



## Productivity Assessment of Different Genetic Groups of Pigs in Manipur

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### ABSTRACT

The purpose of the study was to evaluate the performance of two different genetic groups of pigs that were subjected to the identical agro-environmental conditions. A total of sixteen piglets of three months age were distributed evenly across four business. The pigs were raised in a rigorous manner, with approximately sixty percent of their diet coming from local sources and the remaining forty percent being a supplementary concentrate mix. Regular monthly measurements of body weight were recorded, together with information regarding the age at which the animal reached sexual maturity, the first time the animal gave birth, the number of offspring in each litter, the weights of the newborns, and the time at which they were weaned. Both the age at which the first farrowing occurred (AFF) and the weight of the litter at the time of weaning were shown to be significantly influenced by the genetic group. A comparison was made between the weaning litter weight of the graded Hampshire pigs, which was  $82.60 \pm 2.77$  kg, and the weaning litter weight of the graded Large White Yorkshire (LWY) pigs, which was  $76.40 \pm 3.96$  kg. The Hampshire pigs came out with a higher weight. Furthermore, it was worth noting that the Hampshire pigs exhibited a reduced average finishing age (AFF) amounting to  $375.80 \pm 4.87$  d, in contrast to the graded LWY pigs, who exhibited an AFF of  $395.60 \pm 6.12$  d. Hampshire pigs consistently got higher scores, despite the fact that there were no significant differences identified in other economic factors. When compared to LWY pigs, the results reveal that Hampshire pigs have greater performance under village management conditions. In order to improve the non-descript desi pig population in the state, Hampshire boars are recommended as a means of increasing the population.

**Key Words:** Body weight, Genetic factors, Hampshire, Large White Yorkshire.

### INTRODUCTION

Pig farming in Manipur is an important contributor to the growth of the rural economy since it ensures that families have access to enough nutrition and generates additional income for businesses. This is especially beneficial for women who are interested in farming, as well as for agricultural labourers, small and marginal farmers, and other agricultural workers (Singh *et al*, 2019). Animal protein can be obtained from pork in a manner that is both economical and effective. According to Park *et al* (2017), pigs have a high dressing %, a short generation interval, rapid growth rates, cheap maintenance costs, and

the ability to use unconventional feedstuffs. Pigs also have an outstanding feed conversion efficiency. There are around two to three pigs that are raised in the backyards of almost every tribal home in Manipur and other Northeastern states. It is not possible for the state to produce enough pork to satisfy the demand, despite the fact that there is a substantial number of pigs and a big interest in pig farming. In the local pig production system, the primary emphasis is placed on subsistence, the system is dependent on local resources, and it is defined by traditional practices that revolve around the feeding of unremarkable pigs with local vegetables, crop leftovers, and rubbish from

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the kitchen. When it comes to pork, consumers in this region have a penchant for meat that is obtained from black-colored pigs, who are generally uninteresting and exhibit substandard development and reproductive capacities, in addition to wasting feed. Efforts to increase pig production in the state are hampered by the limited availability of high-quality animals in the state. In light of this, the primary objective of this study was to improve the local pig breeds by means of crossbreeding with Hampshire or Large White Yorkshire pigs. The purpose of this study was to evaluate the growth and production capacities of these pig breeds under conditions of rural management.

### MATERIALS AND METHODS

Two distinct genetic groups of pigs were compared in order to accomplish the purpose of this study, which was to evaluate alternative breeding strategies for the purpose of increasing the amount of pigs produced in the state. Within the scope of the research, there were a total of sixteen piglets, with each of the two groups consisting of eight piglets in an equal distribution. There were a total of four farmers in the Ziontlang village, which is situated in the Chandel area, who were given piglets that were approximately three months old. Each farmer received two sets of piglets: one set consisted of a male and a female of the Hampshire breed, while the other set was comprised of a male and a female of the Large White Yorkshire (LWY) breed. Both sets of piglets were given to each individual farmer.

#### Management Practices

Immediately following the distribution of the piglets, each and every one of them was given an anthelmintic drug and inoculated against swine fever. On the other hand, the swine fever vaccine was re-administered one year after the initial vaccination. The pigs were raised in wooden huts under harsh conditions for their whole lives. Pigs were reared in an intense system by the farmers in the village, and they used a variety of management strategies for their pigs. There was approximately sixty percent of these pigs' diet that consisted of feed that was sourced from the immediate area. The following ingredients were added in this feed:

green grasses, vegetable waste, agricultural by-products, kitchen scraps, hotel garbage, fermented rice, colocasia, banana stems and leaves, and pumpkin. Furthermore, approximately forty percent of their diet consisted of extra concentrate feed, which included crushed maize and wheat bran, among other things. When the piglets were eight weeks old, they were taken away from their mother and eventually made the transition to eating solid food. Beginning with the time they were dispersed and continuing until they reached nine months of age, their body weight was assessed on a monthly basis.

### RESULTS AND DISCUSSION

It was observed that the genetic group did not exert a significant influence on weight at different ages, beginning with the initial body weight at three months, which was  $9.86 \pm 0.25$  Kg. These findings were consistent with the findings that Anonymous (2014) obtained from their research on the hybridization of Hampshire and Ghungharoo pigs. The results were consistent with the findings of Kumaresan *et al* (2006), who revealed that the starting weights of exotic pigs in Mizoram were  $9.78 \pm 0.48$  Kg. and that the weights of crossbreeds were  $10.44 \pm 0.59$  kg. When Singh and Devi (1997) reported that the values of exotic and diversified crossbred sows were comparable, ranging from  $7.58 \pm 0.20$  to  $10.79 \pm 0.61$  Kg. in terms of their values. Furthermore, Sharma and Singh (1995) made the observation that exotic and crossbred pigs had bigger litter sizes at delivery ranging from  $9.02 \pm 0.75$  to  $10.17 \pm 0.62$ . This was in contrast to desi pigs, which had litter sizes of  $6.92 \pm 0.29$ .

#### Litter size at weaning

The genetic group did not have a statistically significant impact on the size of the litter when the mothers were weaning their young. When comparing the results to those reported by Kumaresan *et al* (2006) for exotic breeds ( $8.33 \pm 0.55$ ) and crossbreeds ( $8.06 \pm 0.66$ ) in Mizoram, we found that the average litter size at weaning for graded Hampshire ( $8.80 \pm 0.37$ ) and graded LWY ( $7.60 \pm 0.51$ ) was comparable. Despite this, Singh *et al* (1989) found that litter sizes decreased during the weaning phase in

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**Table 1. Showing the effect of genetic group on various economic traits of pig.**

Parameter	Genetic group	
	Graded Hampshire	Graded LWY
Weight at 3 <sup>rd</sup> month	17.32±1.46 (8)	16.65±1.52 (8)
Weight at 4 <sup>th</sup> month	28.82±1.81 (8)	24.58±1.69 (8)
Weight at 5 <sup>th</sup> month	36.98±2.15 (8)	34.87±2.08 (8)
Weight at 6 <sup>th</sup> month	48.37±2.81 (8)	45.85±2.33 (8)
Weight at 7 <sup>th</sup> month	58.85±2.94 (8)	56.52±2.59 (8)
Weight at 8 <sup>th</sup> month	69.24±2.17 (8)	67.76±3.20 (8)
Weight at 9 <sup>th</sup> month	81.67±3.72 (8)	78.22±3.15 (8)
<b>Reproductive traits</b>		
ASM (Days)	255.00±4.18	272.20±6.84
AFF (Days)	376.80±4.87	395.60±6.12
Litter size at birth	9.80±0.58	8.20±0.66
Litter size at weaning	8.80±0.37	7.60±0.51
Litter weight at birth (kg)	10.16±0.42	9.02±0.62
Litter weight at weaning (kg)	82.60±2.77	76.40±3.96
Weaning weight (kg)	9.24±0.17	9.06±0.18
Pre-weaning mortality (%)	6.72±2.77	9.68±2.90

Hampshire pigs, with the range of litter sizes falling between 5.51 and 6.02. Sharma and Singh (1995) discovered that exotic breeds, crossbreeds, and desi pigs had reduced litter numbers when they were weaned compared to domestic breeds. The litter sizes for exotic breeds ranged from 6.50±0.30 to 7.13±0.26. For crossbreeds, the litter sizes were 7.70±0.49, and for desi pigs, the litter sizes were 5.20±0.23. As an additional point of interest, Singh and Devi (1997) made the observation that the litter sizes of foreign breeds (6.10±0.45 to 7.55±0.48), crossbreeds (6.00±0.93 to 7.08±0.49), and desi pigs (4.36±0.43 to 5.86±0.50) were smaller at the time of weaning.

### Litter weight at birth

Among the graded Hampshire and LWY pigs, the birth weight was 10.36±0.42 kg for the former and 9.02±0.62 kg for the latter for the former. Neither of the two groups exhibited any discernible differences from one another. The results were in agreement with the findings of Sharma and Singh (1995), who conducted a study in which they discovered that the litter weights at birth for Large White Yorkshire, Tamworth, and crossbreeds were 10.51±0.86 kg, 10.28±0.52 kg,

and 10.09±0.70 kg, respectively. There were no discernible differences found between these weights that were monitored. In spite of this, they observed a significant divergence in the litter weights at birth between Landrace sows, which weighed 13.05±0.37 Kg. and desi sows, which weighed 6.14±0.32 Kg. Singh and Devi (1997) discovered that the genetic group had a significant influence on the weight of litters. When comparing the weight of desi pigs to that of Landrace pigs, the weight ranged from 5.06±0.56 kg to 13.45±0.69 kg.

### CONCLUSION

Pigs that have been bred in Hampshire have shown remarkable performance despite the agroclimatic conditions and intensive management practices that are prevalent in the state. For this reason, it is recommended that Hampshire boars be utilized in order to enhance the nondescript pig population in the rural areas of Manipur. In addition, prior to beginning the process of pig rearing, it is strongly suggested that farmers receive extensive training in the field of scientific pig farming. This program will include the acquisition of high-quality pig genetics, the

management of housing in an efficient manner, the provision of well-balanced feeding, and the implementation of appropriate health care measures in order to guarantee increased profitability in pig farming.

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