

Original Research Article

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## Study on Effect of Different Weaning System on Carcass Characteristics of Tellicherry Goat

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### ABSTRACT

#### Keywords

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To study the effect of different weaning systems on carcass traits of Tellicherry goats 42 Tellicherry kids were allocated to three treatment groups viz. Group 1- Late weaning (at three month); Group 2- Mid weaning (at two month) and Group 3- Early weaning (at one month). Different weaning system had non-significant ( $p>0.05$ ) effect on pre-slaughter weight, empty live body weight, carcass weight, dressing percentage and carcass length. Dressing percentage in Tellicherry goat was  $38.66\pm 0.66\%$  irrespective of weaning system. Leg portion ( $33.53\pm 0.66\%$ ) contributed the highest proportion followed by breast and shank, rack, neck, shoulder, loin and flank. There was no significant difference ( $p>0.05$ ) between treatments in weight of edible and non-edible offals. Among non-edible offal, hide had the highest proportion ( $8.78\pm 0.31\%$ ) on pre-slaughter weight basis.

### Introduction

Weaning is commonly practiced in large sized goat farms. Generally kids are weaned at 3-4 months of age in Indian condition. Kids are also weaned at 60 days in other countries (Memisi *et al.*, 2009). Early weaning helps in

saving the milk, favours early resumption of ovarian activity and early development of kid's rumen. However, weaning at 45 and 60 days has no influence on growth characteristics. Such early weaning of kids but might have an effect on growth performance, weight at slaughter and on

certain carcass traits. Although, literature on effect of weaning age on carcass traits in sheep are available (Hashem *et al.*, 2013), direct references in this area for goats are very scanty. Considering aforesaid facts the present study was conducted to compare the carcass characteristics of Tellicherry goat under three different systems of weaning.

## Materials and Methods

The study was conducted at Instructional Livestock Farm Complex, TANUVAS, Madhavaram Milk Colony during the period from March- 2017 to May- 2018. A total of 30 male kids were allocated to three treatment groups. Group 1: Late weaning (n=10), Kids remained with the dam for 3 month and subsequently weaned. Group 2: Mid weaning (n=10), Kids weaned on completion of the 2 month. Group 3: Early weaning (n=10): Kids remained with the dam for 1 month and subsequently weaned. Under each treatment, weaned kids were kept in group of 2-3 depending on number of kids to make replicate.

The pens were with a pucca floor and attached open paddock. Four animals from each group were randomly selected and slaughtered by Halal method at the age of 11 to 12 month. The body weights were recorded before slaughtering. After bleeding, each carcass was dressed, and all parameters were recorded as per standard protocol. The data was pooled and analysed as per standard statistical procedure (Snedecor and Cochran, 1994).

## Results and Discussion

The results (Table 1) showed that different weaning system has non-significant ( $p>0.05$ ) effect on different carcass traits. Average pre-slaughter body weights in Gr 1, Gr 2 and Gr 3 were  $16.34\pm 0.39$ ,  $16.57\pm 1.41$ ,  $17.31\pm 1.23$  kg,

respectively. Carcass weight in Gr 1, Gr 2 and Gr 3 were  $6.34\pm 0.28$ ,  $6.51\pm 0.72$ ,  $6.96\pm 0.56$  kg respectively which were non-significantly ( $p>0.05$ ) affected by weaning systems. Our results are in agreement with previous report (Huiling *et al.*, 2019; Ugur *et al.*, 2004) concluding that weaning at 45 and 60 days had no influence on growth characteristics of kids.

Contradictory to present study, Nagpala *et al.*, (1995) reported that early weaned kids had lower pre-slaughter weight and carcass weight as compared with late weaned kids. Irrespective of weaning system average carcass weight in our study ( $6.60\pm 0.30$  kg) was found higher than reported in Black Bengal goat (Singh *et al.*, 1994).

Dressing percentage (slaughter weight basis) in Tellicherry goat was found  $38.66\pm 0.66$  % irrespective of weaning system. This value is closer to the reports in Osmanabadi goat (Hakim *et al.*, 2005). While it is lower than reported in Barbari goat (Das *et al.*, 2011) and Sirohi goat (Sureshkumar *et al.*, 2010). This might be due to the higher pre-slaughter weight reported in these breeds compared to Tellicherry goat. Drzaic *et al.*, (2011) suggested that, kids having higher slaughter weight had higher carcass weight and higher weight of internal organs than kids of smaller slaughter weight.

The yield of primal cuts including legs, loin, rack, neck, shoulder, flank and breast and shank did not differ significantly ( $p>0.05$ ) with the weaning systems. Irrespective of groups among the primal cuts, the leg portion ( $33.53\pm 0.66\%$ ) contributed the highest proportion followed by breast and shank ( $22.95\pm 0.58\%$ ), rack ( $13.26\pm 0.74\%$ ), neck ( $10.43\pm 0.37\%$ ), shoulder ( $8.64\pm 0.31\%$ ), loin ( $7.75\pm 0.21\%$ ) and flank ( $3.42\pm 0.29\%$ ). This is in agreement with previous reports in goat (Elangovan *et al.*, 2010).

**Table.1** Carcass traits (Mean±SE) in Tellicherry goat under different weaning systems

Parameters	Group 1	Group 2	Group 3	Over all
<b>Carcass weight and dressing percentage</b>				
Pre-slaughter weight (kg)	16.34±0.39	16.57±1.41	17.31±1.23	16.74±0.59
Empty body weight (kg)	12.83±0.24	13.69±1.16	14.15±0.90	13.56±0.47
Carcass weight (kg)	6.34±0.28	6.51±0.72	6.96±0.56	6.60±0.30
Carcass length (cm)	55.29±0.47	56.31±1.65	57.80±1.44	56.46±0.76
Dressing % (SWB)*	37.82±1.40	38.54±1.32	39.62±0.81	38.66±0.66
Dressing % (EWB)	48.81±1.51	48.93±2.72	49.67±1.81	49.13±1.10
<b>Primal Cuts weight (Proportion of pre-slaughter weight basis)</b>				
Leg weight (kg)	2.10±0.01 (33.65±1.52%)	2.24±0.17 (32.99±1.18%)	2.41±0.18 (33.99±0.80%)	2.25±0.08 (33.53±0.66%)
Loin weight (kg)	0.47±0.03 (7.53±0.36%)	0.52±0.06 (7.66±0.30%)	0.57±0.05 (8.04±0.24%)	0.52 ±0.03 (7.75±0.21%)
Neck weight (kg)	0.60±0.05 (9.61±0.48%)	0.71±0.10 (10.45±0.55%)	0.78±0.07 (11.0±0.91%)	0.70±0.04 (10.43±0.37%)
Rack weight (kg)	0.78±0.15 (12.5±2.13%)	0.97±0.13 (14.28±0.52%)	0.91±0.08 (12.83±0.57%)	0.89±0.06 (13.26±0.74%)
Shoulder weight (kg)	0.56±0.06 (8.97±0.68%)	0.58±0.06 (8.54±0.27%)	0.61±0.05 (8.60±0.48%)	0.58±0.03 (8.64±0.31%)
Flank weight (kg)	0.21±0.03 (3.36±0.31%)	0.23±0.03 (3.39±0.31%)	0.25±0.06 (3.52±0.73%)	0.23±0.02 (3.42±0.29%)
Brest and shank (kg)	1.52±0.05 (24.35±0.85%)	1.54±0.14 (22.68±0.76%)	1.56±0.08 (22.00±1.35%)	1.54±0.05 (22.95±0.58%)
<b>Edible offal (Variety Meat) (kg)</b>				
Liver	0.24±0.01	0.27±0.03	0.29±0.03	0.27±0.01
Kidney	0.04±0.01	0.04±0.01	0.05±0.01	0.04±0.01
Heart	0.06±0.01	0.05±0.01	0.06±0.01	0.05±0.01
Spleen	0.03±0.01	0.03±0.01	0.03±0.01	0.03±0.01
Testicle	0.13±0.01	0.13±0.01	0.13±0.01	0.13±0.01
<b>Non carcass components (kg)</b>				
Blood yield	0.62±0.02	0.64±0.04	0.68±0.02	0.65±0.02
Head yield	1.15±0.02	1.21±0.06	1.29±0.08	1.22±0.03
Skin yield	1.40±0.05	1.45±0.13	1.56±0.14	1.47±0.06
Hind feet yield	0.24±0.01	0.27±0.02	0.29±0.02	0.26±0.01
Fore feet yield	0.25±0.01	0.24±0.01	0.27±0.01	0.25±0.01
GIT full	4.80±0.22	5.21±0.40	5.47±0.44	5.16±0.21
GIT empty	1.67±0.13	1.72± 0.20	2.10±0.32	1.83±0.13
Lung	0.17±0.01	0.17±0.02	0.18±0.01	0.17±0.01
Trachea	0.04±0.01	0.04±0.01	0.04±0.01	0.04±0.01
Esophagus	0.03±0.01	0.03±0.01	0.03±0.01	0.03±0.01

\*SWB- Slaughter Weight Basis; EWB- Empty Weight Basis

Proportion of legs and breast and shank was comparatively higher while that of loin, rack, neck and shoulder was lower than in Kanniadu goat (Elangovan *et al.*, loc.cit) and Barbari goat (Sebsibe and Mathur, 2000). The weight (kg) of rack and loin in present study were in agreement with reports in Osmanabadi goat (Hakim *et al.*, loc. cit). There was no significant difference ( $p>0.05$ ) found between treatments in weight of edible and non-edible offals.

Among non-edible offal, hide had the highest proportion followed by blood, fore-feet, hind-feet, lungs, testicle, trachea and esophagus. Proportions of pre-slaughter weights of non-edible parts are comparable with Kanniadu goat (Elangovan *et al.*, loc. cit), while higher proportionally from Sirohi and Barbari goat (Das *et al.*, loc. cit; Sureshkumar *et al.*, loc.cit). In edible offals, the liver had the highest weight followed by heart, kidney and spleen in all the three systems of weaning.

An attempt was made to compare the carcass characteristics of Tellicherry Goat under three different systems of weaning viz. Late weaning (at three month); Mid weaning (at two month) and Early weaning (at one month). Different weaning system has no affect on the carcass traits of Tellicherry goats.

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