



International Journal of Veterinary Sciences and Animal Husbandry



ISSN: 2456-2912

NAAS Rating (2025): 4.61

VET 2025; 10(10): 11-14

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www.veterinarypaper.com

Received: 02-07-2025

Accepted: 04-08-2025

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Effect of sex on carcass characteristics of Siruvidai chicken in Tamil Nadu

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DOI: <https://www.doi.org/10.22271/veterinary.2025.v10.i10a.2592>

Abstract

The present study was conducted to evaluate the effect of sex on carcass characters of *Siruvidai* chicken in Tamil Nadu. A total of fifty birds, comprising 25 males and 25 females, were randomly selected for slaughter purpose at 8 months of age, following NBAGR (2016) guidelines. All birds were reared under a backyard management system with free access to supplemental scavenging. Their diet primarily consisted of locally available feed ingredients, including maize, cumbu, and broken rice, along with scavenged feed resources. The parameters assessed during the study namely, New-York dressed weight, eviscerated carcass weight, ready-to-cook weight, dressing percentage, abdominal fat weight, giblet yield, meat-to-bone ratio, and various cut-up parts. Results showed that significant ($p \leq 0.05$) differences were observed in males on various carcass traits when compared to females. Significant ($p \leq 0.05$) differences were observed in pre-slaughter body weight, eviscerated carcass weight, ready-to-cook weight, abdominal fat weight, giblet yield, meat-to-bone ratio, drumstick yield, and thigh yield in males than female.

Keywords: Siruvidai chicken, pre-slaughter, carcass characteristics and meat bone ratio

Introduction

India has a rich poultry genetic resource base, with 20 registered chicken populations (NBAGR) and numerous unrecognized native germplasms scattered across rural regions. The country produces 142.77 billion eggs annually, ranking second globally in egg production, of which 84.59% comes from commercial poultry and 15.41% from backyard systems. Poultry meat accounts for 49% of total meat production in India (BAHS, 2024), playing a vital role in enhancing the nutritional security and economic well-being of rural communities. Backyard poultry farming is particularly advantageous in rural areas, as it requires minimal feed inputs and infrastructure, making it an accessible livelihood option for the rural poor. Among the unrecognized native chicken populations of Tamil Nadu, *Siruvidai* chicken holds significant importance due to its unique traits such as broodiness, strong mothering ability, disease tolerance, and adaptability to diverse climatic conditions. Traditionally, the eggs and meat of *Siruvidai* chicken are believed to aid in treating orthopaedic conditions like fractures and hematomas in rural Tamil Nadu. In addition, rural consumers prefer the appearance, resilience, and taste of native birds over commercially raised white broilers, often paying a premium price for local chicken and eggs. The eggs and meat of *Siruvidai* chicken command higher prices in rural markets of Tamil Nadu. Despite its potential, research on this native population remains limited, and farmers continue to rear them with only minimal traditional knowledge and little scientific input. The reports on body weight, growth rate, and feed efficiency under both intensive and cage systems of rearing are available in the literature. However, reports on *Siruvidai* chicken under the extensive management system are limited. Therefore, to better utilize the carcass traits of *Siruvidai* chicken in its native tract and to establish baseline data, the present study was undertaken to evaluate the influence of sex on carcass characteristics of *Siruvidai* chicken in Tamil Nadu.

Materials and Methods

A study was undertaken to assess the carcass traits of *Siruvudai* chicken from Tamil Nadu. In accordance with NBAGR (2016) guidelines, a total of 50 birds (25 males and 25 females) were randomly selected for slaughter at 8 months of age. All birds were reared under a backyard management system with supplemental scavenging. Their diet primarily consisted of locally available feed ingredients such as maize, cumbu, and broken rice, along with scavenged feed resources. Prior to slaughter, the birds were fasted for three hours, and their live body weight was recorded using an electronic weighing balance with an accuracy of 0.1 g. Humane slaughtering procedures were followed, including scalding, de-feathering, singeing, and evisceration, as outlined by Lesson and Summers (1980) [13].

The pre-slaughter body weight, New-York dressed weight, eviscerated carcass weight, ready-to-cook weight, giblets weight, abdominal fat weight, and meat: bone ratio were recorded (Arumugam and Panda, 1970) [2] using a weighing balance of 0.1 g accuracy and their percentage was expressed based on the live weight. The cut-up parts namely the neck, breast, back, thighs, drumsticks and wings were also weighed using a 0.1 g accuracy weighing balance, and their percentage

were calculated based on eviscerated carcass weight. To reduce the variation in the cutting, all the procedures were carried out by one operator. The New-York dressing percentage, dressing yield and ready-to-cook yield were calculated. The weight of the carcass was recorded and the lean meat, separable fat, and bone were separated by a single skilled person to avoid human error and the weight of lean, fat, and bone were recorded separately. The weight of the meat and bone was expressed in the form of a ratio, to provide the meat: bone ratio. The carcasses were cut into the back, neck, breast, legs, thigh, drumstick, and wings by a single skilled person to avoid human error and the cut-up parts were individually weighed. The concerned cut-up parts weights were calculated on the percent eviscerated weight basis.

Statistical Analysis

The collected data were analyzed using one-way ANOVA to assess significant differences in meat quality traits, and pairwise comparisons were performed with Tukey's test.

Result and Discussion

The mean values of carcass traits of Indigenous *Siruvudai* chicken of Tamil Nadu are summarized in Tables 1.

Table 1: Carcass Characteristics in Male and Female Indigenous *Siruvudai* Chicken of Tamil Nadu

Sex \ Particulars	Pre-slaughter body weight (g)	New-York dressed (%)	Dressing percentage	Giblets yield (%)	Ready-to-cook yield (%)	Abdominal fat yield (%)
Male (n=25)	1351.07 ^a ±54.8	90.25±0.33	67.96 ^a ±0.51	3.78 ^b ±0.10	72.77 ^a ±0.45	1.83 ^b ±0.15
Female (n=25)	983.33 ^b ±22.48	90.61±0.36	61.44 ^b ±0.78	5.38 ^a ±0.15	68.28 ^b ±0.71	2.78 ^a ±0.23
Overall (n=25)	1176.88±39.14	90.43±0.24	64.87±0.63	4.54±0.14	70.64±0.5	2.31±0.15
P Value	0.00**	0.47 ^{NS}	0.00**	0.00**	0.00**	12.42**

The pre-slaughter body weight of male and female indigenous *Siruvudai* chicken of Tamil Nadu was 1351.07±54.80 and 983.33±22.48 g with a mean value of 1176.88±39.14 g. Male recorded significantly ($p \leq 0.01$) higher body weight than female indigenous *Siruvudai* chicken in the study area. Similar results were observed by Behera *et al.* (2017) [4] in Hansli chicken where male (1331.33 gm) recorded higher body weight than female (1092.33) chicken. Ekka *et al.* (2018) [6] recorded higher pre-slaughter body weight in male (1249.33±42.73 g) than female (936.33±0.17 g) under intensive system of management at 20th weeks. The New-York dressed yield of female and male indigenous *Siruvudai* chicken of Tamil Nadu was 90.61±0.36 and 90.25±0.33% with the mean New York dressed yield of 90.43±0.24 per cent. There was no significant difference found between sex on per cent New York dressed yield. This was in accordance with Vasanthi *et al.* (2023) [15] who compared carcass traits of *Siruvudai* chicken at 16 weeks of age under farm conditions.

The dressing percentage of female and male indigenous *Siruvudai* chicken of Tamil Nadu was 61.44±0.78 and 67.96±0.51 with the mean dressing percentage of 64.87±0.63 per cent. Significant ($p \leq 0.01$) difference was found between sex on dressing percentage. The male had higher dressing yield than females. Similar results were indicated by Kalita *et al.* (2021) [11] in Daothigir breed of chicken under intensive system of management in Assam (male and female was 73.88 and 72.22 per cent respectively) and Vasanthi *et al.* (2023) [15] in indigenous *Siruvudai* chicken (65.11 and 62.77 per cent in male and female respectively). Ahmed *et al.* (2024) [1] reported that the male birds had a higher dressing percentage than the female birds, which may be due to the higher

proportion of non-carcass components, especially the ovum and oviduct, in females. The giblets yield of male and female indigenous *Siruvudai* chicken of Tamil Nadu was 3.78±0.10 and 5.38±0.15 with the mean giblets yield of 4.54±0.14 per cent. Significant ($p \leq 0.01$) difference was found between sex on giblets yield. Similar observation was made by Vasanthi *et al.* (2023) [15] in *Siruvudai* chicken where female *Siruvudai* chicken had significantly higher giblets yield (5.80 per cent) than male (5.60 per cent). In contrast to the present findings, Churchil and Sagar (2023) [5] reported sex does not influence giblets yield in broilers.

The ready to cook percentage of female and male indigenous *Siruvudai* chicken of Tamil Nadu was 68.28±0.71 and 72.77±0.45 with the mean ready-to-cook percentage of 70.64±0.5 per cent. Significant ($p \leq 0.01$) difference was found between sex on ready to cook percentage. The male had higher ready to cook percentage than females. The same trend was observed by Iqbal *et al.* (2009) [9] in indigenous chicken of Kashmir (70.11±0.66 and 63.80±1.59 per cent in male and female, respectively). Vasanthi *et al.* (2023) [15] in *Siruvudai* chicken (70.83 and 68.41 per cent in male and female respectively). The abdominal fat yield of female and male indigenous *Siruvudai* chicken of Tamil Nadu was 2.78±0.23 and 1.83±0.15 with the mean abdominal fat yield of 2.31±0.15 per cent. Significant ($p \leq 0.01$) differences were found between sex on abdominal fat yield as the abdominal fat was more in female than male.

Cut-Up Parts

The mean values of cut-up parts of Indigenous *Siruvudai* chicken of Tamil Nadu are summarized in Tables 2.

Table 2: Cut- Up Part of Male and Female Indigenous *Siravidai* Chicken of Tamil Nadu

Sex \ Particulars	Neck (%)	Wings (%)	Breast (%)	Back (%)	Drumstick (%)	Thigh (%)	Meat: bone ratio
Male (n=25)	6.56±0.18	12.40±0.27	24.87±0.72	21.96±0.65	16.59 ^a ±0.26	18.08 ^a ±0.36	1.20 ^b ±0.03
Female (n=25)	6.24±0.2	12.74±0.44	24.60±0.45	23.18±0.91	15.83 ^b ±0.32	16.98 ^b ±0.26	1.00 ^a ±0.34
Overall (n=25)	6.41±0.14	12.47±0.26	24.68±0.44	22.54±0.55	16.31±0.24	17.59±0.27	1.17 ^{ab} ±0.04
T Value	0.25 ^{NS}	0.25 ^{NS}	0.27 ^{NS}	0.28 ^{NS}	0.02 [*]	0.019 [*]	0.007 ^{**}

Means bearing different superscript within column differ significantly
NS - Not significant, * - Significant ($p \leq 0.05$), ** - Significant ($p \leq 0.01$)

The neck yield of female and male indigenous *Siravidai* chicken was non-significant and the respective value of the same was 6.24±0.20 and 6.56±0.18 per cent to the dressed carcass with a mean value of 6.41±0.14 per cent. Similar trend was observed by Thirunavukkarasu *et al.* (2022) ^[14] in native chicken of Hosur (4.16 and 4.03 per cent in male and female respectively) and Vasanthi *et al.* (2023) ^[15] in indigenous *Siravidai* chicken (6.07 per cent in male and 5.88 per cent in female). The wing yield of female and male indigenous chicken on selected districts were non-significant. The wing yield of female and male was 12.74±0.44 and 12.40±0.27 per cent with a mean value of 12.47±0.26 per cent. The results of the present study agreed with Kalita *et al.* (2021) ^[11] in Daothigir chicken of Assam under intensive management system. Contrary to these findings, Vasanthi *et al.* (2023) ^[15] recorded higher wing yield in males (12.16±0.21) than females and (11.53±0.18 per cent) in *Siravidai* chicken under intensive rearing and Thirunavukkarasu *et al.* (2022) ^[14] in native chicken of Hosur, where male had higher per cent wing weight (10.01±0.15) than female chicken (9.47±0.14).

The breast yield of male and female indigenous *Siravidai* chicken of Tamil Nadu was 24.87±0.45 and 24.60±0.72 with the mean breast yield of 24.68±0.44 per cent. No significant difference was found between sex on breast yield. Numerically the male had higher breast yield than female. Vasanthi *et al.* (2023) ^[15] found that breast yield was higher in male (22.5%) than female (21.50%) which agrees with the results of this study. Similar results were obtained by Thirunavukkarasu *et al.* (2022) ^[14] reported that the mean per cent breast weight of native chicken was 15.14±0.24 and 14.48±0.21 per cent in male and females. Contrary to this result Kalita *et al.* (2021) ^[11] reported that the breast yield of female chicken (27.79 per cent) was numerically be heavier than the male Daothigir chicken (23.21 per cent) of Assam. The back yield of male and female indigenous *Siravidai* chicken of Tamil Nadu was 21.96±0.65 and 23.18±0.91 with the mean back yield of 22.54±0.55 per cent. No significant difference was found between sex on back yield. Similar trend was observed by Vasanthi *et al.* (2023) ^[15] in *Siravidai* chicken under farm condition (22.60 and 19.91 per cent in male and female *Siravidai* chicken). Thirunavukkarasu *et al.* (2022) ^[14] recorded average back yield of native chicken variety maintained under deep litter system of management was 9.93±0.37 and 11.40±0.38 per cent in male and female chicken respectively.

The drumstick yield of male and female indigenous *Siravidai* chicken of Tamil Nadu was 16.59±0.26 and 15.83±0.32 with the mean drumstick yield of 16.31±0.24 per cent. Significant ($p \leq 0.05$) difference was found between sex on drumstick yield. Similar findings observed by Kalita *et al.* (2021) ^[11] in Daothigir chicken of Assam under intensive management system (16.06±2.68 and 12.91 ±1.95 in male and female chicken). Vasanthi *et al.* (2023) ^[15] in indigenous *Siravidai* chicken (male (15.21 and female-13.43 per cent). Gawdaman

and Sutha (2024) ^[10] reported higher drumstick weight in male Necked Neck chicken (274.20 g) than female chicken (182.2 g) under deep litter system of rearing. The thigh yield of female and male indigenous *Siravidai* chicken of Tamil Nadu was 16.98±0.26 and 18.08±0.36 with the mean thigh yield of 17.59±0.27 per cent. Significant ($p \leq 0.05$) difference was found between sex on thigh yield. Kalita *et al.* (2021) ^[11], Thirunavukkarasu *et al.* (2022) ^[14], Churchill and Sagar (2023) ^[5] in broilers, Vasanthi *et al.* (2023) ^[15] observed significant difference in thigh yield which agrees with the results of this study. Gawdaman and Sutha (2024) ^[10] reported higher thigh weight in male Necked Neck chicken (310.6 g) than female chicken (217.4 g) under deep litter system of rearing.

Meat: Bone ratio

The effect of sex on mean value of meat: bone ratio is given in Table.2. The mean meat: bone ratio of male and female showed significant ($p \leq 0.01$) difference as the males (1.20±0.03) registered higher value (1.00±0.34) than females with the mean value of 1.17 ±0.04. Similar observation made by Ahmed *et al.* (2024) ^[1] who stated that the meat: bone ratio of male (1.52) was higher than female (1.39) Kamrupa chicken at 12 weeks of age. Male sex hormones like testosterone may be related to the higher development of certain muscles in the body (Fennel and Scanes, 1985) ^[5].

Conclusion

Based on the results of the present study, it can be concluded that sex significantly influenced pre-slaughter body weight, eviscerated carcass weight, ready-to-cook weight, abdominal fat weight, giblet yield, meat-to-bone ratio, drumstick yield, and thigh yield of *Siravidai* chicken reared under the backyard management system in Tamil Nadu. Males can be marketed at an earlier age and are more suitable for further processing.

Conflict of Interest

Not available.

Financial Support

Not available.

References

- Ahmed J, Hazarika M, Gangwar M, Kalita N, Das A. Carcass and meat quality characteristics of native Kamrupa chicken reared in India. *J Anim Res.* 2024;14(1):47-52.
- Arumugam MP, Panda B. Processing and inspection of poultry. Bareilly (UP): Indian Veterinary Research Institute; c1970.
- Government of India, Ministry of Animal Husbandry and Dairying. Basic animal husbandry statistics. New Delhi: Krishi Bhavan; c2024.
- Behera D, Pradhan CR, Behura NC, Mohapatra LM, Mohanty GP, Behera K, *et al.* Production performances

- of Hansli chicken in Odisha. *J Entomol Zool Stud*. 2017;5(6):1219-24.
5. Churchil R, Sagar. Effect of sex on growth and carcass characteristics of commercial broilers. *Indian J Vet Anim Sci Res*. 2023;52(6):13-22.
 6. Ekka P, Singh M, Mukherjee K, Barwa DK, Jain A, Choudhary M. Carcass characteristics of Kadaknath fowl reared under intensive system in Chhattisgarh. *Int J Adv Biol Res*. 2018;8(1):106-9.
 7. Fennel MJ, Scanes CG. The effect of androgens on growth in chicken. *Poult Sci*. 1985;64:99-105.
 8. ICAR-National Bureau of Animal Genetic Resources (ICAR-NBAGR). Guidelines for management of animal genetic resources of India. Karnal (Haryana): ICAR-NBAGR; c2016. 163 p.
 9. Iqbal S, Pampori ZA, Hasin D. Carcass and egg characteristics of indigenous chicken of Kashmir (Kashmir Favorella). *Indian J Anim Res*. 2009;43(3):194-6.
 10. Gawdaman G, Sutha N. Influence of breed and sex on carcass characteristics and meat quality in three different breeds of chicken. *Int J Vet Sci Anim Husb*. 2024;9(3):605-608.
 11. Kalita N, Talukdar A, Borah MK. A study on the performance of the Daothigir breed of chicken under intensive system of management in Assam. *J Entomol Zool Stud*. 2021;9(1):1753-1755.
 12. Kumerasan A, Pathak KA, Bujarbaruah KM, Das A. Research bulletin no. 48. Barapani (Meghalaya): ICAR Research Complex for NEH Region; c2006.
 13. Lesson S, Summers JD. Production and carcass characteristics of the broiler chicken. *Poult Sci*. 1980;59:786-798.
 14. Thirunavukkarasu P, Shamsudeen P, Manohar GR, Murali N, Singh DAP. Cut-up parts of carcass of the native chicken variety maintained at College of Poultry Production and Management, Hosur. *Pharma Innov J*. 2022;11(9):2082-2093.
 15. Vasanthi B, Chuchil RR, Omprakash AV, Karthickeyan SMK, Ronald BSM. Carcass characteristics of indigenous Siruvidai chicken of Tamil Nadu raised under farm conditions. *Indian J Vet Anim Sci Res*. 2023;52(1):16-24.

How to Cite This Article

Balamurugan P, Sangilimadan K, Ezhilvalavan S, Manivannan C, Venkataramanan R. Effect of sex on carcass characteristics of Siruvidai chicken in Tamil Nadu. *International Journal of Veterinary Sciences and Animal Husbandry*. 2025;10(10):11-14.

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