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## Carcass and Bristle characteristics of Bareilly desi pigs reared under scavenging system

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**Abstract**

The present study was conducted in Bareilly district of Uttar Pradesh to assess the carcass and bristle characteristics of desi pigs for the first time ever. Data on carcass and bristle characteristics of desi pigs were recorded following standard procedure. Carcass traits like carcass weight, carcass length, Dressing%, Back fat thickness (BFT) and Loin-Eye-Area (LEA) were studied and they were found to be  $32.05 \pm 2.54$  kg,  $57.52 \pm 2.67$  cm,  $69.56 \pm 0.55\%$ ,  $1.92 \pm 0.05$  cm and  $17.77 \pm 0.86$  cm<sup>2</sup>, respectively. Besides, bristle length, bristle diameter and proximate analysis of pork were done. These recorded traits are useful in selection of quality pigs for increasing their production and productivity.

**Keywords:** Desi pigs, Bristle, Carcass, proximate, Scavenging system, Germplasm

**Introduction**

Pig rearing is one of the most important business now-a-days not only to weaker sections but also as commercial entity. It serves as an insurance coverage and employment generation. Majority of pig in India belongs to non-descript class. However, they show diverse and positive phenotypic (Boro *et al.*, 2016) [2] and morphometric characteristics (Boro *et al.*, 2018) [4], molecular characteristics (Sahoo *et al.*, 2012) [15], productive and reproductive performances (Boro *et al.*, 2016) [5], which indicates their potential for improvement. Unfortunately, studies on assessment of carcass and bristle characteristics for commercial exploitation of desi pigs in India are rather scanty. These desi pigs continue to thrive under poor management in a harsh climate (Subalini *et al.*, 2010; Borkotoky *et al.*, 2014) [17, 3]. There is no planned breeding program for this a valuable component of local genetic resources (Subalini *et al.*, 2010) [17]. Therefore, it is most essential to assess the above mentioned characteristics. The assessment of carcass and bristle characteristics of such desi pigs will be useful for commercial exploitation if they are conserved and multiplied through proper breeding strategies. There has been no thorough investigation carried out previously to study carcass and bristle characteristics of desi pig of Bareilly District (Uttar Pradesh), recently registered as a new pig breed, Ghurrah pig. Hence, present study was carried out to assess carcass and bristle characteristics of desi pigs of Bareilly District (U.P.).

**Materials and Methods**

The present investigation was undertaken in Bareilly district, Uttar Pradesh, India to evaluate the carcass characteristics of desi pigs. A total of 20 adult Bareilly desi pigs of same group were selected. Data on carcass traits of these desi pigs were recorded after slaughtering some of them in the institute abattoir and the rest in a private slaughter house. These desi pigs were reared in the remote villages of Bareilly under scavenging system, sheltering mostly at night time. They were self fed on locally available non-conventional fodder plants, also kitchen waste and vegetable waste. Carcass traits such major carcass traits like carcass length, Dressing %, BFT, LEA and 10<sup>th</sup> rib FT were recorded by personal presence and following standard protocol from July'2015 to Jan'2016.

Pigs were weighed to measure the live body weight just before slaughtering. Carcass weight is a warm carcass weight of the pig after evisceration. Carcass Length is taken as a measurement of length in as straight line as possible from the cranial (anterior) tip of the aitch bone to the cranial edge of the first rib and next to the vertebra. Back fat thickness is taken at first rib, last rib and last lumbar vertebra, and then the average of these three were taken.

Loin eye area (LEA) is the cut of the untrimmed carcass perpendicular to the backbone between the 10th and 11th ribs. The loin muscle area is determined in 0.05 square-inch units by tracing on acetate paper and converted to square centimetre units. 10th rib Fat Thickness is obtained by dividing the longest axis of the loin muscle cross-sectional surface into quarters.

Dressing percentage (D%) is obtained by the following formula:  $D\% = \text{carcass weight} / \text{fasted body weight} \times 100$ . Besides, bristle characteristics was also studied. Bristle length and diameter was measured with the help of a scale or a measuring tape and a digital slide calliper, respectively. Proximate analysis [Moisture (%), EE(%), Ash(%) & CP(%)] of meat samples (Loin-eye area muscle) was analysed according to the AOAC (1995) method [1]. The composition of eye-muscle at thoracic region was also determined according to Lawrie *et al.* (1963) [11].

### Statistical analysis

The data pertaining to carcass and bristle characteristics were analysed using S.A.S Vs 9.3 software to obtain their descriptive statistics.

### Results and Discussion

The mean Carcass and bristle characteristics of Bareilly desi pigs reared under scavenging system are shown below in Table 1. The Carcass characteristics i.e primal cut parts of meat of Bareilly desi pigs are shown in Fig. 1. The references that are compared here with the present findings is w.r.t carcass without head.

#### Carcass Weight

The mean live weight, hot carcass weight with and without head of Bareilly desi pigs were  $45.70 \pm 3.36$ ,  $35.64 \pm 2.66$  and  $32.05 \pm 2.54$  kg, respectively. Similar findings of slaughter weight were reported as  $45.20 \pm 0.68$  kg in local pigs (Singh *et al.*, 2020) [16] and lower live weight was found as  $23.75 \pm 0.29$  kg in indigenous pigs of Assam (Phookan *et al.*, 2020) [12]. Similar findings of carcass weight were reported as  $31.83 \pm 0.12$  kg in local pigs (Singh *et al.*, 2020) [16]. In contrast to the present findings, lower carcass weight were reported in local pigs as  $23.10 \pm 1.48$  kg and  $14.03 \pm 0.20$  kg, respectively (Gopinathan *et al.*, 2011 and Phookan *et al.*, 2020) [7, 12]. Higher values were reported as  $60.65 \pm 0.1$  kg in ghungroo pigs (Thomas *et al.*, 2016) [18].

#### Carcass length

In the present study, the mean carcass length observed was  $57.52 \pm 2.67$  cm. In contrast to the present findings, lower carcass length were reported as  $44.00 \pm 0.42$  cm and  $49.69 \pm 0.38$  cm, respectively in local pigs (Gopinathan *et al.*, 2011 and Phookan *et al.*, 2020) [7, 12]. Also lower carcass length were reported by other workers (Kalita, 1995 and Sangma *et al.*, 2000) [7, 14]. Higher values was reported, it ranged from 65.5 – 77 cm in Ghungroo pigs (Thomas *et al.*, 2016) [18].

#### Dressing %

The Dressing % with and without head in the present findings were  $77.90 \pm 0.30$  and  $69.56 \pm 0.55\%$ , respectively. In contrast to the present findings, lower values were observed by some researchers (Phookan *et al.*, 2020, Jogi *et al.*, 1993 and Lakhani and Jogi 1999) [12, 8, 10]. But, higher values were reported in local pigs as  $60.20 \pm 0.72$ ,  $72.41 \pm 0.57$  and

$72.50 \pm 0.19\%$ , respectively [Gopinathan *et al.*, 2011, Singh *et al.*, 2020 and Phookan *et al.*, 20] [7, 16, 12]. Higher values were also reported by other workers (Jogi *et al.*, 1993, Lakhani and Jogi 1999) [8, 10].

#### Back Fat Thickness (BFT)

BFT of carcass of Bareilly desi pigs was found to be  $1.92 \pm 0.05$  cm. Similar findings were reported by some workers (Chhabra *et al.*, 1999, Sangma *et al.*, 2000, Phookan *et al.*, 2020) [6, 14, 12]. In contrast to the present findings, higher BFT were reported as  $2.44 \pm 0.13$  cm,  $32.40 \pm 0.07$  cm and  $03 \pm 0.06$  cm and, respectively (Gopinathan *et al.*, 2011, Thomas *et al.*, 2016 and Singh *et al.*, 2020) [7, 18, 16]. 10th Rib FT of Bareilly desi pigs was found to be  $2.16 \pm 0.12$  cm in the present study.

#### Loin Eye Area (LEA)

In the present findings, LEA was observed as  $17.77 \pm 0.86$  cm<sup>2</sup>. Similar findings were reported by some workers as  $18.31 \pm 0.23$  and  $18.98 \pm 0.29$  cm<sup>2</sup> (Singh *et al.*, 2020 and Phookan *et al.*, 2020) [16, 12]. Lower values were also reported as  $12.90 \pm 0.59$  (Gopinathan *et al.*, 2011) [7] and higher values by Thomas *et al.* 2016 [18].

#### Bristle Characteristics

Bristle length and diameter of Bareilly desi pigs were found to be  $8.92 \pm 0.28$  cm and  $0.19 \pm 0.01$  mm, respectively. Local or indigenous pigs of India have long bristles measuring about 5-7 inches with diameters of 210-320  $\mu\text{m}$  (Animal Production Division, ICAR-Barapani, 2013) [19]. It was also reported that bristle length and bristle diameter as  $10.87 \pm 0.17$  cm and  $368.30 \pm 6.50$   $\mu\text{m}$ , respectively in Doom pigs of Assam (Rahaman *et al.*, 2019) [13].

#### Proximate composition of pork

Moisture, Ether extract (EE), Ash and Crude protein (CP) % of pork in the present study were found to be  $72.81 \pm 0.51$ ,  $9.36 \pm 0.12$ ,  $4.63 \pm 0.43$  and  $65.02 \pm 0.24$ , respectively. In contrast to the present study, higher value of moisture % and lower values of ash and CP% was reported in Ghungroo pigs (Thomas *et al.*, 2016) [18].

**Table 1:** Carcass and Bristle characteristics of Bareilly Desi Pigs

Carcass traits	Mean $\pm$ SE
Live wt(Kg)	45.70 $\pm$ 3.36
Hot carcass wt (Kg) without head	32.05 $\pm$ 2.54
Dressing % (without head)	69.56 $\pm$ 0.55
Hot carcass + Head	35.64 $\pm$ 2.66
Dressing % (with head)	77.90 $\pm$ 0.30
Carcass Length (cm)	57.52 $\pm$ 2.67
BFT(cm)	1.92 $\pm$ 0.05
LEA(cm <sup>2</sup> )	17.77 $\pm$ 0.86
Bristle characteristics	Mean $\pm$ SE
Bristle length (cm)	8.92 $\pm$ 0.28
Bristle diameter (mm)	0.19 $\pm$ 0.01
Proximate analysis of pork	(% on DM basis)
Moisture(%)	72.81 $\pm$ 0.51
EE(%)	9.36 $\pm$ 0.12
Ash(%)	4.63 $\pm$ 0.43
CP(%)	65.02 $\pm$ 0.24

#### Conclusion

Carcass and bristle characteristics of desi pigs of other parts of India vary with the present findings which may be due to differences in breed, agro-climatic zones, feeding habits and

their management practices adopted by pig farmers. These recorded traits are useful in selection of quality pigs in terms of pork quality that can fetch higher prices to pig farmers for

their livelihood. So, it helps in the selection of breeding stock, a rich germ-plasm for sustainable pig production in the country.



**Fig 1:** Split Carcass



**Fig 2:** Carcass length



**Fig 3:** Back Fat Thickness (BFT)



**Fig 4:** 10<sup>th</sup> Rib Fat Thickness



**Fig 5:** Loin Eye Area (LEA)



**Fig 6:** Primal cuts of Carcass

**Fig 1-6:** Carcass traits of Bareilly desi pigs

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