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Performance of Ghungroo and Ghungroo × Hampshire pigs under low input production system in climatic condition of Garo hills of Meghalaya

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Ghungroo, an indigenous pig to Terai zone of West Bengal state of India is well known for its high prolificacy and adaptability to low input production system. It is also available in foot hills of Nepal adjoining Darjeeling district of West Bengal. This pig has already made in road to North East (NE) region of India for its high prolificacy and adaptability under low input system. It is black in colour with broad, flattened face and short, upwardly curved snout. In the breeding tract, they are maintained under scavenging system and mainly act as insurance to the rain-fed agriculture. Ghungroo pig is now well adopted in agro-climatic conditions of Asom (Pourouchottamane *et al*. 2013) and reported to be as climate resilient breed. But yet its suitability to the Garo hills region of Meghalaya has not been evaluated. Therefore, the present study was aimed to evaluate the performance of Ghungroo and its crosses with Hampshire pigs under low input production system in agro-climatic conditions of Garo hills of Meghalaya.

The study was conducted for a period of three years (2011 to 2014) in Marapara and Rongbokgre village under Dalu block of West Garo hills district in Meghalaya of NE region. Both the villages have warm, humid and moderate subtropical climatic condition. The temperatures of the study area range from 21.2 to 34.18ºC in summer and 11.25 to 21.40ºC in winter with an average rainfall of 4,003 mm. A total of 60 pigs comprising 10 male and 10 female pigs of each Ghungroo (GH), Ghungroo × Hampshire (GH × HS) and nondescript local breed reared by 30 different farmers in the two selected villages under low input production system were taken into observation. Piglets of Ghungroo and Ghungroo × Hampshire of 3–4 months were procured from ICAR-National Research Centre on Pig, Rani, Guwahati (Asom). The farmers were selected randomly. There was no history of cross-breeding in the nondescript local pigs under the study. All the experimental pigs were maintained with low input intensive system by the selected farmers. Pigs shed were constructed with locally available materials and they were fed with locally available feed/plants. All the pigs were monitored for their health status regularly. The data were analyzed using one way ANOVA (Snedecor and Cochram 1994).

Table 1. Performance indices of the three varieties of pigs

Parameter	Ghungroo (GH)	Ghungroo × Hampshire (GH×HS)	Nondescript local
Age at sexual maturity (months)	9.45±0.17^{b}	10.60±0.14^{c}	7.95±0.11^{a}
Age at first farrowing (months)	14.7±0.26^{b}	15.3±0.39^{b}	12.2±0.48^{a}
Litter size at birth	9.60±0.30^{b}	9.1±0.17^{b}	5.7±0.30^{a}
Litter size at weaning	8.4±0.27^{b}	8.6±0.27^{b}	4.6±0.31^{a}
Litter weight at birth (kg)	8.36±0.16^{b}	8.93 ±0.14^{c}	5.23±0.17^{a}
Litter weight at weaning (kg)	55.96±1.84^{b}	64.35±2.28^{c}	25.99±1.48^{a}
Body weight at 6 months (kg)	34.28±0.59^{b}	48.91±0.55^{c}	21.52±0.36^{a}
Body weight at 9 months (kg)	44.21±0.97^{b}	65.30±1.37^{c}	36.67±0.88^{a}
Farrowing interval (days)	210.90±3.57^{b}	196.00±3.05^{b}	280.30±6.36^{a}
Number of farrowing per year	1.73±0.02^{b}	1.86±0.02^{b}	1.30±0.02^{a}

Means bearing different superscript (a,b,c) within the row differ significantly (P<0.05).

The various parameters such as age at sexual maturity, age at first farrowing, litter size at birth and weaning, litter weight at birth and weaning, body weight of the pigs at 6th and 9th month of age, farrowing interval and their

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measurements are furnished in Table 1.

The age at sexual maturity in Ghungroo (GH), Ghungroo × Hampshire (GH×HS) and nondescript local females were 9.45±0.17, 10.60±0.14 and 7.95±0.11 months respectively. It was observed that the age at sexual maturity was significantly (P<0.05) higher in GH and GH × HS than nondescript local pigs. Chaurasia (2013) and Borkotoky *et al.* (2014) reported similar findings in Ghungroo and local pigs, respectively. It was also observed that the age at first farrowing was significantly (P<0.05) higher in GH (14.7±0.26 months) and GH × HS (15.3±0.39 months) than nondescript local pigs (12.2±0.48 months). Kumaresan *et al.* (2007) and Borkotoky *et al.* (2014) found the similar observations to the age at first farrowing in local pigs. The litter size at birth was significantly (P<0.05) higher in Ghungroo (9.60.3±0.30) than nondescript local pigs (5.70±0.30) but not significantly different from Ghungroo × Hampshire (9.10±0.17). Similar findings with higher litter size at birth in Ghungroo pigs were reported by earlier studies (Khan *et al*. 2010, Pourouchottamane *et al*. 2013). The litter size at weaning in the present study was recorded as 8.6±0.27, 8.4±0.27 and 4.6±0.31 in Ghungroo × Hampshire pigs, Ghungroo and nondescript local pigs, respectively. The litter weight at birth and at weaning was recorded highest for Ghungroo × Hampshire (8.93±0.14 kg and 64.35±2.28 kg) followed by Ghungroo (8.36±0.16 kg and 55.96±1.84 kg) and nondescript local pigs (5.23±0.17 kg and 25.99±1.48 kg). Pourouchottamane *et al*. (2013) reported similar observations with the present findings in case of Ghungroo (8.758±0.542 kg and 46.83±3.597kg) pigs. Kaushik *et al.* (2013) reported higher birth weight of GH × HS pigs in organised farm. There was significant (P<0.05) difference in body weight at 6 months and 9 months of age in Ghungroo (34.28±0.59 kg and 44.21±0.97 kg), Ghungroo × Hampshire (48.91±0.55 kg and 65.30±1.37 kg) and nondescript local (21.52±0.36 kg and 36.67±0.88 kg). Pankaj *et al*. (2013) reported higher body weight gain in Ghungroo pigs at 6 months of age in organized farm. Kumaresan *et al.* (2007) reported similar observations in nondescript local pigs with the present study. Farrowing interval was significantly (P<0.05) higher in nondescript local pigs (280.30±6.36 days) than Ghungroo (210.90±3.57 days) and Ghungroo × Hampshire (196.00±3.05 days). Borkotoky *et al.* (2014) recorded higher farrowing interval in local pigs of Nagaland. The number of farrowing per year was highest in Ghungroo × Hampshire (1.86±0.02) which was significantly (P<0.05) different from nondescript local (1.30±0.02) but not significantly different from Ghungroo pigs (1.73±0.02).

SUMMARY

The results from the present study revealed that average age at sexual maturity was significantly higher in Ghungroo and Ghungroo × Hampshire female pigs than nondescript local pigs. The average age at first farrowing was significantly higher in Ghungroo and Ghungroo × Hampshire pigs than nondescript local pigs. The litter size at birth was significantly higher in Ghungroo than nondescript local pigs but not significantly different from Ghungroo × Hampshire. The litter size at weaning was 8.6±0.27, 8.4±0.27 and 4.6±0.31 in Ghungroo × Hampshire pigs, Ghungroo and nondescript local pigs, respectively. The litter weight at birth and at weaning was recorded highest for Ghungroo × Hampshire followed by Ghungroo and nondescript local pigs. There was significant difference in body weight at 6 and 9 months of age in Ghungroo, Ghungroo × Hampshire and nondescript local. Farrowing interval was significantly higher in nondescript local pigs than Ghungroo and Ghungroo × Hampshire. The findings of the present study indicated that Ghungroo and Ghungroo-Hampshire crossbred pigs can perform better in terms of production potential and adaptability even on existing low input rearing systems in climatic condition of Garo hills of Meghalaya.

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