



Phenotypic characterization and performance evaluation of Burmese black pig: A unique indigenous germplasm of north east region of India

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ABSTRACT

Burmese black pig is one of the unique and well adapted indigenous pig reared under low input backyard production system in the eastern Himalayan hill ecosystem. The present study was conducted in four states of north eastern India viz. Mizoram, Manipur, Nagaland and Meghalaya to identify the geographical distribution, breeding habitat, phenotypic and productive characteristics of the pig. Information on production system was collected from 251 Burmese pig farmers across 78 villages in 14 districts by providing structured pre tested questionnaire. The study revealed that the population of Burmese black pig was about twelve thousands and mostly distributed in Phek, Kiphire, Tuensang and Mon district of Nagaland (38%); Champhai, Kolasib and Siaha districts of Mizoram (28%); Ukhrul, Chandel, Churachandpur and Tamenglong districts of Manipur (27%) and East Khasi hills, West Khasi hills and Ribhoi districts of Meghalaya (7%) which covered approximately 33700 square km areas of distribution. The average herd size of Burmese black pigs was 3.26 ± 0.34 which ranges from 1 to 12. Backyard earthen floor housing system (55.38%) was the most common, followed by backyard deep litter housing (19.52%), slatted floor housing (14.34%), concrete floor housing (7.17%) and girth tethering system (3.59%). These pigs are predominantly black in colour. Medium sized concave dish shaped head, short slightly upward curve snout, well build long body structure with short legs, prominent neck in both male and female are the unique feature of Burmese black pigs. The average body weight of adult (10 months) was 79.76 ± 1.97 kg. The average body length, height at withers, heart girth and neck girth at adult age were 84.86 ± 1.76 , 61.94 ± 1.52 , 87.06 ± 2.41 and 78.27 ± 1.98 cm in male and 81.66 ± 1.70 , 60.15 ± 1.60 , 83.05 ± 2.10 , 75.02 ± 1.81 cm in female, respectively. The average age at first heat and age at first farrowing were 220.32 ± 23.61 days and 365.00 ± 20.75 days, respectively; while average litter size at birth and litter size at weaning was 10.76 ± 0.87 and 8.86 ± 0.61 , respectively. These pigs are having faster growth rate, larger adult body size and higher litter size as compared to the other indigenous pig breeds in India. The Burmese black pig possesses unique physical and high productive as well as reproductive traits that distinguished them from other indigenous pig breeds in the region.

Key words: Burmese black pig, Characterization, Morphometric traits, Physical traits, Performance traits.

INTRODUCTION

Animal genetic resources are the integral part of ecosystem diversity, maintaining ecological balance and potential source of animal protein for human food security and socio cultural livelihood. The genetic diversity of different breeds reflected in their phenotype in terms of productivity, adaptability and survivability in diverse agro climatic condition and wide geographical location. However, the animal genetic resources are still underutilized and not being properly conserved. Among the total 7616 livestock breed reported in the globe 20% are in risk of extinction or already extinct (FAO, 2007) and extinction of this breed may be a global threat to food security in near future.

In Indian subcontinent, pig is considered an important and valued livestock among the different livestock species. Pig husbandry provides a potential scope in socioeconomic development of tribal farmers especially in north eastern region of the country. The total pig population of this region is 3.95 million which contribute 38.5% share of country's pig population (Livestock Census, India 2012). Out of the eight registered pig breed of India, four belongs to north east region of India, namely Niang Megha, Tenyi Vo, Doom

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and Zovawk (NBAGR, 2018). Besides these breed, many indigenous pigs are also available in this region which is described by their local names. However, the populations of these indigenous local breeds are often neglected by the farmers due to their low productivity in spite their adaptability in low input production system. Introduction of exotic germplasm and unrestricted crossbreeding to increase productivity has become a threat for indigenous pig resulting into genetic dilution of the indigenous breed which ultimately

declining their population (Nidup and Moran, 2010). In spite of negative trend in their population number, they are still contributing an important component of indigenous genetic resources (Subalini *et al.*, 2010). Among the indigenous local pigs, one important pig known as Burmese black pig are very popular in this region (Patr *et al.*, 2014). However, there is lack of knowledge and information on productivity, geographical distribution and characteristics of the breed. Therefore the present investigation was aimed to provide phenotypic characteristics of Burmese black pig by evaluating their physical characteristics, production performances, breeding habitat and management/rearing system.

MATERIALS AND METHODS

Study area, sampling pattern and data collection

In order to locate their geographical distribution and population status, the survey was conducted in Mizoram, Manipur, Nagaland and Meghalaya. The study area is located between 22.29° to 26.32° N latitude and 91.28° to 95.02°E longitudes with an altitude range from 655 to 1678 meters above the mean sea level. The climate of the study area is subtropical and humid zone in general. It is a heavy rainfall area due to south west monsoon dominating factor. The annual rainfall varies from 1527 mm to 3160 mm with an average of 2281 mm in different season. The temperature varies from 2.4°C to 20.7°C during winter and 14.64°C to 34.74°C during summer. The study site was a hilly area and was represented typical tribal farming system in which pig husbandry plays a significant role for enhancing socio-economic status of the farmers.

In total, 251 Burmese pig farmers across 78 villages in 14 districts of Mizoram, Manipur, Nagaland and Meghalaya were interviewed for evaluation of existing production system. In each district, a two stage stratified sampling technique was done. At least five villages within each district and two pig farmers within each village were chosen on random basis for the study. The information on rearing pattern, feeding and breeding management, flock size and its structure, reproductive performance and disease prevalence of Burmese black pigs in their home tract were collected by providing structured pre tested questionnaire to the farmers and visual observation. The market demand of Burmese black pork was also assessed by interviewing the butchers randomly from all the states under study. The additional information was also collected from the state veterinary dispensary near by the respective area of investigation. In the present study data were collected from 720 pigs *viz.*, 613 pigs (270 male and 343 female) for body weight and measurement traits, 61 sows for reproductive and litter performances traits and 46 adult pigs (23 male and 23 female) for study of bristle characteristics.

Phenotypic characterization and performance evaluation

The phenotypic characteristics of Burmese black pig such physical traits *viz.*, body/hair coat colour, ear orientation,

snout pattern, belly type and top line; body measurement traits *viz.*, Body length, height at withers, heart girth, neck girth at different ages and bristle characteristics *viz.*, bristle density, bristle length, bristle diameter, bristle yield were recorded. The different body measurement was taken using measuring tape as per Food and Agricultural Organization (FAO, 2012) guideline. While recording body measurement, each pig was properly restrained in natural position on plain ground and each dimension was taken in duplicates to avoid possibility of errors. The growth traits such as body weight at different age (birth, weaning, 6 month, 8 month and 10 months), pre weaning and post weaning growth were recorded. Body weight of the studied animal was recorded by using digital electronic balance. The reproductive and litter performance traits such as age at first heat, age at first conception, age at first farrowing, farrowing rate, gestation period and farrowing interval were also recorded and evaluated in the present study. Female pig with at least one farrowing was selected randomly for collection of information on reproductive and litter performance traits. The description of different body measurement traits, reproductive parameters and bristle characteristics were detailed in Table 1.

Statistical analysis

All the recorded data were analyzed by SPSS Computer package (SPSS, 2001) and expressed in mean \pm SE. Student's t test was performed to observe the effect of sex on body weight and body measurement at different age and bristle traits for statistical significance ($P < 0.05$).

RESULTS AND DISCUSSION

Distribution and population intensity

The present study revealed that the breeding tract of Burmese pigs are mostly distributed in Champhai, Kolasib and Siaha districts of Mizoram; Ukhrul, Chandel, Churachandpur and Tamenglong districts of Manipur; and Phek, Kiphire, Tuensang and Mon district of Nagaland. Besides the Indo Burma bordering areas, these pigs are also found in East Khasi hills, West Khasi hills and Ribhoi districts of Meghalaya. These pigs locally called "*Dhmvawk/Burmese Vawk*" in Mizoram, "*Burmese oak*" in Manipur, "*Burmese Sniang*" in Meghalaya and "*Burmese gahori*" in Nagaland. This pig also called "*Cham pig*", Chaim-is the ancient kingdom in South East Asia. The population of Burmese pig is around twelve thousand based on sampling estimate (Livestock Census, India 2012) of which 38% in Nagaland, 28% in Mizoram, 27% Manipur and 7% in Meghalaya which covered approximately 33700 square km areas of distribution. In Mizoram, the population intensity was highest in Kolasib district where in every 20 pigs one represents Burmese black pigs (1 in 20) followed by Champai (1 in 21) and lowest in Siaha district (1 in 43). Whereas in Manipur, highest population intensity was found in Tamenglong (1 in 33) district followed Ukhrul (1 in 38) and lowest in Churachandpur (1 in 40). The population

intensity of Burmese Black pigs is varied in different location viz. Kiphire (1 in 35), Mon (1 in 41), Tuensang (1 in 42) and Phek (1 in 59) district of Nagaland. Among the different district of north eastern state, the population intensity of this pigs were found to be lowest in East Khasi Hills, West Khasi Hills and Ribhoi district of Meghalaya where every 200-300 pigs, one represent Burmese black pig.

Production system

The detailed study of different management practices viz. housing/rearing pattern, feeding, rearing, herd structure of Burmese black pig are presented in Table 2. The present study revealed that Burmese black pigs are mostly reared by backyard earthen floor housing system (55.38%) followed by backyard deep litter housing system (19.52%). Pig reared in backyard production system is the most common rearing

Table 1: Description of Morphometric, Reproductive and bristle traits under study.

| Traits | Description |
|--|---|
| Body length (cm) | Distance from the occipital bone (midpoint between ears) to the base of the tail. |
| Height at withers (cm) | Distance from the ground surface to the top of shoulder. |
| Heart girth (cm) | Circumference of the chest behind the elbow joint |
| Neck girth (cm) | Circumference of the neck region. |
| Age at first heat (days) | Numbers of days from date of birth to the date of first cycle. |
| Age at first conception (days) | Numbers of days from date of birth to the date of first fertile service. |
| Age at first farrowing (days) | Numbers of days from date of birth to the date of first piglet born. |
| Gestation period (days) | Numbers of days from the date of conception to the date of farrowing. |
| Inter farrowing interval (days) | Periods between two consecutive successful farrowing. |
| Litter size at birth (nos) | Number of piglet born alive in a single farrowing. |
| Litter size at weaning (nos) | Numbers of live piglets weaned in a litter. |
| Litter weight at birth (kg) | Total birth weight of all the piglets born alive in a single farrowing. |
| Bristle yield (g) | Amount of bristle obtain from an adult pig from a single cut. |
| Bristle density (fiber/cm ²) | Total number of bristle fiber present in 1 cm ² body surface area. |
| Bristle length (cm) | Length from the base to the tip of the bristle. |
| Bristle diameter (micron) | Circumference of the bristle measured by projection microscope. |

Table 2: Evaluation of existing production system of Burmese black pigs in their native tract.

| Housing | | Herd size | | Feeding | Preference farmers (%) | Purpose of rearing |
|--------------------------------|--|-----------------|--------|--|------------------------|-------------------------------------|
| Housing system | Housing material | Average | Range | | | |
| Backyard earthen floor housing | Bamboo pole and wooden flank with earthen floor | 3.27±0.12 (139) | 1 to 5 | Locally available grain, vegetables, agro-byproduct and kitchen wastes. | 55.38 | Fattening 87.77% Breeding 12.23% |
| Backyard deep Litter housing | Bamboo pole and wooden flank with earthen floor covered with bedding material (Jungle grass) | 2.78±0.33 (49) | 1 to 4 | | | |
| Girth Tethering system | No specific housing | 1.44±0.08 (09) | 1 to 2 | | 3.59 | Fattening 100% |
| Slatted floor housing system | Elevated Slated floor house made up with bamboo pole and wooden flank | 3.11±0.42 (36) | 2 to 4 | Locally available agro byproduct, vegetables and reasonable amount of balance concentrate feed | 14.34 | Fattening 69.44% Breeding 30.56% |
| Concrete floor housing system | Concrete house with recommended floor space | 5.72±0.46 (18) | 2-12 | Locally available grains, vegetables and balance concentrate feed | 7.17 | Fattening 55.56% Breeding 44.44% |
| Total | | 3.26±0.34 (251) | | | 100 | Fattening 82.47% Breeding 17.53% |

practice for indigenous pig in north eastern region has been already reported (Kadirvel *et al.*, 2013). In backyard system, the housing was made up of locally available materials, wooden flank and bamboo pole with earthen floor. Similar type of housing pattern was also used for rearing of Bareilly desi pig (Boro *et al.*, 2018; Kadirvel *et al.*, 2013). However, in deep litter housing the earthen floor was covered with jungle grass or thatch as bedding materials to protect the animal from cold. This type of deep litter housing was common in Meghalaya and some parts of Nagaland. Slatted floor housing was found in Mizoram where pigs are reared in elevated floor made up with wooden flank. 14.34% farmers reared Burmese pig using slatted floor housing model. Rearing of pig in intensive system with elevated floor housing is a common practice in Mizoram (Rahman *et al.*, 2008). Only 7.17% farmers reared Burmese pig by concrete floor housing model with recommended floor space. Though girth tethering system of management is uncommon in pigs but still 3.59% farmers practices this system for rearing of this pigs. No specific housing was provided to the pigs reared in girth tethering system. Rearing pig by girth tethering system in Bareilly desi pigs (Boro *et al.*, 2018) and native pig of Bangladesh (Ritchil *et al.*, 2013) has already been reported in small holder production. The average herd size of Burmese black pigs was 3.26±0.34. The herd size ranges from 1 to 5 in backyard earthen housing, 1 to 4 in backyard deep litter housing, 2 to 4 slatted floor housing, 2 to 12 concrete floor housing and 1 to 2 girth tethering system. Herd size in backyard and girth tethering and slatted housing system was found to be small as marginal and small farmers prefer these systems. However, wide range of herd size was observed in concrete floor housing system. Concrete type of housing was mostly preferred by medium and large farmers. The present study revealed that 82.47% farmers reared Burmese black pigs for fattening purpose and remaining 17.53% farmers reared for breeding pig production. Among the different rearing system, Fattening pig production was highest in girth tethering system (100%) and lowest in intensive concrete housing system (55.56%). Majority of the farmer reared Burmese pigs for fattening purpose which is similar with other indigenous pigs of this region as reported earlier (Kadirvel *et al.*, 2013). Preference of the farmers in fattening pig production might be due to lack of availability and higher maintenance of cost of high quality breeding boar. The shortage of breeding boar could be due to early castration of male piglets due to high demand of pork in this region.

Physical characteristics and body measurement traits

Burmese black are medium size pigs predominantly black in body coat colour. Sometimes grayish black body coat colour and white patches at extremities are also observed. Medium sized concave dish shaped head, short slightly upward curve snout, well build long body structure with short legs, prominent neck and body of covered with short hair or mostly sparse hair in both male and female are the characteristics of Burmese black pigs. Ears are medium size

Table 3: Body measurement (cm) traits of Burmese black pig at different age group under existing production system.

| Age group | Body length | | Height at withers | | Heart girth | | Neck girth | |
|-----------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------------------|-------------------------------|-------------------------------|
| | Male | Female | Male | Female | Male | female | Male | Female |
| Birth | 21.09± 0.34 (61) | 20.87±0.32 (73) | 14.34±0.25 (61) | 13.96±0.23 (73) | 22.15±0.36 (61) | 21.53±0.37 (73) | 19.03±0.42 (61) | 18.26±0.48 (73) |
| Weaning | 54.62±0.72 (93) | 53.07±0.77 (117) | 37.04±0.44 (93) | 36.16±0.49 (117) | 54.06 ^a ±0.81 (93) | 52.41 ^b ±0.79 (117) | 50.01±0.88 (93) | 48.65±0.68 (117) |
| 6 months | 70.17±1.07 (52) | 69.35±0.96 (67) | 54.37±0.85 (52) | 53.77±0.79 (67) | 72.42 ^a ±0.98 (52) | 67.69 ^b ±0.83 (67) | 65.16 ^c ±0.85 (52) | 61.85 ^b ±0.78 (67) |
| 8 months | 78.94 ^b ±0.91 (36) | 75.29 ^b ±0.86 (47) | 58.95 ^a ±1.67 (36) | 56.20 ^a ±1.51 (47) | 81.09 ^a ±1.55 (36) | 77.21 ^b ±1.66 (47) | 74.19 ^b ±1.04 (36) | 69.02 ^b ±0.85 (47) |
| 10 months | 84.86 ^a ±1.76 (28) | 80.66 ^b ±1.70 (39) | 61.94 ^a ±1.52 (28) | 59.15 ^b ±1.60 (39) | 87.06 ^a ±2.41 (28) | 83.05 ^b ±2.10 (39) | 78.67 ^b ±1.98 (28) | 75.02 ^b ±1.81 (39) |

Means with different superscript differs significantly (P <0.05) Within parentheses are the numbers of observation.

with various orientations according to the age's viz. from birth to weaning it has pricked ears pointed upwards and with the advances of ages ear become projected forward to the head. Top line is almost straight in both sexes; however, it became gradually concave with the advances of age. Burmese pigs have short and straight to slightly convex belly. However, pendulous belly in aged animal especially female were also observed sometimes. The female pigs have 6 to 8 pairs of functional teats spread over the mid ventral line. Both the male and female pigs are docile in behavior. This is the only pig having short and upturned snout with short bristle and docile behavior as compared to other pig breeds of north eastern region of India which are aggressive in nature and having long snout with long bristle (Banik *et al.*, 2016).

The different body measurement traits of Burmese black pig at different age's viz., birth, weaning, 6 months, 8 months and 10 months were presented in Table 3. The average body length and height at withers in male pig were found to be significantly higher ($P < 0.05$) than female in 8 and 10 month of age; however no significant difference ($P < 0.01$) on body length and height at withers between male and female was observed at birth, weaning (3 month) and 6 months of age. Significantly higher ($P < 0.05$) body length and height at withers of adult male than female were also observed in Assam local pigs (Phookan, 2002). The average heart girth and neck girth were found to be significantly higher ($P < 0.05$) in male than female in all age groups except at birth and weaning where there were no significant differences ($P < 0.01$) of heart girth and neck girth between the two sexes. Non-significant ($P < 0.01$) effect of sex at birth and weaning and significant ($P < 0.05$) effect of sex at adult age on heart girth and neck girth were also reported in Suwo pigs (Zaman *et al.*, 2017) and Mizo local pigs (Kalita *et al.*, 2018). The different body measurement traits of Burmese black pigs at different ages were found to be higher than Doom and Niang Megha pig (Kharghari

et al., 2014), Suwo pig (Zaman *et al.*, 2017) and Mizo local pig (Kalita *et al.*, 2018).

Unlike other pig breed of north east India, Burmese black pig have very short and poor quality bristles and bristle yield also very less. The average bristle yield (g), bristle density (no/cm²), bristle length (cm) and diameter (micron) of adult Burmese black pig were 44.62 ± 2.98 , 8.22 ± 0.57 , 4.28 ± 0.51 and 269.80 ± 10.12 respectively (Table 4). Male pig has significantly higher values for different bristle traits than female except for bristle length where no significant effect of sex was observed. Bristle yield, density, length and diameter of Burmese black pig were lower than Doom pig (Banik *et al.*, 2016) and Hampshire X Ghungroo pig (Mohan *et al.*, 2015).

Productive performances

The average body weight of Burmese black pigs at birth, weaning (3 month), 6 month, 8 month and 10 month of age were 0.89 ± 0.06 , 14.67 ± 0.26 , 44.89 ± 0.88 , 66.27 ± 1.12 and 79.76 ± 1.97 kg respectively (Table 5). The birth and weaning weight of Burmese pigs is comparable with Jharkhand desi pig (Pandey *et al.*, 1997) and Bareilly desi pig (Boro *et al.*, 2016). However, from 6 months onwards this pig showed higher body weight than desi pig of Jharkhand and Bareilly. Body weight at different age group of Burmese pigs were found to be higher than other indigenous pig breeds viz. Desi pig of Jabalpur (Lakhani and Bhadouria, 1991), Doom and Niang Megha (Kharghari *et al.*, 2014), Mali (Dandapat *et al.*, 2010), Suwo (Zaman *et al.*, 2017) and Mizo local (Kalita *et al.*, 2018) pigs. In the present study, male pigs showed significantly ($P < 0.05$) higher body weight for different age group except at birth where no significant difference ($P < 0.01$) between male and female was observed which was comparable with Khasi local pig (Bhowal, 1997). The pre and post weaning growth rate (g/day) were found to be 155.53 ± 4.11 and 313.52 ± 7.54 respectively (Table 4).

Table 4: Bristle characteristics of adult Burmese black pig.

| Bristle traits | Male (n=23) | Female (n=23) | Average (n=46) |
|---------------------------------|-----------------------------|-----------------------------|----------------|
| Bristle yield(g) /cutting | 50.50 ^a ± 3.45 | 38.74 ^b ± 3.45 | 44.62 ± 2.98 |
| Bristle density/cm ² | 08.83 ^a ± 0.98 | 07.61 ^b ± 0.33 | 8.22 ± 0.57 |
| Bristle Length (cm) | 4.40 ± 0.53 | 4.15 ± 0.62 | 4.28 ± 0.51 |
| Bristle diameter (micron) | 288.76 ^a ± 11.30 | 250.83 ^b ± 12.78 | 269.80 ± 10.12 |

Means with different superscript differs significantly ($P < 0.05$); Within parentheses are the numbers of observation.

Table 5: Body weight (kg) at different ages and growth rate (g/day) of Burmese black pig under field condition.

| Age Group | Male | Female | Average |
|--------------------------|--------------------------------|---------------------------------|--------------------|
| Birth | 0.91 ± 0.08 (61) | 0.87 ± 0.05 (73) | 0.89 ± 0.06 (134) |
| Weaning | 15.10 ^a ± 0.32 (93) | 14.33 ^b ± 0.25 (117) | 14.67 ± 0.26 (210) |
| 6 Months | 46.16 ^a ± 0.96 (52) | 43.90 ^b ± 1.01 (67) | 44.89 ± 0.88 (119) |
| 8 Months | 68.17 ^a ± 1.74 (36) | 64.82 ^b ± 1.52 (47) | 66.27± 1.12 (83) |
| 10 Months | 82.33 ^a ± 2.04 (28) | 77.92 ^b ± 2.20 (39) | 79.76 ± 1.97(67) |
| Pre weaning growth rate | 161.67 ± 5.57 (17) | 150.56 ± 4.35(21) | 155.53 ± 4.11(38) |
| Post weaning growth rate | 325.14± 8.12 (09) | 304.81± 8.33 (12) | 313.52 ± 7.54 (21) |

Means with different superscript differs significantly ($P < 0.05$); Within parentheses are the numbers of observation.

Table 6: Reproductive performance of Burmese black pigs under field condition.

| Reproductive Parameters | Mean \pm SE |
|---------------------------------|------------------------|
| Age at first heat (days) | 220.32 \pm 23.61(60) |
| Age at first conception (days) | 248.43 \pm 20.96(57) |
| Age at first farrowing (days) | 365.00 \pm 20.75(53) |
| Gestation period (days) | 116.57 \pm 1.78(53) |
| Inter farrowing interval (days) | 191.80 \pm 6.72(38) |
| Litter size at birth (no) | 10.76 \pm 0.87(53) |
| Litter size at weaning (no) | 8.86 \pm 0.61(53) |
| Litter weight at birth (kg) | 9.57 \pm 1.01(53) |

Both pre and post weaning growth rate were significantly ($P < 0.05$) higher in male than female under study.

Reproductive performance

The average Age at first heat, Age at first conception, Age at first farrowing and Gestation period of Burmese black pigs were 220.32 \pm 23.61, 220.32 \pm 23.61, 365.00 \pm 20.75, 116.57 \pm 1.78 days respectively in the present study (Table 6). Age at first heat, age at first conception and age at first farrowing and were found to be comparable with Ghungroo (Gokuldas *et al.*, 2015; Sahoo, 2012), Niang Megha and Doom (Khargharia *et al.*, 2014) pig. However, these values were higher than Mali pig (Dandapat *et al.*, 2010), Naga local pig (Borkotoky *et al.*, 2014) and Votho pigs (Chusi *et al.*, 2016). The inter farrowing interval of Burmese black pig were found to be shorter than Naga local pig (Borkotoky *et al.*, 2014), Votho pig (Chusi *et al.*, 2016) and Mizo local pig (Kumaresan *et al.*, 2007) but comparable with other local pig breed of north east India (Zaman *et al.*, 2014). The average litter size at birth and weaning were found to be 10.76 \pm 0.87 and 8.86 \pm 0.61 which resembles to Ghungroo pig. By comparing the different body measurement, growth and reproductive traits from the available literature (Dandapat *et al.*, 2010; Khargharia *et al.*, 2014; Phookan, 2002; Bhowal, 1997; Zaman *et al.*, 2014; Zaman *et al.*, 2017) it was observed that Burmese black pigs has larger body size, higher growth rate and higher litter performance than the other indigenous pigs of north eastern region.

To access the market demand of the Burmese black pig, we have visited meat shop and interviewed the butchers from different market and it was observed the market price of per kg Burmese black pork was INR 280.00 which was similar to other indigenous pigs of this region. However, this price was higher than crossbred and exotic pigs. Higher demand of pork from this animal was due higher back fat and abdominal fat than the crossbred and exotic pigs which often increases the acceptability and demand of the pork because the consumer of this region preferred fatty meat rather than the lean meat.

CONCLUSION

These pigs are having larger body size with high productive and reproductive performance under low input backyard

production system in the hill ecosystem. Short leg and upturned snout with prominent neck are the unique features of this pig which makes them distinguished from other pig breeds of the region. Since this pig population is declining due to unrestricted crossbreeding, conservation of this pig under field condition is highly warranted. Therefore, the present study on Burmese black pig may serve as vital information for documentation and registration as a breed which will be useful to adopt suitable breeding policy and future conservation strategies.

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Conflict of Interest Declaration

The authors declare that there is no conflict of interest for this study.

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