

Carcass and Non-Carcass Production of Local Sheep with Age Variations and Slaughter Weight in Yogyakarta City

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Abstract

The study was aimed to determine the influence of age and slaughter weight on carcass and non-carcass (head, skin, and digestive tract) of local sheep. Sixty local sheep consisted of thirty local female sheep with slaughter weight 15-19,99 kg and thirty local sheeps with slaughter weight 20-25 kg, consisted of age less than one year, 1-1,5 years, and 2- 3 years. Data collected included age, slaughter weight, carcass weight, non-carcass (weight of head, skin, and digestive tract), carcass percentage, and non-carcass percentage. Data were analyzed in a 2 x 3 factorial design. The first factor was slaughter weight and the second factor was the age of local sheep. The difference between means was analyzed using Duncan's Multiple Range Test (DMRT). The results showed that slaughter weight significantly ($P < 0.05$) influenced carcass and non-carcass percentage. Age of local sheep significantly ($P < 0.05$) influenced carcass percentage, skin percentage, and digestive tract percentage. Therefore it could be concluded that the slaughter weight significantly influenced carcass and non-carcass and age significantly influenced carcass and non-carcass percentage, except legs percentage. In conclusion, age dan body weight gave to increase the percentage of carcass dan non-carcass. There was no interaction between the age of local sheep and slaughter weight on the carcass and non-carcass percentage.

Keywords: Local sheep, slaughter weight, age, carcass, non-carcass

Introduction

Sheep is one of the potential meat-producing livestock commodities. The ability to produce sheep meat is relatively fast compared to large ruminant livestock. Sheep can have children 3 times in 2 years, each time having 2 or 3 calves. Farmers in rural areas keep sheep only as a family saving that can be cashed at any time. Farmers, if there is no need, suddenly prefer to sell their cattle on Eid al-Adha. As a result of storing rams, the number circulating in the

animal market on normal days becomes less. The high factor of the price of male cattle on the animal market due to limited numbers, it makes the slaughterers choose to slaughter female sheep whose prices are relatively cheaper.

In general, cattle slaughtering can be classified into 2 parts, carcass, and non-carcass. The carcass is the main result of slaughtering cattle that have high economic value, while non-carcass is the residual carcass that still has an economic value as additional income. Lawrie (2003) states that

sheep slaughtering will produce two parts of the product, namely carcass, and non-carcass (offal).

Factors influencing cutting results are gender, age, weight cut, nation, nutrition, and health. Soeparno (2005) states that the carcass production of livestock is influenced by several factors including gender, age, and nutrition. Slaughter weight and age can affect carcass weight. High cutting weight will produce a high percentage of carcasses. Carcass weight is the weight of the body after being reduced by blood, head, feet, skin, digestive tract, intestine, urine bag, heart, trachea, lungs, kidneys, spleen, liver, and fat tissue attached to that part of the body. Widiarto et al. (2009) added that carcasses are the result of slaughtering cattle that have high economic value. Soeparno (2005) states the results of slaughtering cattle that are not included in the carcass are called non-carcasses (offal). Non-carcass consists of edible offal and non-edible offal. The edible offal part consists of the head (brain, tongue, and head muscles), blood, trachea, lungs, liver, spleen, heart, pancreas, skin, and feet as well as the digestive tract and non-edible offal parts, namely the horns, nails, and bones.

Data from the Livestock Service Office of the Special Region of Yogyakarta (2018) showed that 66.570 sheep were slaughtered. Butchers or Abattoirs like ewes

because the price is relatively cheaper than rams, so the benefits will be greater than the cutting of rams. Seeing this background it is necessary to research the effect of age and slaughter weight on female local sheep carcass production.

Material and Method

This study used 60 local female lambs slaughtered in the abattoir, female local animals at the abattoir, Giwangan, Yogyakarta. Sheep are distinguished based on cutting age (age less than 1.5 years, 1.5-2 years, and 2-3 years). Sheep are grouped according to the first weight (15-19 kg) and the second weight (20-25 kg). All necessary equipment facilities are prepared by the abattoir.

Data analysis

The observed variables are the percentage of carcasses and the percentage of non-carcasses (head, skin, and digestive tract). Data were analyzed using Analysis of Variance Complete Randomized Design (CRD) Factorial Pattern 2 x 3. The first factor was the slaughter weight group and the second factor was the age group. Repetition was carried out three times. If there were any real differences as the treatment effect was continued with Duncan's Multiple Range Test (DMRT).

Results and Discussion

Carcass Production

The percentage of carcass production from each local female sheep group is presented in Table 1.

Table 1. The average percentage of the carcass (%) of local female sheep

Slaughter Weight	Age (year)			Average (Kg)
	< 1,5	1,5 - 2	2-3	
I	41,52±2,39	42,32±4,57	46,14±7,16	43,33±4,76 ^a
II	39,49±3,53	44,56±4,66	42,01±4,91	42,02±4,31 ^p
Average	40,50±2,96 ^a	43,44±4,63 ^b	44,07±6,04 ^b	

a, b,p,q Different superscripts in the same row or column show significant differences (P<0,05)

Slaughter Weight I = 15 – 20kg

Slaughter Weight II = 20 – 25kg

Table 1 shows that slaughter weight influenced the percentage of local female carcasses of sheep (P <0.05). Percentage of sheep carcass increased with increasing weight of cut, first weight of 43.33 kg while the second weight of 42.02 kg. This shows that the higher the cutting weight, the higher the carcass produced. Soeparno (2005) states that body composition is closely related to body weight which affects carcass composition. Bodyweight is closely related to body composition. Williamson and Payne (1993) add that the macro environment will affect the availability of feed besides that Indonesia has a wet tropical climate is a good place for the development of external and internal parasites that often infect livestock, although not deadly but greatly affects livestock productivity. The quality and quantity of feed will affect the growth and development of livestock.

The percentage of carcasses was influenced by variations in the age of local

female sheep (P <0.05). Based on Table 1. shows that the percentage of carcasses increased with the increasing age of local female sheep. This is consistent with the results of research Razi (2004) that age affects the body weight and carcass percentage. The average percentage of sheep carcasses aged 1.5 to 2 years is higher than the percentage of carcasses of sheep aged less than one year and 1 to 1.5 years. This might be because the group sheep are still experiencing growth processes and maintenance and environmental management factors. Djuidjaman (2005) adds that the factors that affect carcass growth and its components are genetic, feed, environment, and adaptability. DMRT test results stated that there was no interaction between age and weight of cut to the percentage of carcasses.

Non-Carcass Production

Head. The results of the analysis of the average head percentage of each local female sheep group can be seen in Table 2.

Table 2. The average percentage of heads (%) of local female sheep

Slaughter Weight	Age (year)			Average (Kg)
	< 1,5	1,5 - 2	2-3	
I	7,70±0,87	6,70±0,84	6,52±0,82	6,97±0,84 ^a
II	6,92±0,62	6,18±0,65	6,02±0,89	6,37±0,72 ^p
Average	7,31±0,74 ^a	6,44±0,75 ^b	6,27±0,86 ^b	

^{a,b,p,q} Different superscripts in the same row or column show significant differences (P<0,05)

Slaughter Weight = 15 – 20kg

Slaughter Weight = 20 – 25 kg

The percentage of the head was affected by the slaughter weight of local female sheep (P <0.05). The percentage of head decreased, for the first weight of cut had a head percentage of 6.97% while the second weight of cut was 6.37%. This proves that the higher the weight of the slaughter of the sheep will reduce the percentage of head weight. the decrease in the proportion of the head is caused by the head organ being an organ that ripens early so that the proportion tends to decrease when it reaches adulthood (Black, 1983, cit Setiyono, 1987).

Table 2. shows that age affects the percentage of heads (P <0.05). The

percentage of heads decreases with age. This is in accordance with Tobing et al. (2004) which states that the head is a component that experienced a large growth in early life but experienced a decrease in growth at the end of life. DMRT test results stated that there was no interaction between cutting weight and age on the percentage of heads.

Skin. Leather is one part that can not be separated from slaughtering livestock. Leather is a non-carcass component that has high economic value. The results of the analysis of the average skin percentage of each group of local female sheep can be seen in Table 3.

Table 3. The average percentage of skin (%) of local female sheep

Slaughter Weight	Age (year)			Average (Kg)
	< 1,5	1,5 - 2	2-3	
I	8,89±1,14	8,22±1,93	7,21±0,58	8,11±1,22 ^a
II	8,24±1,92	6,93±0,91	7,62±0,78	7,60±1.20 ^p
Average	8,56±1,53 ^b	7,57±1,15 ^a	7,42±0,68 ^a	

^{a,b,p,q} Different superscripts in the same row or column show significant differences (P<0,05)

Slaughter Weight = 15 – 20kg

Slaughter Weight = 20 – 25 kg

Table 3 shows that age had an influence ($P < 0.05$) on the percentage of local female sheep's skin. The results showed that the percentage of skin under 10%. This is in accordance with Soeparno et al. (2001) states that skin percentages are around 8 to 12%.

Slaughter weights had an influence on the percentage of female local sheep's skin ($P < 0.05$). Herman (1993) which states that the higher the slaughter weight obtained, the higher the non-carcass weight and the percentage of non-carcass obtained. To produce slaughter weight and

non-carcass weight, it is closely related to the consumption of livestock while still alive. High consumption will result in body weight and high cutting weight. DMRT test results state that there is no interaction between age and slaughter weight to the percentage of the skin.

Digestive tract. The digestive tract consists of the rumen, reticulum, omasum abomasum, small intestine, and large intestine. The results of the analysis of the average percentage of the digestive tract of each group of local female sheep can be seen in Table 4.

Table 4. The average percentage of the digestive tract (%) of local female sheep

Slaughter Weight	Age (year)			Average (Kg)
	< 1,5	1,5 - 2	2-3	
I	8,06±1,80	11,06±5,24	18,42±9,62	12,51±5,55 ^q
II	7,57±1,05	13,37±3,81	14,23±4,40	11,72±3,09 ^p
Average	7,82±1,43 ^c	12,21±4,53 ^b	16,33±7,01 ^a	

^{a,b,p,q} Different superscripts in the same row or column show significant differences ($P < 0,05$)

Slaughter Weight = 15 – 20kg

Slaughter Weight = 20 – 25 kg

The age of female local sheep affected the percentage of the digestive tract ($P < 0.05$). The percentage of the digestive tract increases with age, the highest percentage of the digestive tract is shown at the age of 2 to 3 years (16.33%). This is caused by the growth of the digestive tract varies, some are slow and there is rapid growth. Soeparno (2005) states that the patterns of growth of the liver, kidneys, and digestive tract show variations, while organs related to digestion and metabolism show large changes in weight in accordance with their nutritional status.

The slaughter weight I was significantly different ($P < 0.01$) compared to the slaughter weight II to the percentage of digestive tracts of local female sheep. The percentage of digestive tract increases with the age of sheep. This proves that cutting weight affects the digestive tract. The results of Wisnu et al. (2009), which states that the slaughter weight in sheep gives a different effect to the percentage of the digestive tract. DMRT test results state that there is no interaction between age and slaughter weight to the percentage of the digestive tract.

Conclusion

Based on the results of the study that increasing the age and weight of the cut will increase the percentage of carcass and non-carcass weight. There is no interaction between slaughter weight and age to the percentage of carcass and non-carcass percentage.

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