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Productive and Reproductive Perfomances of Local pigs of Bareilly District Under Scavenging System

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ABSTRACT

Present study was conducted in Bareilly district of Uttar Pradesh to assess the productive and reproductive performances of Local pigs. Various traits of Local pigs were recorded using a relevant proforma. The mean age at puberty in male and female Local pigs was found to be 6.36±0.11 months and 7.27±0.11 months, respectively while, age at sexual maturity was found to be 7.54±0.14 months and 8.55±0.11 in male and female Local pig, respectively. The average age at first farrowing, farrowing interval, gestation period, piglet weight at birth, litter size, litter weight at birth and piglet mortality were found to be 12.16±0.13 months, 7.10±0.30 months, 113.67±0.17 days, 0.85±0.03 kg, 6.85±0.16, 5.83±0.18 and 25.15±0.79 %, respectively. These recorded traits are useful to characterize Local pigs of Bareilly district and also in the selection of breeding stock for future parents.

Keywords: Breeding stock, local pigs, productive, reproductive, performances

Pig rearing is one of the most important occupation of rural poor and socially weaker sections of the society. It directly influences their socio-economic status as it serve as an insurance coverage. Besides, it also generates easy employment opportunity to the educated unemployed youth. Majority of pig in India belongs to non-descript class. However, they show diverse and positive productive and reproductive performances, which indicate their potential for improvement. Unfortunately, studies on assessment of productive and reproductive performances of pig breeds in different parts of India are scanty. There has been no thorough investigation carried out to evaluate the performance of indigenous pig in spite 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). Therefore, it is important to evaluate the potentiality of these indigenous pigs. These Local pigs are very much suitable to the small pig farmers with low input production system for livelihood and sustainable pig farming. The evaluation of productive and reproductive parameters of such Local pigs will be useful in the selection of breeding stock for future parents. There has been no thorough investigation carried out previously to study productive and reproductive performances of Local pig of Bareilly District (Uttar Pradesh). Hence, keeping in mind the above facts, the present study was carried out to elucidate productive and reproductive attributes of Local pigs of Bareilly (U.P.).

MATERIALS AND METHODS

The present investigation was undertaken in six tehsils (namely Bareilly, Nawabganj, Aonla, Faridpur, Baheri and Meerganj) of Bareilly district, Uttar Pradesh, India to evaluate the productive and reproductive attributes of Local pigs. Bareilly District is located at 28°10′N

Latitude and 78°23′E Longitude and situated at 568 feet above mean sea level. A total of 148 piggery farmers from aforementioned six tehsils were selected based on the presence of pig population and interviewed pertaining to the objective of the study. Information on productive and reproductive performances of these local pigs was recorded from each farmer and then evaluated. These Local pigs are 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. Data were collected from field level investigations on productive and reproductive traits of these pigs Productive performances like individual piglet weight, litter-size at birth, litter weight at birth and mortality pattern were evaluated. Reproductive traits such as age of puberty, age at maturity, age at first farrowing, farrowing interval, gestation period were recorded based on information provided by the responding farmers through standard questionnaires.

The data was analysed to obtain descriptive statistics of various productive and reproductive traits using SPSS software.

RESULTS AND DISCUSSION

The age at puberty of local pig of Bareilly district was found to be 6.36±0.11 months and 7.27±0.11 months in male and female, respectively. It varies from 6-7 months and 7-8 months in male and female, respectively. Similarly, age at first heat in Ghungroo and Niang-Megha pigs was reported to be 190.38± 4.38 days and 210.5± 2.42 days, respectively (Sahoo *et al*., 2012). However, Gokuldas *et al*. (2015) reported a little higher age at puberty as 7.8±0.41 months, 9.85±1.08 months and 7.86±0.17 months for Ghungroo, Niang Megha and crossbred pigs, respectively. Puberty in nondescript local pigs of Mizoram was reported as early as two months of age (Kumaresan *et al*., 2008; Kato and Harayama, 1990; Lunstra *et al*., 1992). Therefore, age at puberty in Local pigs of Bareilly was intermediate than other Indian reports.

The age at sexual maturity of Local pigs of Bareilly district in male and female was found to be 7.54±0.14 and 8.55±0.11 months, respectively. Lower age at sexual maturity than the present study was also reported by Borkotoky *et al*. (2014) and Hossain *et al.* (2011) in male Naga local and Bangladeshi pigs. Higher age at sexual maturity than the present study was reported by Gokuldas *et al*. (2015) and Sahoo *et al*. (2012), in Ghungroo and Niang Megha pigs. The age of sexual maturity in indigenous male and female pigs varies from 3-4 months (Wang, 1990; Harayama *et al*., 1991; Kumaresan *et al*., 2008) and 8-10 months, respectively. Kumaresan *et al*. (2008) reported that the nondescript local male pigs of Mizoram could mate and impregnate the females as early as 108.8±8.0 days of age. The early sexual maturity in male was attributed to faster testicular growth in nondescript local pigs compared to crossbred (Rohilla *et al*., 2000; Kumaresan *et al*., 2006). The variation in age of sexual maturity in local pig of different regions of India may be attributed to genetical and non genetical factors. Differences in their level of nutrition, social environment, body weight, season of the year, breed, disease, parasitic infestation and other managemental practices might bring out the differences in sexual maturity in local pig.

Table 1: Reproductive traits of Local pigs of Bareilly district

Reproductive Parameters	Overall Mean±SE	Range
Age at puberty in male (months)	6.36±0.11	6-7
Age at puberty in female (months)	7.27±0.11	7-8
Age of sexual maturity in male (months)	7.54±0.14	7-8
Age of sexual maturity in female (months)	8.55±0.11	8-9
Estrus cycle length (days)	21.57±0.11	21-24
Estrus duration (hrs)	60.26±2.20	48-72
Age at first farrowing (months)	12.16±0.13	10-12
Farrowing Interval (months)	7.10±0.30	5-8
Gestation Period (days)	113.67±0.17	111-115
Service period (days)	84.22±0.60	80-90
Life time no. of farrowing (no.)	6.77±0.19	5-6
Average productive life span (years)	5.5±0.21	3-6

The average age at first farrowing of these Local pig of Bareilly district was found to be 12.16±0.13 months (Table 1). It ranges from 10-12 months. The present finding corresponds to the findings of Borkotoky *et al*. (2014) and Kumaresan *et al.* (2015) in local pigs of Nagaland and Mizoram. Comparatively higher age at first farrowing reported by Chauhan *et al.* (1994) and lower age at first farrowing than this study was reported by Bendanganger *et al.* (2008). The lowest age at first farrowing was reported

by Subalini *et al.* (2010) on village pig in Sri Lanka as 9.50 ± 2.61 months. Ritchil (2014) also found a moderate age at first farrowing as 10.43±0.08 months in Bangladeshi desi pig.

The average farrowing interval of Local pigs of Bareilly district was found to be 7.10±0.30 months. It corresponds to the findings of Gokuldas *et al.* (2015) (in Ghungroo pig) and Khargharia *et al.* (2014) (in Dome pig). Lower farrowing interval than the present finding has been reported in Niang Megha, Bangladesh local pig, Sikkim local pig, Mali pig and Khasi local pig (Khargharia *et al*., 2014; Ritchil *et al*., 2014; Nath *et al*., 2013; Bujarburuah, 2006; Sahoo *et al*., 2012). But, little higher reports has also been reported in Naga local pig, Sri Lanka village pig and Non-descript pig of Mizoram (Borkotoky *et al*., 2014; Subalini *et al*., 2010; Kumaresan *et al*., 2007).

Table 2: Production traits of Local pig of Bareilly district

Production Parameters	Overall mean±SE	Range
Piglet weight at birth (kg)	0.85±0.03	0.5-0.9
Piglet weight after natural weaning (kg)	13.59±0.27	13-16
Litter size at birth (no.)	6.85±0.16	5-8
Litter size at natural weaning (no.)	5.65±0.21	4-6
litter weight at birth (no.)	5.83±0.18	4-10
Piglet mortality (%)	25.15±0.79	25-30%

The average gestation period in the present study was found to be 113.67±0.17 days. Our results corresponds with several researchers who reported gestation period in local pigs of India in range of 112 to 115 days (Gokuldas *et al*., 2015; Rajiv and Pandey, 2000; Khargharia *et al*., 2014; Ritchil *et al*., 2014, Nath *et al*., 2013; Dandapat *et al*., 2010).

The average service period (SP) in this local pig was found to be 84.22±0.60 days. It ranged from 80-90 days. However, service period in Ghungroo and Niang-Megha pigs was found lower than present results (Sahoo *et al.*, 2012). Life time number of farrowings and average productive life span in this local pig was found to be 6.77±0.19 (range 5-6) and 5.5±0.21 years (range 3-6 years), respectively. These results are comparable with reports of Sahoo *et al.* (2012) in Ghungroo and Niang-Megha pigs.

The average piglet weight at birth of Local pig of Bareilly district was found to be 0.85±0.03 kg (Table 2). It varies from 0.5 to 0.9 kg. It is comparable with Mizoram non-descript local pig (Kumaresan *et al*., 2007) and higher than reported in Sikkim local pig, Khasi Local pig and Niang Megha pig (Nath *et al*., 2013; Bujarbaruah, 2006; Sahoo *et al*., 2012). However, higher birth weight (0.96 kg) was reported by Sahoo *et al*. (2012) in Ghungroo pig.

The average litter size of Local pig of Bareilly district was found to be 6.85±0.16. It varies from 4 to10 in numbers. Our result showed that Bareilly local pigs have higher litter size compared to Nagaland (NLP), Niang-Megha, Sikkim local pig, Tripura (Mali), Khasi local pig (Borkotoky *et al*., 2014; Sahoo *et al*., 2012; Nath *et al*., 2013; Bujarburuah, 2006; Bendanganger *et al.*, 2008). Similar litter size with Bareilly local pigs was reported in Bangladesh, Sri Lanka and Haryana local pigs (Ritchil *et al*., 2014; Subalini *et al*., 2010; Prakash *et al.*, 2008). However, higher litter size than this local pig were also reported in Ghungroo, nondescript local pigs of Mizoram and large black pig in Assam (Gokuldas *et al*., 2015; Sahoo *et al*., 2012; Dandapat *et al*., 2010). Factors like type of pigs, management practices, mortality rate and prevelance of climatic condition might be the reasons for this variation.

The average litter weight at birth in the present study was found to be 5.83±0.18 kg. It varies from 4-10 kg in this local pig. Litter weight in this Bareilly local pig is higher than reported in Niang-Megha and Mizoram local pig (Kumaresan *et al*., 2007; Sahoo *et al.*, 2012). But, it is lower than reported by Nath *et al*. (2013) and Sahoo *et al.* (2012) in Ghungroo pig.

The average piglet mortality in the present study was found to be 25.15±0.79 %. It varies from 25-30%. The piglet mortality in this pig is lower as compared to purebred and crossbred pigs. Gokuldas *et al*. (2015) found that the average pre-weaning mortality to be significantly lower in crossbreds with Hampshire-local crosses having the lowest rate as 2.94%, Ghungroo-14.94% and Niang Megha 14.28%. Kumaresan *et al*. (2007) also reported preweaning mortality as 29.73 % in nondescript local pig of Mizoram.

CONCLUSION

Despite the several constraints, Local pig of Bareilly district is performing better in scavenging system. Productive and reproductive traits of these local pigs are

found comparable with other Indian pig breeds. Therefore, they have the immense potential to be developed in order to contribute livelihood and sustainable pig farming. Presently, these local pig breeds are on the path of extinction. So, its multiplication has to be taken care off through proper breeding strategies. In this context, the production and reproduction attributes are to given special attention during selection. Productive and reproductive analyses will be very useful in the selection of breeding stock for future parents and as important steps towards conservation measures for Local pigs of Bareilly district.

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