

## COMPARITIVE STUDY ON CARCASS CHARACTERISTICS OF KUTTANAD DUCK, WHITE PEKIN DUCK AND THEIR CROSSES FOR MEAT PURPOSE

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### ABSTRACT

A study was carried out to compare the carcass characteristics of Kuttanad ducks (KxK), White Pekin (PxP) ducks and their reciprocal crosses (PxK, KxP) for meat purpose from day-old to 12 weeks of age using 192, day-old ducklings. Breedwise, they were divided into four treatment groups with four replicates of twelve birds each. Two ducklings from each replicate were randomly selected and slaughtered humanely to study the carcass characteristics at 8, 10 and 12 weeks of age. Live weight and dressed weight during eight, ten and twelve weeks of age were significantly ( $p < 0.05$ ) higher in White Pekin ducks than all other groups. There was no considerable increase in the live weight and dressed weight after eight weeks of age. Data on mean per cent feather yield, giblet yield, abdominal fat, dressing yield, ready-to-cook yield and the total losses of ducks in different genetic groups was found to be non-significant. Based on the carcass characteristics and consumer preference for coloured plumage, it could be concluded that the crossbreds of Pekin and Kuttanad ducks are more suitable for meat purpose up to eight weeks of age.

**Keywords:** Duck, crossbred, carcass characteristics, live weight, dressed weight

### INTRODUCTION

Duck production for meat is gaining popularity in Kerala due to increase in consumers' demand for duck meat. Pekin ducks are very efficient convertors of feed into good quality animal protein, but they are less preferred in Kerala because of their white plumage compared to Kuttanad ducks which has coloured plumage. Kuttanad ducks are mainly reared for egg production, and spent ducks and excess males are used for meat purpose. The present study was conducted to evaluate and compare the carcass characteristics of progenies of Kuttanad ducks, White Pekin ducks and their reciprocal crosses for meat purpose.

### MATERIALS AND METHODS

Ducklings for four treatment groups were produced by crossing Kuttanad (♂) × Kuttanad (♀), White Pekin (♂) × White Pekin (♀), White Pekin (♂) × Kuttanad (♀) and Kuttanad (♂) × White Pekin (♀). The experiment was carried out with a total of 192, day-old ducklings, 48 from each of the

above four treatment groups, which were divided into four replicates of twelve birds each. All the ducklings were wing banded and reared on slat made of poly propylene virgin plastic up to 12 weeks of age under uniform conditions of management. Birds were fed with standard broiler starter ration as per BIS (2007) specification. Feed and water were provided *ad libitum*.

At the end of 8, 10 and 12 weeks of age, two ducks from each replicate in all treatment groups were randomly selected and subjected to slaughter studies. Ducks were slaughtered humanely and hygienically as per the procedure described by ISI (1973). The observations recorded were live weight before slaughter, dressed weight, eviscerated weight, weight of giblets and abdominal fat. Data collected on various parameters were statistically analysed using Statistical Product and Service Solutions (SPSS) version 24.0.

## RESULTS AND DISCUSSION

The results on processing yield and losses of ducks in four treatment groups at 8, 10 and 12 weeks of age is presented in Table 1, 2 and 3, respectively. The results of the present experiment revealed that live weight and dressed weight were significantly ( $p < 0.05$ ) higher for Pekin (PxP) ducks than the other three treatments (KxK, PxK and KxP) and the result is in agreement with the findings of Ansary *et al.* (2008) who reported significantly higher live weight at eight weeks of age in Pekin ducks compared to its crossbreds with desi and Jinding ducks. The live weight of Kuttanad ducks was higher than that reported by Chacko *et al.* (2009), Sapkota *et al.* (2009), Cyriac (2016) and George (2016). The mean per cent feather yield, giblet yield, abdominal fat, dressing yield, ready-to-cook yield and the total losses of ducks in different genetic groups did not differ significantly.

**Table 1.** Mean processing yields and losses of Kuttanad ducks (KxK), White Pekin (PxP) and their reciprocal crosses (PxK and KxP) at eight weeks of age, per cent

Parameters	Treatment groups				F-value	p-value
	(KxK)	(PxP)	(PxK)	(KxP)		
Live weight (g)	1930.88 <sup>b</sup> ±43.32	2134.38 <sup>a</sup> ±29.78	1929.75 <sup>b</sup> ±24.75	1939.63 <sup>b</sup> ±47.90	7.134**	0.001
Dressed weight (g)	1193.25 <sup>b</sup> ±36.37	1354.87 <sup>a</sup> ±20.01	1242.50 <sup>b</sup> ±28.17	1208.62 <sup>b</sup> ±38.51	5.328**	0.005
Feather yield (%)	3.82 ±0.82	4.77 ±0.59	3.22 ±0.44	3.43 ±0.36	1.394	0.26
Giblet yield (%)	5.17 ±0.08	5.25 ±0.24	4.91 ±0.12	4.72 ±0.06	1.506	0.05
Abdominal fat (%)	1.28 ±0.15	1.25 ±0.15	1.02 ±0.10	1.29 ±0.15	0.791	0.50
Dressing percentage	61.75 ±0.87	63.5 ±0.73	64.35 ±0.93	62.62 ±2.78	0.504	0.68
Ready-to-cook yield (%)	66.92 ±0.90	68.75 ±0.94	69.27 ±0.87	67.35 ±2.81	0.392	0.70
Total losses (%)	33.07 ±0.90	31.24 ±0.94	30.73 ±0.87	32.64 ±2.81	0.392	0.70

Means bearing different superscript within a row differ significantly \*( $p < 0.05$ ), \*\*( $p < 0.01$ )

**Table 2.** Mean processing yields and losses of Kuttanad ducks (KxK), White Pekin (PxP) and their reciprocal crosses (PxK and KxP) at ten weeks of age, per cent

Parameters	Treatment groups				F-value	p-value
	(KxK)	(PxP)	(PxK)	(KxP)		
Live weight (g)	1877.00 <sup>b</sup> ±43.10	2133.00 <sup>a</sup> ±49.90	1957.38 <sup>b</sup> ±32.22	1951.25 <sup>b</sup> ±36.40	7.024 <sup>**</sup>	0.001
Dressed weight (g)	1213.87 <sup>b</sup> ±28.73	1400.37 <sup>a</sup> ±36.21	1243.87 <sup>b</sup> ±25.20	1252.00 <sup>b</sup> ±29.28	7.686 <sup>**</sup>	0.001
Feather yield (%)	4.73 <sup>a</sup> ±0.26	4.58 <sup>ab</sup> ±0.41	3.43 <sup>bc</sup> ±0.59	2.91 <sup>c</sup> ±0.33	4.392	0.01
Giblet yield (%)	4.93 ±0.11	4.9 ±0.11	4.94 ±0.14	4.56 ±0.08	2.329	0.09
Abdominal fat (%)	1.19 ±0.11	0.94 ±0.08	0.95 ±0.15	1.31 ±0.20	1.574	0.21
Dressing percentage	64.69 ±0.78	65.64 ±0.60	63.55 ±0.83	64.17 ±0.96	1.21	0.32
Ready-to-cook yield (%)	69.63 ±0.79	70.55 ±0.55	68.5 ±0.80	68.73 ±0.98	1.115	0.27
Total losses (%)	30.5 ±0.82	29.5 ±0.56	31.62 ±0.80	31.37 ±0.94	1.115	0.24

Means bearing different superscript within a row differ significantly \*(p<0.05), \*\*(p<0.01)

**Table 3.** Mean processing yields and losses of Kuttanad ducks (KxK), White Pekin (PxP) and their reciprocal crosses (PxK and KxP) at twelve weeks of age, per cent

Parameters	Treatment groups				F-value	p-value
	(KxK)	(PxP)	(PxK)	(KxP)		
Live weight (g)	1842.50 <sup>b</sup> ±39.84	2136.00 <sup>a</sup> ±31.76	1894.25 <sup>b</sup> ±35.36	1891.25 <sup>b</sup> ±27.24	15.218 <sup>**</sup>	0.00
Dressed weight (g)	1207.50 <sup>b</sup> ±29.65	1363.25 <sup>a</sup> ±15.66	1244.00 <sup>b</sup> ±17.19	1217.00 <sup>b</sup> ±12.99	13.009 <sup>**</sup>	0.00
Feather yield (%)	5.41 ±0.55	5.56 ±0.62	3.81 ±0.56	5.28 ±1.30	0.97	0.42
Giblet yield (%)	4.92 <sup>a</sup> ±0.07	4.81 <sup>a</sup> ±0.07	4.83 <sup>a</sup> ±0.10	4.52 <sup>b</sup> ±0.07	4.319	0.01
Abdominal fat (%)	1.37 <sup>ab</sup> ±0.09	1.13 <sup>ab</sup> ±0.14	1.01 <sup>b</sup> ±0.10	1.46 <sup>a</sup> ±0.12	3.049	0.04
Dressing percentage	65.52 ±0.61	63.85 ±0.50	65.72 ±0.62	64.39 ±0.64	2.225	0.10

Ready-to-cook yield (%)	70.44 ±0.54	68.67 ±0.45	70.56 ±0.65	68.91 ±0.64	2.587	0.05
Total losses (%)	29.55 ±0.54	31.32 ±0.45	29.43 ±0.65	31.08 ±0.64	2.587	0.05

Means bearing different superscript within a row differ significantly \*(p<0.05), \*\*(p<0.01)

## SUMMARY

Based on the results obtained in this study, it is concluded that there was no considerable increase in live weight and dressed weight of ducks in all four genetic groups after eight weeks of age which indicate that rearing ducks for meat purpose beyond eight weeks of age is not economical. Data on mean per cent feather yield, giblet yield, abdominal fat, dressing yield, ready-to-cook yield and the total losses of ducks in different genetic groups did not differ significantly. Based on the carcass characteristics and consumer preference for coloured plumage, it could be concluded that the crossbreds of Pekin and Kuttanad ducks are more suitable for meat purpose up to eight weeks of age.

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