INTERNATIONAL JOURNAL OF ADVANCED BIOLOGICAL RESEARCH

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PHENOTYPIC ATTRIBUTES OF BAREILLY *DESI* PIG

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ABSTRACT
The present investigation was undertaken in six tehsils of Bareilly district in Uttar Pradesh to evaluate the phenotypic attributes of *Desi* pigs for the first time ever. A total of 632 *Desi* pigs were selected for the study. Field level investigation on phenotypic of native pigs was done using a relevant proforma. Phenotypic traits were analysed with S.A.S Vs 9.3 software to derive their descriptive statistics. The results revealed that the predominant coat colour of the *Desi* pigs was black (100%) with skin pigmentation of complete black (96.14%), greyish-black (2.42%) and the brownish (1.73%). Mean adult body weight was 53.10±0.47 kg and 53.50±0.40 kg for males and females, respectively. Head was elongated with triangle shaped face with long and short snout. Majority of them had erect-leaf shaped ears (82.98%), with upward or horizontal orientation. About 70 % of pigs had narrow straight and curled tails. They were wild in nature and look, and small in size. Legs were white below the hock joint and in a few population, white patches were observed in the forehead and tip of the tail. These *Desi* pigs were reared predominantly under scavenging management systems with occasional tethering, as majority of the farmers being from weaker sections of the society. These recorded traits are very much useful to characterize desi pigs of Bareilly district and also useful in the selection of breeding stock for future parents. Based on this study, most of the parameters were comparable with other recognized indigenous pig.

KEYWORDS: phenotypic, desi pig, wild look, coat colour, attribute.

INTRODUCTION

Pig rearing is one of the most important occupations of rural poor and weaker sections of the society. It directly influences the socio-economic status as it acts as an insurance coverage for the downtrodden and socially weaker section of the society. It also generates employment to the educated unemployed youth. *Desi* pigs have sound reproductive performances and medium production potential. Desi pigs have high fecundity, high feed conversion efficiency, early maturing, short generation interval, high disease resistant and relatively small space requirement. The pigs are reared predominantly under scavenging management systems with occasional tethering (Ritchill *et al*., 2013), as majority of the farmers being from weaker sections of the society. Indigenous pigs in India show diverse phenotype and morphology and positive reproductive performance which indicates their potential for improvement. There has been no thorough investigation carried out to characterize or to evaluate the performance of indigenous pig inspite of the fact that they continue to thrive under poor management in a harsh climate (Subalini *et al*., 2010; Borkotoky *et al*., 2014). There is no planned breeding program for indigenous pigs and as a result the native pig population is decreasing gradually, but despite decreasing trends in populations these native types still represent a valuable component of local genetic resources (Subalini *et al*., 2010). Though Uttar Pradesh (U.P) is the 2nd largest state in pig population after Assam (as per 19th Livestock census) but there has been no thorough investigation carried out to characterize the native pigs in Bareilly region. Perusal of literatures also revealed no information on the phenotypic characteristics of this precious indigenous pig of Bareilly regions. The documentation of phenotypic, morphometric, genotypic and reproductive parameters of such desi pigs is useful in the selection of breeding stock for future parents. Hence, keeping in view of the above facts, present study was attempted to characterize the *Desi* pigs of Bareilly (U.P.) district, phenotypically.

MATERIALS & METHODS

The present investigation was undertaken in six tehsils of Bareilly district in Uttar Pradesh to evaluate the phenotypic attributes of desi pigs. A total of 632 *Desi* pigs including piglets, grower and adults were selected from Bareilly, Nawabganj, Aonla, Faridpur, Baheri and Meerganj of Bareilly district for the study. Field level investigation on phenotypic traits of these native pigs was done using a relevant proforma. Data was collected: from July'2015 to Jan'2016 through field suited questionares. The phenotypic traits of *Desi* pigs like coat color, skin pigmentation; head shape, ear direction, ear orientation, tail shape and body shape were observed and recorded by visual observation.

Statistical analysis

The data pertaining to phenotypic traits were analysed using S.A.S Vs 9.3 software to obtain their descriptive statistics.

RESULTS & DISCUSSION

The phenotypic attributes of the precious *Desi* pig of Bareilly District (UP) are mentioned in the table-1). In addition, the desi pigs are shown in the Fig. 1.

FIGURE 1: Desi pig of Bareilly District (UP)

Coat characteristics

The present study showed that the coat color of desi pigs of Bareilly District was black (100%) with skin pigmentation of complete black (96.14%), grayish-black (2.42%) and the brownish (1.73%). The present findings were similar with the some of the traits with the previous study conducted by researchers (Yaetsu *et al.*, 1987; Subalini *et al.*,2010; Dandapat *et al*., 2010; Sahoo *et al*., 2012; Zaman *et al*., 2013 and Khargharia *et al*., 2014). Yaetsu *et al.* (1987) reported that the coat color of Blangladeshi native pig had been recorded as black, white, black with white legs, white with black spot, black with white belly and brown. The coat color has been recorded as light brown to black or grey to black in two previous studies (Ravindran *et al*., 1984 and Pathirajah, 1986). Subalini *et al.* (2010) conducted an experiment on village pig in Sri Lanka and reported that the common coat color of village pigs was black with a change of color from young stage (grayish brown) to adult age. Most of the desi pigs in the study areas had dark skin pigmentation (96.14%). Dandapat *et al*., (2010) also reported that mali pigs in Tripura were black in colour with a compact body, thick coarse long hair, short legs and a long tail. Sahoo *et al*., (2012 and Zaman *et al*., (2013) reported that Ghungroo are mostly black (>98%) in colour with typical bull dog face appearance however, docile in nature. Ritchil *et al*., (2014) reported that the predominant coat color of the indigenous pig in Blangladesh was black with 95% of

them having dark skin pigmentations. Sahoo *et al*., (2012) and Khargharia *et al*., (2014) reported that the colour pattern of Niang Megha pig revealed that 26.582 per cent animals were solid black and 73.418 per cent were black (>95% black) with diamond or star shaped white patches on forehead and legs. Khargharia *et al*., 2014 reported that the colour of Doom pig was observed to be black in all the animals studied.

TABLE 1: Phenotypic attributes of *Desi* pigs of Bareilly District (UP)

Particulars	Characteristics	Overall %
Coat colour	Black (B)	100
Skin pigmentation	Complete Black (B)	96.14
	Gryeshish black(GB)	2.42
	Brownish (BR)	1.73
Head shape	Long Straight face (LSF)	91.94
	wide face (WF)	8.05
Snout	Long (LS)	88.79
	Short (SS)	11.20
Forehead	white star at head (w)	4.02
Ear shape	Small Erect Leaf shaped(SEL)	82.98
	1Medium Erect (ME)	13.28
	Large (L)	3.73
Ear orientation/direction	Vertical(V)	96.61
	Horizontal(H)	2.018
	Dropping(D)	1.46
Body shape	Angular(A)	71.18
	Stocky(S)	28.81
Tail shape	Straight thin(ST)	70.60
	Thin Curled(TC)	29.39
Tip of tail white	White(W)	3.44
Legs colour	Leg White(LW)	95.57
	All black(AB)	4.42

Head and ear characteristics

The shape of the head was long straight in most of the desi pigs (91.94%) and the rest had a shape classified as wide face (8.05%). Yaetsu *et al.* (1987) conducted an experiment on native pigs in different regions of Bangladesh and reported that a straight face with pointed snouts and erect ears were common for native pig. A previous study by Sahaayaruban *et al.* (1983) reported that the Sri Lankan village pigs have short, erect ears pointed backwards. Subalini *et al.* (2010) conducted an experiment on village pig in Sri Lanka and reported that the shape of the head was long straight in most of the village pigs (88%) and the rest had a shape classified as wide face. Dandapat *et al*. (2010) reported that the face of mali pig in Tripura was narrow with an upwardly curved snout and the ears were erect. Ritchil *et al*., (2014) also reported that the shape of the head was long and straight in most of the native pigs (75 %) and the rest were classified as "wide face" (25 %) with erect ears that pointed backwards (100 percent). In the present study desi pigs were having long snout and short snout as 88.79% and 11.2%, respectively. Medium size snout is its characteristics.

Forehead characteristics

In the present study, some of the desi pigs are having white star at forehead (4.02%). It is in accordance with Sahoo *et al.* (2012) who mentioned it in Niang-Megha pig.

Ear characteristics

The present study showed that the desi pigs are having small erect leaf shaped ears (82.98%), medium erect (13.28) and large ears (3.73%). The ear orientation or direction of the desi pigs was vertical (96.61%), horizontal (2.02%) and dropping ears (1.46%). But, Subalini *et al.* (2010) reported that the village pigs can be found with dropping ears as well while the majority (77%) had erect ears. The erect ears showed either upward or horizontal orientation. With respect to the size of the ear, most of the village pigs (88%) had medium size ears (7 to 9 cm).The indigenous pigs had pointed backwards erect ears (100%)(Ritchill *et al*., 2013). The erect ears showed upward orientation. Sahaayaruban *et al.* (1983) reported that the Sri Lankan indigenous pigs have short, erect ears pointed backwards. Sahoo *et al*., 2012 conducted an experiment on Ghungroo pig and reported that the ears are large or heart shaped and dropping whereas in Niang-Megha ears are small, erect and vertical. So, the present findings were similar in most of ear characteristics with the previous findings by Sahaayaruban *et al.* (1983), Subalini *et al.* (2010), Sahoo *et al*. (2012) and Ritchill *et al*. (2013).

Body shapes

The present study showed that the body shape of desi pigs was angular and stocky which were 71.18% and 28.815, respectively. Similar findings were also reported by Ritchill *et al*. (2014), who reported that Indigenous pigs were found to have either angular or stocky body shapes where 72.5% of them belonged to angular body type. However, Yaetsu *et al.* (1987) who conducted an experiment on native pigs in different regions of Bangladesh reported that some pigs with somewhat concave back and pendulous belly were found. They also

reported that the straight tail was common for all native pigs. Subalini *et al.* (2010) conducted an experiment on village pig in Sri Lanka and reported that the village pigs have either stocky or angular body shapes where about 84% of them belonged to stocky body type. Curled as well as straight tails could be noticed among the village pigs. A total of 72% of the pigs had a straight tail. The curled tails were generally thin and showed an upward curl forming one circle. One fourth of the total tail length is composed of the tail switch. Sahoo *et al*. (20120) reported straight back in male and slightly concave in female ghungroo pig with long and cylindrical barrel and small to medium tails extending upto hock joint whereas in Niang-Megha, belly sometimes almost touches the ground.

Tail shapes

The desi pigs were having tail shapes as straight thin (70.60%) and thin curled tails (29.39%). Tip of tail were white in some of the desi pigs (3.44%). Yaetsu *et al.* (1987) conducted an experiment on native pigs in different regions of Bangladesh and reported that the straight tail was common for all native pigs. Ritchill *et al.* (2014) reported that narrows-straight as well as curled tails could be noticed among the indigenous pigs. Beside this he also reported that 98.5% of the pigs had a narrow-straight tail and 1.5% as curled tails which were generally thin and showed an upward curl forming one circle.

Legs colour

Legs colour of the desi pigs were white (95.57% fellow the hock joint and in some legs were all black (4.42%) in colour. It is in accordance with Sahoo *et al.* (2012) who also mentioned it in Niang-Megha pig.

CONCLUSION

Desi pigs of Bareilly District have the immense potential to be developed in order to contribute livelihood and sustainable pig farming in the country. These *Desi* pigs serve as a valuable source of nutrition like protein, vitamins, minerals and secondary income source to the rural masses. The important traits of these *Desi* like early sexual maturity, disease resistant, hardiness, adaptability to harsh climatic and managemental conditions and requires low input and this makes these precious *Desi* pigs farming a best enterprise for the weaker sections of the society and to the progressive farmers as well. In the present scenario, the desi pig breeds are on the verse of extinction. So, its characterization has to be taken care off by proposing for registertration it as a new pig breed in the country through a recognised breed registration Committee (BRC), nodal agency like NBAGR. In this context, the phenotypic attributes are to given special attention. Phenotypic attributes analyses will be very useful in the selection of future breeding stock for future parent's generation and also as important steps towards Desi pig breeds conservation measures in the country.

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