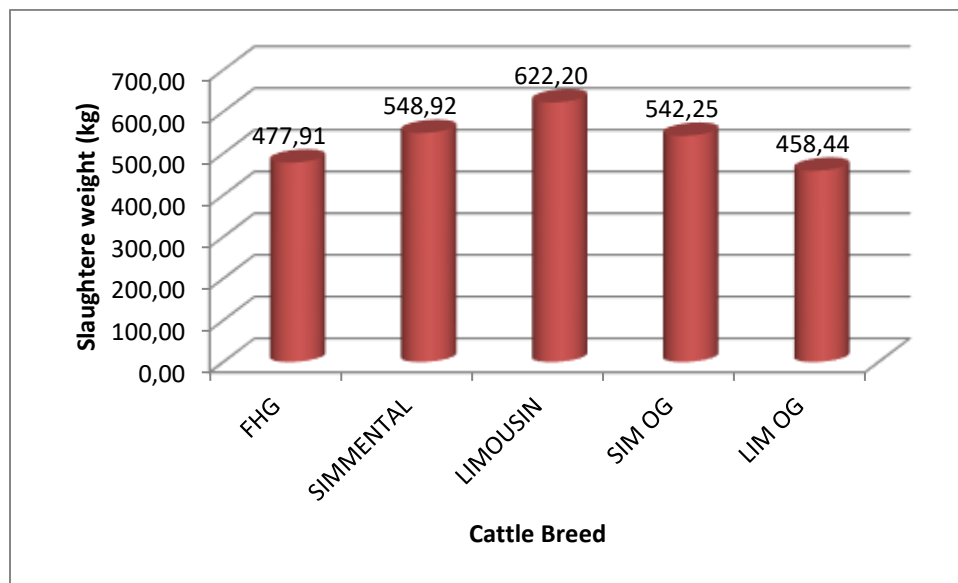


Illustration 2. The Average of Slaughter Weight of Cattle Breed at SHS

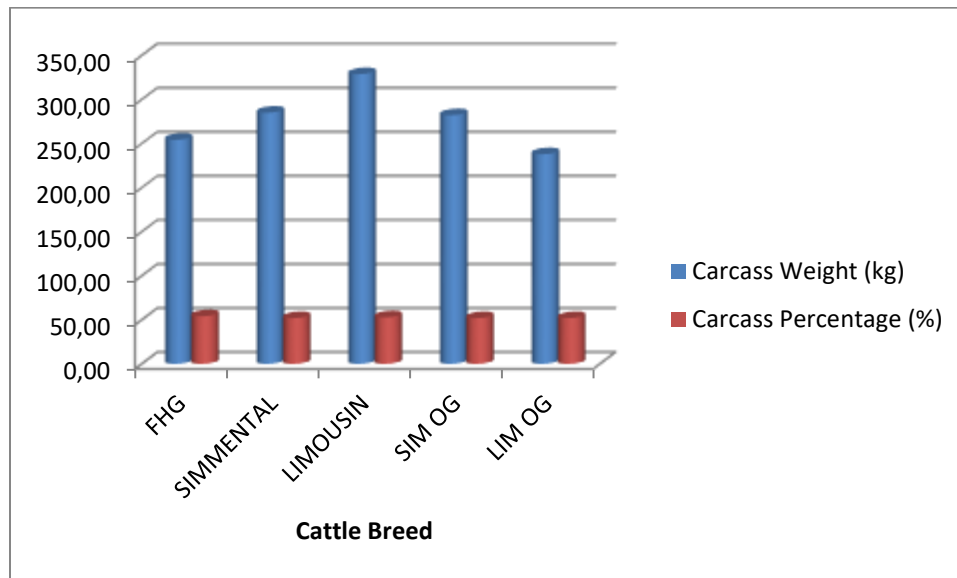


Illustration 3. The Carcass Weight and Carcass Percentage of Cattle at SHS

CONCLUSION

The conclusion of the study was the breeds of cattle slaughtered at Slaughter House in Salatiga were mostly young Frisian Holstein, considerably young age (2,34 years old), male, with the body weight of 529.94 kg, belongs to large frame score, and the DP (52.56%) were moderate.

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Review Artikel
(7 Juni 2017)

CARCASS PRODUCTION OF CATTLE SLAUGHTERED AT SALATIGA CITY SLAUGHTER HOUSE, SALATIGA, CENTRAL JAVA, INDONESIA

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui bangsa, umur, jenis kelamin, bobot potong, serta bobot dan persentase karkas sapi yang dipotong di rumah potong hewan Salatiga, Jawa Tengah. Materi yang diamati dalam penelitian adalah 156 ekor sapi dan peralatan pemotongan hewan. Metode penelitian adalah studi kasus dan pengambilan sampel sapi dengan metode *incidental sampling* untuk mengidentifikasi bangsa, umur, jenis kelamin, bobot potong, dan bobot karkas, serta menghitung persentase karkas yang kemudian dianalisis secara deskriptif. Hasil penelitian menunjukkan, bahwa semua sapi yang dipotong berjenis kelamin jantan dengan bangsa Peranakan Fries Holland (PFH) sebesar 70,51%, kemudian Simmental (15,38%), Limousin-Peranakan Ongole (LimPO) sebesar 5,77%, Simmental-Peranakan Ongole (SimPO) sebesar 5,13%, dan Simmental (3,21%). Umur saat dipotong rata-rata 2,34 tahun dengan bobot potong rata-rata sebesar 529,94 kg, dan karkas yang dihasilkan sebesar 277,61 kg atau 52,56% dari bobot potong. Simpulan penelitian ini adalah bangsa sapi yang dipotong sebagean besar PFH, umur masih tergolong muda, bobot potong termasuk ke dalam *frame score large*, dan persentase karkas sapi termasuk sedang.

Kata Kunci: karkas, bobot potong, umur, bangsa sapi

ABSTRACT

The objective of this study is to evaluate the breed, age, sex, slaughter weight, carcass weight, and carcass percentage of cattle which was slaughtered at Slaughter House in Salatiga, Central Java. The materials used in the study were 156 head of cattle. The sampling used was incidental sampling to identify the breed, age, sex, slaughter weight and carcass weight. The data gathered were analyzed descriptively. The result showed that the sex of all the cattle slaughtered were male. The breeds of the cattle were Frisian Holstein Grade (70.51%), Simmental (15.38+3.21), Simmental-Ongole Grade(5.13%), and Limousine-Ongole Grade (5.77%). The average age of the cattle were 2.34 year old, with an average of slaughter weight of 529.34 kg, while the averages of carcass weight were 277.61 kg. The average of carcass percentage was as high as 52.56%. The conclusion of the study was the highest number of breeds of the cattle slaughtered at Slaughter House in Salatiga were young Frisian Holstein, the body weights were included in large frame score, and the carcass percentage were moderate.

Key words: Age, carcass, cattle breed, slaughter weight

INTRODUCTION

The Indonesian government has many programs to increase the livestock production, especially meat, in reaching the dream in which Indonesia becoming a country with self-sufficiency of meat. The meat production indicator of cattle can be measured from the weight and carcass percentage, because the meat is a part of carcass components (Hafid *et al.*, 2013). According to Soeparno (2005), the definition of carcass is the slaughter production of cattle which the blood, skin, head, viscera, low parts of the legs, and tails are removed. Cattle can be classified as good cattle are if it the carcass yield is 59% of the slaughter weight, and from there, the amount edible meat is 46.5 % (Zajulie *et al.*, 2015). The carcass percentage is ratio of carcass weight to slaughter weight, multiplied 100 % (Prado *et al.*, 2008).

Some factors that affect carcass percentage are feed, breed, age, sex, hormone, slaughter weight, and body conformation (Preston and Willis, 1982). The kind of feeds, feed consumption, and feed composition has a great influence to the growth of cattle, where the higher protein and energy intake will accelerate the growth rate of the cattle (Soeparno, 2005). The slaughter weight will increase as the cattle's age increase (Zajulie *et al.*, 2015), so the carcass weight will increase too (Soeparno, 2005). The carcass percentage will increase with the increase of the slaughter weight (Forrest *et al.*, 1975). According to Saka *et al.* (2011), Bali bull has higher carcass percentage those female Bali cattle. A big cattle breed will also produce big carcass (Soeparno, 2005). The slaughter weight, carcass weight, and carcass percentage of Simmental-Bali Grade breed is higher than Bali-Bali Grade, Ongole-Bali, and Brahman-Bali breed (Munthalib, 2003). The study objective is to determine breed, age, slaughter weight, and carcass percentage of cattle slaughtered at Slaughter House Salatiga, Salatiga, Central Java.

MATERIAL AND METHOD

Time and Location

The study was done in Slaughter House Salatiga (SHS) Salatiga City, Central Java on January 20 to February 18, 2016.

Materials

The materials used in the study were 156 heads of cattle that were slaughtered at SHS Salatiga City. The equipments that were used to slaughter are knife, axe, digital scale, hanging hooks, scale, barrow, hydraulic clamp, hose, and working suit.

Methods

The study was done via observation and by following the whole activity of cattle slaughtering process in Slaughter House Salatiga. The sampling method that is used is incidental sampling, where the samples of the cattle are taken incidentally while conducting the study. The slaughtering process in Slaughter House Salatiga started from ante mortem inspection, cattle slaughtering and carcass forming process, until post mortem inspection. The data that are gathered were breed, age, sex, slaughter weight, carcass weight, and carcass percentage.

The age was determined using the observation to the teeth eruption included incisors, pre molar, molar, and permanent teeth (Frandsen, 1996). Slaughtered and carcass weight were measured using digital scale. The definition of carcass is the slaughtered cattle which the skin, head, tail, low part of leg and viscera is removed. The dressing percentage is a proportion of

carcass to body weight multiplied by 100% (Irin, 2012). The data gathered was analyzed descriptively.

RESULT AND DISCUSSION

The Slaughter House Salatiga

The Slaughter House Salatiga (SHS) is located at Jl. Imam Bonjol No. 111 A. Salatiga. The SHS has been built in 1984-1985 on the area of 13,000 m², including the SHS building of 785 m². SHS was inaugurated officially by the Governor of Central Java in 1987. In 1993, the SHS was renovated to be type B Slaughter House by Director General of Livestock. According to National Standardized Bureau (1999), the type B slaughter house must have special room to wash internal organs, a laboratory to detect antibiotic residue, physically and biologically waste processing process, chilling room, the inside wall of slaughter building should made of porcelain, hot water resources, vehicle with cooling box, and has a veterinarian.

The SHS has no laboratory to detect antibiotic residue, because the lab only has simple equipments. Hot water, chilling room, cooling room, and the cooling vehicle are not well utilized. The waste management in SHS was done by a third party. In addition, SHS was not distributing beef meat as per distribution guideline of type B Slaughter House, which is interprovincial.

The location of SHS is beside a traditional market and quite closed to housing area, so disruptions are likely to happen. Lestari (1994) stated that a good slaughter house location is in city border where the human population is not high, near the river stream, or in the lowest part of city so that it will not produce any disruption or contaminate the environment. According to Setiajatrika (2011) the technical requirement of slaughter house location is 2-3 km from housing area. The goal of SHS is to serve people in getting a safe, healthy, complete, and *halal* meat. The average number of cattle which slaughtered in SHS was 8 heads/day. The number of cattle that was slaughtered in SHS was low. Based on the number of cattle slaughtered in SHS, the SHS could be grouped as category 1 slaughter house (Arifin dan Purbowati, 2011).

The Characteristics of Cattle and its Carcass at Slaughter House Salatiga.

The result of the study (Table 1) showed that the average age of the cattle slaughtered at Slaughter House in Salatiga was 2.34 year old, male, and the average of body weight, carcass weight, carcass percentage were 529.94 kg, 277.61 kg, 52.56% respectively. Purbowati *et al.* (2015) reported that the age of cattle that was slaughtered at Slaughter House Penggaron (SHP), Semarang is ranging from 2-3 year old (has 2 pairs of permanent incisors). The average body weight, carcass weight, and carcass percentage were 497.95 kg, 247.17 kg, and 49.59%, lower than those of this study.

Most of the cattle breeds slaughtered at SHS was Friesian Holstein Grade (FHG), as many as 70.51% followed by Simmental (15.38%), Limousine-Ongole (LimOG) Grade (5.77%), Simmental-Ongole (SimOG) Grade (5.13%), and Limousine (3.21%). The reason why most of cattle breed slaughtered at SHS was Friesian Holstein Grade because the Salatiga city was very closed with the Friesian Holstein Grade dairy cattle location, so that the bulls would be fattened

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as a beef cattle. The study of Purbowati *et al.* (2015) showed that the cattle breeds slaughtered at Penggaron Slaughter House (PSH) were Simmental = 36%, Limousine = 22%, Limousine Grade = 18%, Simmental Grade = 16%, and other breeds (Ongole Grade and Brahman Angus Grade = 8%).

Table 1. The Characteristic of Cattle Slaughtered at Slaughter House Salatiga.

Cattle Breeds	n	Age	Slaughter Weight	Carcass Weight	Carcass Percentage
		(year)	----- (kg) -----		(%)
FHG	110	2,40	477,91	254,23	53,99
Simmental	24	2,33	548,92	285,00	51,95
Limousin	5	2,50	622,20	328,80	52,90
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Average		2,34	529,94	277,61	52,56

n = total sample

The age range of the cattle slaughtered at SHS was 1- 4.5 year old. It was showed that the cattle which were slaughtered were young. The young cattle have a good quality of meat, so that the consumer would like it. Arifin and Purbowati (2011) noted that the prime carcass quality is received from the slaughtered cattle with an age of 9 months to 3.5 year old, and has a slightly abundant of marbling. Cattle can produce prime quality of beef by fattening it using high concentrate or grain. The cattle's age slaughtered at SHS is similar with the age of cattle slaughtered at PSH, which was 2-3 year old. Ali *et al.* (2015) reported that the age of slaughter cattle slaughtered at Slaughter House in Makassar (South Sulawesi) was 4.76 year old in average, older than the age of the cattle from the study. The age percentage of cattle slaughtered at SHS for each cattle breed is presented at Illustration 1.

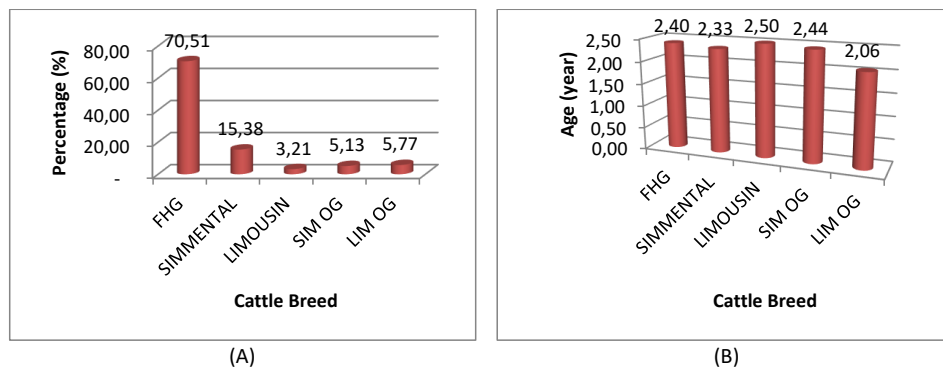


Illustration 1. Breed Percentage (A) and Age (B) of Cattle Slaughtered at SH Salatiga

The average slaughter weight of cattle slaughtered at SHS was as high as 529.94 kg. The highest slaughter weight was the Limousine (622.20 kg), and the lowest was Limousine-Ongole Grade (458.94 kg). According to Arifin and Purbowati (2011), the slaughter weight of cattle slaughtered at SHS was included into medium score frame (405-495 kg) to large score frame (495-585 kg). Frame score of the suitable cattle for slaughter is used to describe how heavy (in kg) the cattle were when reaching maturity, when the back fat on 12th rib is 0.2 inch thick and the gastric was properly full. The study of Purbowati *et al.* (2015) resulted that at the SHP Semarang, the average of the cattle slaughter weight was 497,95±44,97 kg (CV = 9,03%). The slaughtered weight was affected by feed, breeds, and age of cattle. The slaughter weight of each cattle breed at SHS could be seen at Illustration 2.

The highest and the lowest carcass weight were Limousine breed (328.80 kg), and Limousine-Ongole Grade (237.89), with an average carcass of 277.61 kg. The carcass weight is in line with the slaughter weight, as high slaughter weight will also be produce high carcass weight. This was shown by Purbowati *et al.* (2015) that the highest carcass weight at SHP was Brahman-Angus Grade (295 kg), followed by Simmental (249.33 kg), Limousine (245.65 kg), Ongole Grade (236,25 kg), Limousine Grade (235,56 kg), and Simmental Grade (221,35 kg), in line with their slaughter weight.

The carcass weight of the study at SHS was higher compared to carcass weight in Slaughter House Penggaron (SHP). The average of dressing percentage (DP) of the study was as high as 52.66%. Frisian Holstein breed has the highest DP (53.99%), while Simmental and Simmental-Ongole Grade have DP of 51.95%. The average of DP in the study (52.56%) is included as medium DP. According to Zajulie *et al.* (2015), cattle are considered as good if it has a DP of 59%. The DP of the study was better compared to DP from SHP as many as 49.59% (Purbowati *et al.*, 2015). The weight and DP of each cattle breed in SHS was presented at Illustration 3.

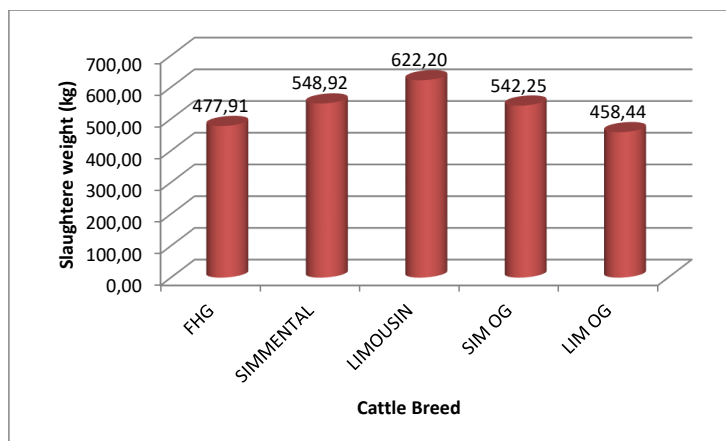


Illustration 2. The Average of Slaughter Weight of Cattle Breed at SHS

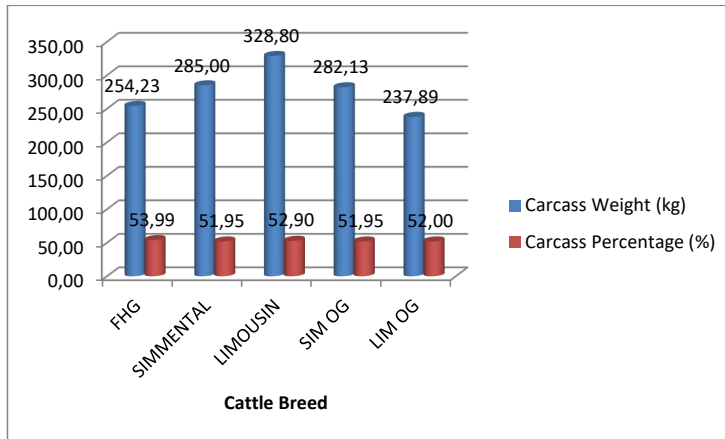


Illustration 3. The Carcass Weight and Carcass Percentage of Cattle at SHS

CONCLUSION

The conclusion of the study was the breeds of cattle slaughtered at Slaughter House in Salatiga were mostly young Frisian Holstein, considerably young age (2,34 years old), male, with the body weight of 529.94 kg, belongs to large frame score, and the DP (52.56%) were moderate.

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**Poster untuk seminar
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CARCASS PRODUCTION OF CATTLE SLAUGHTERED AT SALATIGA CITY SLAUGHTER HOUSE, SALATIGA, CENTRAL JAVA, INDONESIA

E. Purbowati, C.M. Sri Lestari, M.J. Ma'ruf, Sutaryo, M. Arifin, E. Rianto, and A. Purnomoadi

Faculty of Animal and Agricultural Sciences-Diponegoro University Semarang Indonesia



INTRODUCTION

Carcass is the slaughter production of cattle which the blood, skin, head, viscera, low parts of the legs, and tails are removed (Soeparno, 2005). The carcass percentage is ratio of carcass weight to slaughter weight, multiplied 100 % (Prado *et al*, 2008) Cattle can be classified as good cattle are if it the carcass yield is 59% of the slaughter weight, and from there, the amount edible meat is 46.5 % (Zajulie *et al.*, 2015). The study objective is to determine breed, age, slaughter weight, and carcass percentage of cattle slaughtered at Slaughter House Salatiga, Salatiga, Central Java.

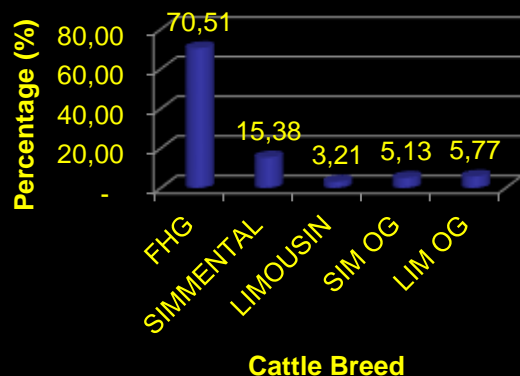
MATERIAL AND METHOD

The materials used in the study were 156 heads of cattle that were slaughtered at SHS Salatiga City. The equipments that were used to slaughter are knife, axe, digital scale, hanging hooks, scale, barrow, hydraulic clamp, hose, and working suit. The study was done via observation and by following the whole activity of cattle slaughtering process in Slaughter House Salatiga. The sampling method that is used is incidental sampling, where the samples of the cattle are taken incidentally while conducting the study. The data that are gathered were breed, age, sex, slaughter weight, carcass weight, and carcass percentage. The data gathered was analyzed descriptively.

RESULT

The Characteristic of Cattle Slaughtered at Slaughter House Salatiga

Cattle Breeds	n	Age	Slaughter Weight	Carcass Weight	Carcass Percentage
		(year)	----- (kg) -----		(%)
FHG	110	2,40	477,91	254,23	53,99
Simmental	24	2,33	548,92	285,00	51,95
Limousin	5	2,50	622,20	328,80	52,90
Sim-OG	8	2,44	542,25	282,13	51,95
Lim-OG	9	2,06	458,44	237,89	52,00
Average		2,34	529,94	277,61	52,56



CONCLUSION

The conclusion of the study was the breeds of cattle slaughtered at Slaughter House in Salatiga were mostly young Frisian Holstein, considerably young age (2,34 years old), male, with the body weight of 529.94 kg, belongs to large frame score, and the DP (52.56%) were moderate.

**Publikasi Artikel di Prosiding
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Carcass Production of Cattle Slaughtered at Salatiga City Slaughter House, Salatiga, Central Java, Indonesia

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Carcass Production of Cattle Slaughtered at Salatiga City Slaughter House, Salatiga, Central Java, Indonesia

E. Purbowati^{1*}, C. M. S. Lestari¹, M. J. Ma'ruf¹ and S. Sutaryo¹

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Abstract

The objective of this study was to evaluate the breed, age, sex, slaughter weight, carcass weight, and carcass percentage of cattle which was slaughtered at Slaughter House in Salatiga, Central Java. The materials used in the study were 156 head of cattle. The sampling used was incidental sampling to identify the breed, age, sex, slaughter weight and carcass weight. The data gathered were analyzed descriptively. The result showed that the sex of all the cattle slaughtered were male. The breeds of the cattle were Frisian Holstein Grade (70.51%), Simmental (15.38+3.21), Simmental-Ongole Grade (5.13%), and Limousine-Ongole Grade (5.77%). The average age of the cattle were 2.34 year old, with an average of slaughter weight of 529.34 kg, while the averages of carcass weight were 277.61 kg. The average of carcass percentage was as high as 52.56%. The conclusion of the study was the highest number of breeds of the cattle slaughtered at Slaughter House in Salatiga were young Frisian Holstein, the body weights were included in large frame score, and the carcass percentage were moderate.

1. Introduction

The Indonesian government has many programs to increase the livestock production, especially meat, in reaching the dream in which Indonesia becoming a country with self-sufficiency of meat. The meat production indicator of cattle can be measured from the weight and carcass percentage, because the meat is a part of carcass components [1]. According to Soeparno (2005) [2], the definition of carcass is the slaughter production of cattle which the blood, skin, head, viscera, low parts of the legs, and tails are removed. Cattle can be classified as good cattle are if it the carcass yield is 59% of the slaughter weight, and from there, the amount edible meat is 46.5 % [3]. The carcass percentage is ratio of carcass weight to slaughter weight, multiplied 100 % [4].

Some factors that affect carcass percentage are feed, breed, age, sex, hormone, slaughter weight, and body conformation [5]. The kind of feeds, feed consumption, and feed composition has a great influence to the growth of cattle, where the higher protein and energy intake will accelerate the growth rate of the cattle [2]. The slaughter weight will increase as the cattle's age increase [3], so the carcass weight will increase too [2]. The carcass percentage will increase with the increase of the slaughter weight [6]. According to Saka *et al.* (2011) [7], Bali bull has higher carcass percentage those female Bali cattle. A big cattle breed will also produce big carcass [2]. The slaughter weight, carcass weight, and carcass percentage of Simmental-Bali Grade breed is higher than Bali-Bali Grade, Ongole-Bali, and Brahman-Bali breed [8]. The study objective is to determine breed, age, slaughter weight, and carcass percentage of cattle slaughtered at Slaughter House Salatiga, Salatiga, Central Java.



2. Material and Method

2.1. Time and Location

The study was done in Slaughter House Salatiga (SHS) Salatiga City, Central Java on January 20 to February 18, 2016.

2.2. Materials

The materials used in the study were 156 heads of cattle that were slaughtered at SHS Salatiga City. The equipments that were used to slaughter are knife, axe, digital scale, hanging hooks, scale, barrow, hydraulic clamp, hose, and working suit.

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The age was determined using the observation to the teeth eruption included incisors, pre molar, molar, and permanent teeth [9]. Slaughtered and carcass weight were measured using digital scale. The definition of carcass is the slaughtered cattle which the skin, head, tail, low part of leg and viscera is removed. The dressing percentage is a proportion of carcass to body weight multiplied by 100% [10]. The data gathered was analyzed descriptively.

3. Result and Discussion

3.1. The Slaughter House Salatiga

The Slaughter House Salatiga (SHS) is located at Jl. Imam Bonjol No. 111 A. Salatiga. The SHS has been built in 1984-1985 on the area of 13,000 m², including the SHS building of 785 m². SHS was inaugurated officially by the Governor of Central Java in 1987. In 1993, the SHS was renovated to be type B Slaughter House by Director General of Livestock. According to Badan Standarisasi Nasional (1999) [11], the type B slaughter house must have special room to wash internal organs, a laboratory to detect antibiotic residue, physically and biologically waste processing process, chilling room, the inside wall of slaughter building should made of porcelain, hot water resources, vehicle with cooling box, and has a veterinarian.

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3.2. *The Characteristics of Cattle and its Carcass at Slaughter House Salatiga*

The result of the study (Table 1) showed that the average age of the cattle slaughtered at Slaughter House in Salatiga was 2.34 year old, male, and the average of body weight, carcass weight, carcass percentage were 529.94 kg, 277.61 kg, 52.56% respectively. Purbowati *et al.* (2015) [15] reported that the age of cattle that was slaughtered at Slaughter House Penggaron, Semarang is ranging from 2-3 year old (has 2 pairs of permanent incisors). The average body weight, carcass weight, and carcass percentage were 497.95 kg, 247.17 kg, and 49.59%, lower than those of this study.

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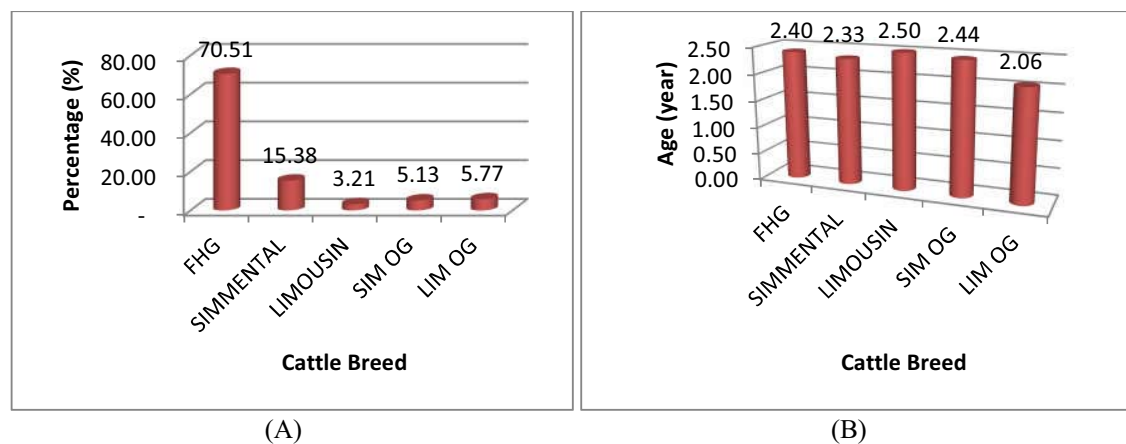


Illustration 1. Breed Percentage (A) and Age (B) of Cattle Slaughtered at SH Salatiga

The average slaughter weight of cattle slaughtered at SHS was as high as 529.94 kg. The highest slaughter weight was the Limousine (622.20 kg), and the lowest was Limousine-Ongole Grade (458.94 kg). According to Arifin and Purbowati [14], the slaughter weight of cattle slaughtered at SHS was included into medium score frame (405-495 kg) to large score frame (495-585 kg). Frame score of the suitable cattle for slaughter is used to describe how heavy (in kg) the cattle were when reaching maturity, when the back fat on 12th rib is 0.2 inch thick and the gastric was properly full. The study of Purbowati *et al.* [15] resulted that at the SHP Semarang, the average of the cattle slaughter weight was 497,95±44,97 kg (CV = 9,03%). The slaughtered weight was affected by feed, breeds, and age of cattle. The slaughter weight of each cattle breed at SHS could be seen at Illustration 2.

The highest and the lowest carcass weight were Limousine breed (328.80 kg), and Limousine-Ongole Grade (237.89), with an average carcass of 277.61 kg. The carcass weight is in line with the slaughter weight, as high slaughter weight will also be produce high carcass weight. This was shown by Purbowati *et al.* [15] that the highest carcass weight at SHP was Brahman-Angus Grade (295 kg), followed by Simmental (249.33 kg), Limousine (245.65 kg), Ongole Grade (236,25 kg), Limousine Grade (235,56 kg), and Simmental Grade (221,35 kg), in line with their slaughter weight.

The carcass weight of the study at SHS was higher compared to carcass weight in Slaughter House Penggaron (SHP). The average of dressing percentage (DP) of the study was as high as 52.66%. Frisian Holstein breed has the highest DP (53.99%), while Simmental and Simmental-Ongole Grade have DP of 51.95%. The average of DP in the study (52.56%) is included as medium DP. According to Zajulie *et al.* [3], cattle are considered as good if it has

a DP of 59%. The DP of the study was better compared to DP from SHP as many as 49.59% (Purbowati *et al.*) [15]. The weight and DP of each cattle breed in SHS was presented at Illustration 3.

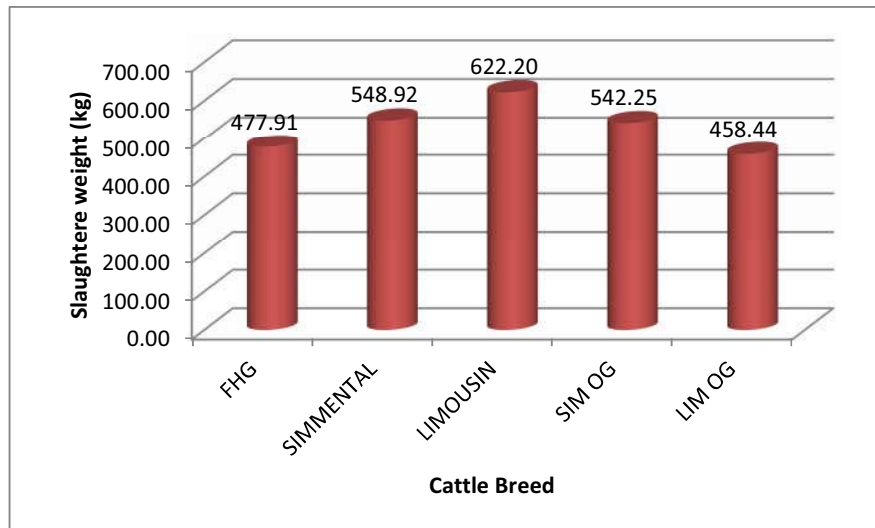


Illustration 2. The Average of Slaughter Weight of Cattle Breed at SHS

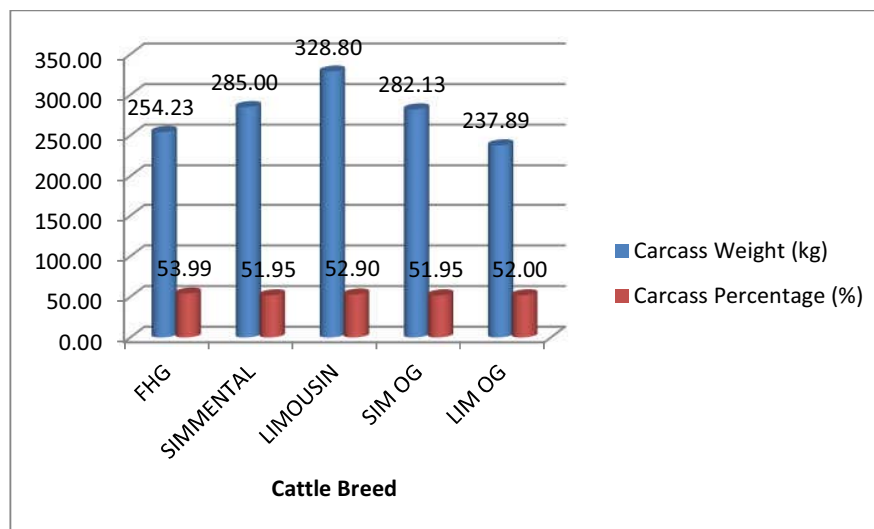


Illustration 3. The Carcass Weight and Carcass Percentage of Cattle at SHS

4. Conclusion

The conclusion of the study was the breeds of cattle slaughtered at Slaughter House in Salatiga were mostly young Frisian Holstein, considerably young age (2,34 years old), male, with the body weight of 529.94 kg, belongs to large frame score, and the DP (52.56%) were moderate.

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