

LAPORAN AKHIR
PENELITIAN UNGGULAN PERGURUAN TINGGI



Pola Pertumbuhan Karkas dan Bagian Komersial (*Wholesale Cuts*) dan Karakteristik Karkas Pada Sapi Pedaging Tahun ke-1 dari rencana 2 tahun

Kuswati, Ir, MS	NIDN. 0011075809
Moch. Nasich, Ir, MS, Dr	NIDN. 0006115505
Irida Novianti, S.Pt, M.Agr.Sc	NIDN. 0024118102

Dibiayai oleh :
Direktorat Jenderal Pendidikan Tinggi,
Kementerian Pendidikan dan Kebudayaan, Melalui DIPA Universitas Brawijaya
Nomor : DIPA-023.04.2.414989/2013, Tanggal 5 Desember 2012, dan berdasarkan
SK Rektor Universitas Brawijaya Nomor :295/SK/2013 tanggal 12 Juli2013

UNIVERSITAS BRAWIJAYA
NOPEMBER, 2013

HALAMAN PENGESAHAN

Judul : Pola Pertumbuhan Karkas dan Bagian Komersial (*Wholesale Cuts*) dan Karakteristik Karkas Pada Sapi Pedaging
Peneliti / Pelaksana : Ir. Kuswati, MS
Nama Lengkap : Ir. Kuswati, MS
NIDN : 0011075809
Jabatan Fungsional : Lektor Kepala
Program Studi : Produksi Ternak
Nomor HP : 08125205345
Alamat surel (e-mail) : kuswati_indicus@ub.ac.id
kuswati_bx44@yahoo.com

Anggota (1)
Nama Lengkap : Dr. Ir. Mochamad Nasich, MS
NIDN : 0006115505
Perguruan Tinggi : Universitas Brawijaya

Anggota (2)
Nama Lengkap : Irida Novianti, S.Pt, M.Agr.Sc
NIDN : 0024118102
Perguruan Tinggi : Universitas Brawijaya

Institusi Mitra (jika ada) : -
Alamat : -
Penanggung Jawab : Dekan Fakultas Peternakan
Tahun Pelaksanaan : Tahun ke 1 dari rencana 2 tahun
Biaya Tahun Berjalan : Rp. 51.000.000
Biaya Keseluruhan : Rp. 106.000.000

Malang, 30 Nopember 2013

Ketua,

Ir. Kuswati, MS
NIP.19580711 198601 2 002



ABSTRAK

Tujuan utama dari penelitian ini adalah untuk mengetahui pertumbuhan eksponensial dari masing-masing potongan karkas (*wholesale cuts*), produksi dan karakteristik karkas Sapi Brahman cross *steer* dan *heifer* sehingga dapat diketahui standar potongan komersial karkas sesuai spesifikasi pasar khusus. Penelitian ini dilakukan Rumah Potong Hewan (RPH) KSO P.T. WMP dan P.T. Sinar Daging Jonggol Kabupaten Cianjur, Bogor. 50 ekor sapi Brahman cross (25 ekor *steer* dan 25 ekor *heifer*) digunakan sebagai materi penelitian. Sapi berumur 2 – 3 tahun. Variabel yang diamati: bobot badan, bobot karkas, bobot tulang, bobot daging, bobot lemak (trim lemak), potongan komersial karkas (*wholesale cuts*) dan kualitas fisik karkas: *Meat colour*, *fat colour* dan *marbling*. Analisa menggunakan persamaan eksponensial dilakukan untuk mengetahui pertumbuhan relative komponen karkas dan potongan komersial terhadap bobot karkas.

Hasil penelitian menunjukkan bahwa nilai koefisien pertumbuhan eksponensial pada potongan komersial relatif sama dan hasil analisis regresi menunjukkan hubungan sangat nyata ($P < 0,01$) terhadap bobot karkas. Semakin meningkat bobot karkas maka potongan komersial karkas juga semakin meningkat, kecuali pada potongan *blade* dan *chuck tender*. Sedangkan berdasarkan uji t pada *steer* dan *heifer* menunjukkan bahwa bobot potongan komersial antara *steer* dan *heifer* tidak menunjukkan perbedaan nyata. Namun demikian, *steer* menghasilkan *eye round*, *cuberoll*, *chuck*, *shin/shank*, *full brisket* dan *FQ 85* lebih berat daripada *heifer*. *Heifer* menghasilkan *top side*, *out side*, *knuckle*, *striploin*, *rump*, *blade*, lemak dan bobot karkas lebih tinggi daripada *steer*. Sementara bagian *tenderloin* dan *chuck tender* antara *steer* dan *heifer* relatif sama.

Kesimpulan yang diperoleh dari penelitian ini adalah *steer* dan *heifer* memiliki koefisien pertumbuhan yang relative sama dan menunjukkan hubungan yang erat dengan bobot karkas. Semakin meningkat bobot karkas, semakin meningkat potongan komersial karkas. Sementara itu tidak ada perbedaan antara bobot potongan komersial pada *steer* dan *heifer*.

ABSTRACT

The objective of this study was to determine the exponential growth of commercial cuts (wholesale cuts), production and carcass characteristics of Brahman cross cattle both steer and heifer. This research was conducted at the Slaughterhouse (RPH) KSO PT WMP and P.T. Meat ray Jonggol Cianjur, Bogor. The research material were 50 Brahman cross cattle (25 steers and 25 heifers). The cattle were 2-3 years old with 1-2 pairs of permanent incisors (PI). The variables measured were: body weight, carcass weight, bone weight, meat weight, fat weight (trim fat), pieces of carcass commercial (wholesale cuts) and the measured physical quality of the carcass were meat color, fat color and marbling. In order to determine the growth of carcass composition and commercial cuts relative to carcass weight, an exponential equation were used.

The results showed that the coefficient of the exponential growth in the commercial pieces relatively the same, the results of the regression analysis showed highly significant relationship ($P < 0.01$) with carcass weight. Increasing carcass weight will be followed by the increasing weight of wholesale cuts, excluding the blade and chuck tender. On the other hand, based on the t test, it shows that there are no significant difference between the wholesale cuts weight for both steers and heifers. Based on the raw data, it shows that steer produces eye round, cuberoll, chuck, shin / shank, brisket and FQ full 85 heavier than heifer. Heifer produce a top side, out side, knuckle, striploin, rump, blade, fat and carcass weight higher than steer. While the tenderloin and chuck tender of the steer and heifer relatively the same.

In conclusion, both commercial cuts of the steer or heifer are relatively similar growth coefficient and showed a close relationship with carcass weight. Increasing carcass weight result on increasing wholesale cuts weight. However, there are no differences between wholesale cuts weights and percentages of both steers and heifers.

RINGKASAN

Pola pertumbuhan tulang, otot dan lemak dan distribusinya akan menentukan perubahan komposisi karkas dan potongan komersial (*wholesale cuts*). Karkas mempunyai produktivitas optimum apabila komposisi dari potongan komersial dapat memenuhi spesifikasi pasar. Pada saat ini sapi Brahman cross banyak disukai konsumen karena mempunyai presentase tulang lebih rendah dan presentase daging lebih tinggi dibanding sapi jenis lain. Namun demikian harus dipertimbangkan pemasaran pada pasar khusus agar harga lebih tinggi. Penelitian ini dilakukan didasari permasalahan spesifikasi permintaan pasar yang berkaitan dengan komposisi jaringan-jaringan dan karakteristik karkas.

Tujuan utama dari penelitian ini adalah untuk mengetahui pertumbuhan eksponensial dari masing-masing potongan karkas (*wholesale cuts*), produksi dan karakteristik karkas Sapi Brahman cross *steer* dan *heifer* sehingga dapat diketahui standar potongan komersial karkas sesuai spesifikasi pasar khusus.

Penelitian ini dilakukan Rumah Potong Hewan (RPH) KSO P.T. WMP dan P.T. Sinar Daging Jonggol Kabupaten Cianjur, Bogor. Materi penelitian 50 ekor sapi Brahman terdiri dari 25 ekor sapi jantan dan 25 ekor sapi betina. Umur sapi 2 – 3 tahun dengan komposisi gigi seri permanen (PI) 1 – 2 pasang. Penelitian ini dilakukan dalam 2 tahap yaitu: tahap pemotongan dan tahap evaluasi karkas dan potongan komersial (*wholesale cuts*). Variabel yang diamati: Bobot badan, bobot karkas, bobot tulang, bobot daging, bobot lemak (trim lemak), potongan komersial karkas (*wholesale cuts*) dan kualitas fisik karkas: *Meat colour*, *fat colour* dan *marbling*. Untuk mengetahui pertumbuhan relative komponen karkas dan bagian potongan komersial terhadap bobot karkas dianalisis dengan menggunakan persamaan eksponensial.

Hasil penelitian menunjukkan bahwa nilai koefisien pertumbuhan eksponensial pada potongan komersial relatif sama, hasil analisis regresi menunjukkan hubungan sangat nyata ($P < 0,01$) terhadap bobot karkas. Semakin meningkat bobot karkas akan diikuti oleh kenaikan potongan komersial karkas, kecuali pada potongan blade dan chuck tender. Sedangkan berdasarkan uji t pada *steer* dan *heifer* menunjukkan bahwa bobot potongan komersial antara *steer* dan *heifer* tidak menunjukkan perbedaan nyata. Namun demikian, *steer* menghasilkan *eye round*, *cuberoll*, *chuck*, *shin/shank*, *full brisket* dan *FQ 85* lebih berat daripada *heifer* atau potongan tersebut pada *heifer* lebih ringan. *Heifer* menghasilkan *top side*, *out side*, *knuckle*, *striploin*, *rump*, *blade*, lemak dan bobot karkas lebih tinggi daripada *steer*. Sementara bagian *tenderloin* dan *chuck tender* antara *steer* dan *heifer* relatif sama.

Kesimpulan yang diperoleh dari penelitian ini adalah berdasarkan pola pertumbuhan eksponensial pada potongan komersial baik itu untuk *steer* maupun *heifer* relatif sama dan menunjukkan hubungan yang erat dengan bobot karkas. Semakin meningkat bobot karkas, semakin meningkat potongan komersial karkas. Sementara itu *steer* dan *heifer* mempunyai bobot dan persentase potongan komersial yang sama.

SUMMARY

The growth pattern of bone, muscle and fat and its distribution determine changes in carcass composition and commercial cuts (wholesale cuts) . Carcasses have optimum productivity when the composition of the commercial able to fulfill market specifications. The Brahman cross cattle is a breed that have become preferred by consumers because of their lower bone percentage and higher meat percentage cothompare to other types of cattle. However, specific market should be considered to obtained higher prices. This study was conducted based on market demand specification issues relating to carcass composition and characterstics.

The objective of this study was to determine the exponential growth of comercial cuts (wholesale cuts), production and carcass characteristics of Brahman cattle cross steer and heifer that can be known standard commercial cuts corresponding carcass specific market specifications .This research was conducted at the Slaughterhouse (RPH) KSO PT WMP and P.T. Meat ray Jonggol Cianjur , Bogor . The research material were 50 Brahman cross cattle from 25 steers and 25 heifers. The cattle were 2-3 years old with 1-2 pairs of permanent incisors (PI). The study was conducted in 2 stages: slaughtering stage and evaluation stage of carcasses and wholesale cuts . The variables measured were : body weight , carcass weight , bone weight , meat weight , fat weight (trim fat) , pieces of carcass commercial (wholesale cuts) and the physical quality of the carcass : Meat color , fat color and marbling. In order to determine the relative growth of carcass composition and commercial cuts to the carcass weight, an exponential equation were used.

The results showed that the coefficient of the exponential growth in the commercial pieces relatively the same, the results of the regression analysis showed highly significant relationship ($P < 0.01$) on carcass weight . Increasing carcass weight will be followed by the increasing weight of wholesale cuts, excluding the blade and chuck tender.The t-test based analysis shows that the wholesale cuts weight of steers and heifers do not show any significant differences . However, steer produces eye round, cuberoll , chuck , shin / shank , brisket and FQ full 85 heavier than heifer. Heifer produce a top side , out side , knuckle , striploin , rump , blade , fat and carcass weight higher than steer . While the tenderloin and chuck tender of the steer andheifer relatively the same .

Conclusion of this research are: based on the pattern of exponential growth, both commercial cuts of the steer or heifer are relatively similar growth coefficient and showed a close relationship with carcass weight. Increasing carcass weight result on increasing wholesale cuts weight.However, there are no differences between wholesale cuts weights and percentages of both steers and heifers.

DAFTAR PUSTAKA

- Anonimus.2001. Proses Pematangan Ternak di RPH.Modul Program Keahlian Budidaya Ternak. Jakarta. (http://www.budidaya_ternak/proses/pematangan-ternak.di_rph_pdf). Diakses 20 Desember 2010
- _____. 2005.The Economic of Carcass Weight for the Cattle Industry. San Francisco. (<http://cattlemarketanalysis/Pubs/CarcassWeight2005ppt>). Diakses 24 Desember 2010.
- _____. 2006. Determining The Effect of Delayed Castration of Beef Cattle Production and Carcass Traits and Consument Acceptability. Utah state University. (http://www.joe.org/joe/2006_april/rbs.shtml).Diakses.24 Desember 2010.
- _____.2007.Dressing Percentage for Cattle. New South Wales. Departemen of Primary Industries or the users independent adviser. (http://www.dpi.nsw.gov.au/data/pdf_file/0006/dressingpercperbedaan_laju_pertumentages-for-cattle.pdf). Diakses 11 Nopember 2010.
- _____. 2007. Karkas dan Bagian-bagiannya. http://www.pustaka_deptan.co.id. Diakses 20 Nopember. 2010.
- Aus-meat, 2008.Meat Quality System.www.austmeat.com. Diakses 17 Februari 2011.
- Bahar.B. 2002. Memilih Produk Daging. Gramedia Pustaka Utama. Jakarta.
- Berg, R.M. and R. M. Butterfield. 1976. New conceps of cattle growth. Sydney University Press. Sydney.
- Behrends, S.M., R.K. Miller., F.M. Rouquette, Jr., R.D. Randel., B.G. Warrington., T.D.A. Forbes., T.H. Welsh., Lippke;, J.M. Behrends., G.E. Cartens and J.W. Holloway. 2009.J. Meat Sci 81: 433-438.
- Chambaz, A., M.R.L. Scheeder., M. Kreuzer and P.A. Dufey. 2003. Meat Quality of Angus, Simmental, Charolais and limousin Steers compared at the Same Intramuscular Fat Content. J. Meat Scie. 63: 491–500.
- Crews, D. H., R. M. Enns, J. M. Rumph and E. J. Pollak (2008)."Genetic evaluation of retail product percentage in Simmental cattle."Journal of Animal Breeding &Genetics**125**(1): 13-19.
- Cuvelier, C., A. Cliquant., J.F. Hocquette., J.F. Cabaraux., I. Dufasne, L. L. Istasse and J.L. Hornick. 2006. Comparison of Composition and Quality Traits of Meat from Young Finishing Bulls from Belgian Blue, Limousin and Aberdeen Angus Breeds. J. Meat Scie 74: 522-531.
- Dalton, C. 2009. An Introduction to Practical Animal Breeding: Part I. Traits in Farm Animals. Agricultural , farming. New Zeland.

- Drake.D.J. 2010. Understanding and Improving Beef Cattle Carcass Quality. Division of Agricultural and Natural Resources. University of California. <http://anrcatalog.ucdavis.edu>. Diakses 10 Februari 2011.
- Indurain, G., T.R. Carr., M.V. Goni., K. Insausti and M.J. Beriain. 2009. The Relation of Carcass Measurement to Carcass Composition and Intramuscular Fat in Spanish Beef. *J. Meat Scie.* 82: 155-161.
- Irshad, A., Kandeepan, G., Kumar,S., Ashish Kumar, A., Vishnuraj, M.R., and Shukhla, V. 2012. Factors Influencing Carcass Composition of Livestock: a Review. *Journal of Animal Production Advances.* 3(5):177-186
- Keane, M.G. 2011.Relative Tissue Growth Patterns And CarcassComposition In Beef Cattle. Occasional Series No.7. Grange Beef Research Centre
- Keane, M.G. 2011.Ranking Of Sire Breeds And Beef Cross Breeding OfDairy And Beef Cows. Occasional Series No.9. Grange Beef Research Centre
- Khalafalla, I.E.E., M. Atta., I.E. Eltahir and A.M. Mohammed. 2010. Effect of Slaughter Weight on Growth of Wholesale Cuts of Sudan Western Baggara Bull Carcass. *J. Animal Sci.* 1(1): 23 -27.
- Lawrie, L.A. 2001. Ilmu Daging. Penerbit Universitas Indonesia. UI. Press. Jakarta.
- Marple, D. (2003). Fundamental concept of growth.Biology of Growth of Domestic Animals. C. G. Scanes. Iowa, Iowa State Press.
- Mc.Klerrnan. B. 2007. Muscle Scoring Beef Cattle. NSW Departemen of Primary Industries. State of New South Wales.
- Mc.Kierman, G and Sundstrom. 2007.Dreesing Percentage for Cattle. New South Wales of Primary Industry. New South Wales. <http://www.dpi.nsw.gov.au/primefact>.
- Mukai, F., K. Oyama and S. Kohno (1995). "Genetic relationships between performance test traits and field carcass traits in Japanese Black cattle." Livestock Production Science44(3): 199-205.
- Owens, F. N., P. Dubeski and C. F. Hanson (1993)."Factors That Alter the Growth and Development of Ruminants."Journal of Animal Science71(11): 3138-3150.
- Phillips, C.J.C. 2010.Principles of Cattle production, 2 nd edition.Cambridge University Press. Cambridge.
- Priyanto,R. Johnson, E.R. 2011. Muscle Growth And Distribution in Fattening Steer of Different Breeds. *Media Peternakan.* Hlm. 19-22
- Purchas, R. 2004. Factor Affecting Carcass Composition and Beef Quality. Massey University. Palmerston North.

- Soeparno. 2009. Ilmu dan Teknologi Daging. Gajah Mada University Press. Yogyakarta.
- Savel, J.W. and Smith, G.C. 2000. Meat Science. American Press. Boston. Massachusettes.
- Smith, T. P. L., N. L. LopezCorrales, S. M. Kappes and T. S. Sonstegard (1997). "Myostatin maps to the interval containing the bovine mh locus." Mammalian Genome8(10): 742-744.
- Statistik Peternakan. 2007. Statistik Peternakan. Direktorat Jendral peternakan. Departemen Pertanian. Jakarta.
- Taylor.R.E. 1992. Scientific Farm Animal production. Fourth Edition. Macmillan Publishing Company. New York.
- Wiyatna, M.F. 2007. Perbandingan Indek Perdagangan Sapi-sapi Indonesia(sapi Bali, Madura, Po) dengan Sapi Australian Commercial Cross (ACC). Fakultas Peternakan Universitas Padjadjaran. Bandung.